

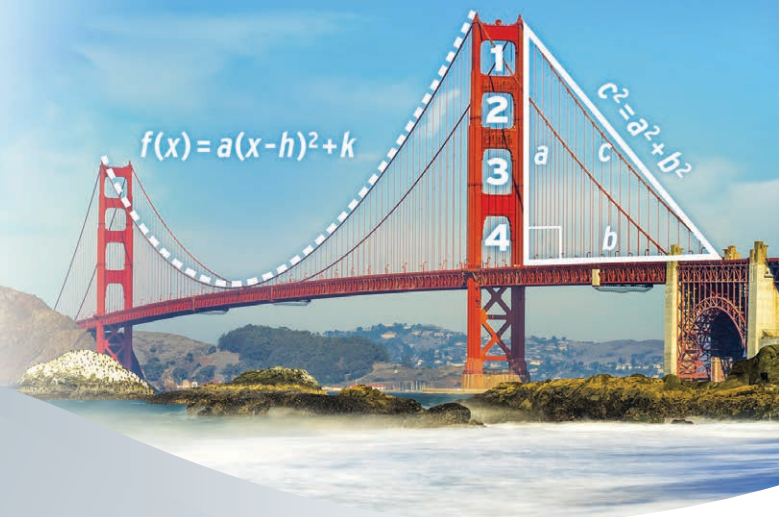


NATIONAL COUNCIL OF  
TEACHERS OF MATHEMATICS

PREMIER MATH EDUCATION EVENT

# 2016 NCTM ANNUAL MEETING & EXPOSITION

April 13-16 • San Francisco



# Program Book



See Valuable  
**COUPONS**  
beginning  
page 205

[nctm.org/annual](http://nctm.org/annual)



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# 2016 NCTM ANNUAL MEETING & EXPOSITION

April 13–16 • San Francisco

## HOST

California Mathematics Council

## MEETING FACILITY

All Annual Meeting presentations will be held at the Moscone Convention Center and the Marriott Marquis. See pages 170–177 for floor plans.

## REGISTRATION

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

## 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

SAN FRANCISCO TRAVEL ASSOCIATION PHOTO



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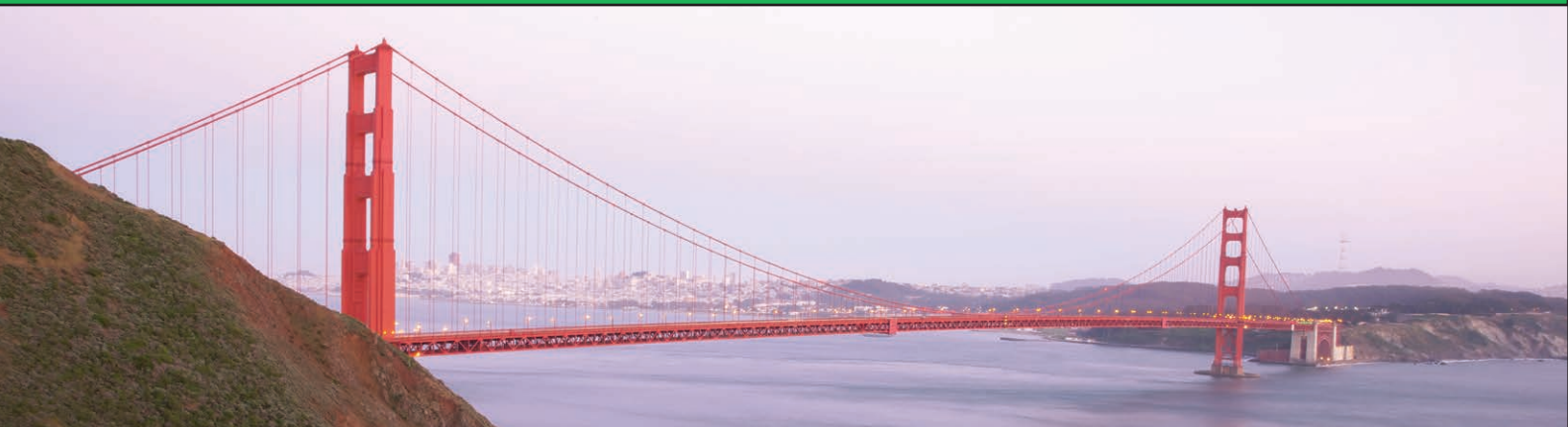
Some speakers on this program have elected to print their e-mail addresses as a means for individual correspondence with conference attendees. NCTM expressly prohibits unsolicited commercial e-mail or unsolicited bulk e-mail, regardless of whether that e-mail is commercial. NCTM does not authorize any use of e-mail addresses beyond personal correspondence.

National Council of Teachers of Mathematics, 1906 Association Drive, Reston, VA 20191-1502; Telephone (703) 620-9840; Fax (703) 476-2970; E-mail [nctm@nctm.org](mailto:nctm@nctm.org); Web [www.nctm.org](http://www.nctm.org).

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# Welcome to San Francisco!



SAN FRANCISCO TRAVEL ASSOCIATION PHOTO

Welcome to the NCTM 2016 Annual Meeting & Exposition—the world’s largest annual meeting for mathematics education, bringing together classroom teachers and school, district and state mathematics education leaders, administrators, mathematics teacher educators, mathematicians, and researchers. You’ll have many opportunities to hear new ideas and approaches that you can take away from the conference to do your part to provide more and better mathematics for all students. We hope you will meet colleagues—both new and familiar—share ideas, and learn new information. The sessions, workshops, bursts, and networking opportunities in the conference will spark your imagination and send you back home eager and energized. Our goal is for you to have the best professional learning experience possible and for you to leave San Francisco with many new ideas, tools, and materials to share with colleagues.

If you are attending your first NCTM Annual Meeting, you’re in for a professional experience unlike any other. 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. For those of you who are veterans of NCTM conferences, you may want to attend the orientation as well, to learn about new, innovative aspects of this year’s conference.

To support our theme of Building a Bridge to Student Success, the Program Committee has been working for two years to make this a diverse program with presentations covering a wide range of topics. You’ll find special

sessions with insights into the implementation and assessment of the Common Core State Standards for Mathematics, sessions on best practices presented by the foremost experts in mathematics education, and you’ll have access to innovation in a variety of settings with new ideas for integrating mathematics into other disciplines in ways that support student learning. And those in their first few years of teaching will want to check out the special New Teacher strand with sessions designed to especially support those who are early in their careers.

The conference doesn’t end when you leave. This is the first NCTM Annual Meeting offering an extended meeting experience, go to [annual.nctm.org](http://annual.nctm.org) to find out how you can extend your conference experience.

A conference this size depends on the work of hundreds of volunteers—many of them at the local level. We want to extend our thanks to all of them.

When the conference day is over, join your colleagues and experience one of the world’s great cities. You’re not far from the many attractions of Fisherman’s Wharf where there are breathtaking views of the bay, the Golden Gate Bridge, and Alcatraz. You can visit the beautiful vistas of Pacific Heights, the artistic riches of the Asian Art Museum and the DeYoung Museum, or regular Thursday night adult-only events at the Exploratorium and the Academy of Sciences. Wherever you go and whatever you do, enjoy your time in San Francisco.



**Diane J. Briars**  
President, National Council  
of Teachers of Mathematics  
Pittsburgh, Pennsylvania



**Desha L. Williams**  
Program Committee Chair,  
Kennesaw State University,  
Kennesaw, Georgia



**Gretchen Muller**  
Host Affiliate Liaison,  
California Mathematics  
Council



**Robert M. Doucette**  
Executive Director,  
National Council of Teachers  
of Mathematics



The NCTM 2016 Annual Meeting & Exposition officially begins with the Opening Keynote, starting at 5:30 p.m. on Wednesday, April 13, in the Esplanade Ballroom at the Moscone Convention Center South Building. Presentations on Thursday, Friday, and Saturday begin at 8:00 a.m. each day and are scheduled concurrently throughout the day at both Moscone Center and the Marriott Marquis 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, silence your cell phone during all presentations.

## Annual Meeting Overview & Orientation

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 how to use the conference app, and network with other attendees.

**Wednesday**

**Presentation #1**

**4:00 p.m.–4:30 p.m.**

**Room 134 (Moscone North)**

**Thursday**

**Presentation #3**

**7:15 a.m.–7:45 a.m.**

**Golden Gate A (Marriott)**

## Reflection Coves

New this year! Highlighted and invited speakers will be assigned coves on the second and third floors of the Moscone West building to continue the conversation from their sessions in an informal setting. You must be present at their sessions to receive information about the reflection times and locations for these speakers. Board members, Affiliate Services Committee members, as well as the President and President-Elect will also spend time in the Reflection Coves discussing topics of interest with attendees—or you can just stop by to say hello or for a photo op. There will also be two Math Teachers' Circle coves, one dedicated to K–8 mathematics and another for 9–16 mathematics.

## Focus Strands

### Building Capacity: Personal and Collective Professional Growth **PCPG**

This strand focuses on stretching yourself as a mathematics professional but also strengthening the profession as a whole. Sessions in this strand will examine topics such as lesson study; professional learning communities, including blogging communities and networking; mathematics knowledge for teachers; enhancing a growth mindset for teachers and students; and growing leaders in the field of mathematics education.

### Instruction and Policies That Promote Equity and Access **E&A**

This strand focuses on instruction and policies that promote equity and access for diverse students as defined by race/ethnicity, gender, ability (e.g., low-performing or gifted), bilingual, disabled, and others. Teaching practices and policies will be highlighted that ensure all students have the opportunity to reason and make sense of mathematics and have multiple career path options upon graduation from high school.

### Next Generation Mathematics for ALL **NGM**

This strand will focus on mathematics for the future—the mathematics that our students need for the jobs and careers of tomorrow, in particular for fields that incorporate the theme of STEAM—and the opportunities and challenges that this poses for K–12 mathematics. Presentations will highlight the increased importance of modeling, statistics, and other areas of mathematics and will suggest recommendations for changes in the K–12 mathematics curriculum as well as the first two years of collegiate mathematics to ensure that all students are prepared for their futures.

### Principles to Actions: Mathematics Teaching Practices and Research **PtA**

The sessions in this strand are aligned to the eight teaching practices from NCTM's landmark publication. Sessions will be organized into broad categories focusing on establishing goals and progressions; discourse and questioning; fluency, understanding, and evidence of thinking; and productive struggle and problem solving. Additionally, several sessions are dedicated to the research supporting the ideas in *Principles to Actions*.

### Promoting Productive Dispositions about Mathematics **PPD**

Sessions in this strand will address a variety of topics related to productive dispositions ranging from a growth (versus fixed) mindset, motivation, productive struggle, and perseverance to asking probing questions, supporting risk-taking, and encouraging students to believe they can and should dig deeper.



# Program Information

## Equity Strand

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

## Hot Topics

Current topics in mathematics education vary based on various factors: economics, current events, and politics, and state, regional, national, and international climate, to name a few. Sessions in this strand will be related to the hot topics in 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.

## NCTM Committee Strand

NCTM committee presentations are identified by the symbol above. For a list of all NCTM committees, please visit [www.nctm.org](http://www.nctm.org).

## New Teacher Strand

The New Teacher 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 entering and just beginning their teaching careers. Learn, network with other new teachers, and get your questions answered. The strand targets early-career teachers and those working on certification; all are welcome.

Start early with the New Teacher Workshop & Kickoff (presentation #48) on Thursday at 8:00 a.m. and finish with the New Teacher Celebration (presentation #511.6) on Friday at 4:15 p.m. for more fun. Visit [www.nctm.org/newteacher](http://www.nctm.org/newteacher) for more information.

## Technology

The sessions in this strand will show how technology can be utilized in the teaching and learning of mathematics.

## Daily News

Start each morning with the NCTM *Daily News*, which will include late-breaking news about the NCTM 2016 Annual Meeting & Exposition, as well as program changes and cancellations. The *Daily News* will be distributed in the lobbies of the Moscone Convention Center and available in the Marriott Marquis.

## 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) represent a common format in which the speaker relates his or her ideas to an audience. The speaker may use audiovisual equipment, technology, and handouts, and sessions may include audience participation. Rooms are set theatre style and vary in size.

**Research Sessions** (60 minutes) emphasize the connection between research and practice, presented in a common format in which the speaker relates his or her ideas to an audience. The speaker may use audiovisual equipment, technology, and handouts, and sessions may include audience participation. Rooms are set theatre style and vary in size.

**Workshops** (75 minutes) have rooms set with round tables for hands-on work. Workshop participants receive print materials and observe the workshop in a fashion similar to that of a classroom observer.

**Bursts** (30 minutes) are concise presentations that focus on a specific topic or idea. The goal is information sharing, conveyed quickly and succinctly. Bursts are not appropriate for hands-on activities, group work, or lengthy topics.

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

## Grade Bands

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

- **Grades Pre-K–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**—applicable to all grades and audiences
- **Research**
- **Exhibitor Workshops**



# Get the Mathletics ADVANTAGE

love learning with

Mathletics

Wednesday

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## Engaging

Rewards and bonuses to appeal to a full classroom of learning styles.

## Targeted content

Targeted courses to meet the requirements of a range of international curricula.

## Dedicated interfaces

Students graduate from one interface to an older, more content-focused, interface – targeting study from Year 8+.

## Mobile-ready

Tablets in the classroom? We've got an app for that.

## Personal and individual

Create personal learning pathways for each student with custom course content and assignments.



DIAGNOSE



DIAGNOSE



TARGET



REPORT



Mathletics

Don't take our word for it.

“...There is a 100 percent likelihood that the schools who use Mathletics achieve higher results than schools that do not.”

**Dr. Tony Stokes**

ACU, 2014



Mathletic achievements from around the world.



Academics'  
Choice Award



e-Learning solution  
of the year



Family Choice  
Award



Early Years /  
Secondary Resource



ICT Company  
of the Year

“ Mathletics has provided our 137 schools with the curriculum, assessment and instructional tools to help our teachers track student success and importantly, our students have started to LOVE math! ”

R. Loiacono, School Network Director

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*Pace: 8.0 minute mile*  
*Speed = 7.5 mph*  
*Finish = 00:24:48*



*Target HR:*

$$0.625(220-a) < \text{target HR} < 0.8(220-a)$$

Every math teacher knows the importance of connecting math to the real world. Discovery Education weaves real-life examples and problems worth solving throughout Math Techbook™

## NCTM Sessions

### Using NBA Data to Engage Students

Will Rajon Rondo tally more than 900 assists this season? Is there a formula that can be used to identify all-star players? The NBA season coincides with the school year, and current stats are always available from stats.nba.com. Powerful activities are possible when these stats are used for mathematical modeling. Come see how you can use NBA data to get middle and highschool students excited about math.

### Getting Started with Math Modeling

Students need to engage in mathematical modeling on a regular basis. Should they do it every day, or is once a semester sufficient? How do you start small and help students succeed without reinventing the wheel? This session will share some modeling activities, provide strategies for using modeling in your classroom, and point you to some of the best modeling resources available online.

### Creating an Environment for Student-Centered Instruction

When students are the center of instruction, they are active, engaged, and noisy. Passionate discussion replaces passive absorption. Time passes quickly, and though students will be mentally fatigued, they won't want to leave so they can keep exploring. Sound too good to be true? Come experience an inquiry-based classroom, and see examples of teacher moves and classroom activities that will make your students the center of attention.

## Attend the Sessions and Visit us at Booth #1400

[DiscoveryEducation.com/MathTechbook](http://DiscoveryEducation.com/MathTechbook)

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## Highlights

The Research Conference is free on Wednesday to Annual Meeting registrants.  
Annual Meeting Overview & Orientation (Presentation 1)  
Opening Keynote (Presentation 2)



SAN FRANCISCO TRAVEL ASSOCIATION PHOTO

## Get Social

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



**Conference App**  
[www.nctm.org/confapp](http://www.nctm.org/confapp)



**Twitter**  
[@NCTM](https://twitter.com/NCTM)



**Instagram**  
[@NCTM.math](https://www.instagram.com/NCTM.math)



**Facebook**  
[www.facebook.com/TeachersofMathematics](https://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.

# Regional Caucuses for Delegates and Alternates

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 4 on page 10 for the Delegate Assembly information. The Regional Caucuses information is below.

2:30 p.m.–4:30 p.m.  
Moscone Convention Center  
Room: 2014/2016

CAUCUS	PRESIDERS
Affiliates-at-Large	<b>Florence Glanfield</b> , University of Alberta, Edmonton, Canada
Canadian	<b>Marj Farris</b> , (Retired), La Crete, Alberta, Canada
Central	<b>Jean Lea</b> , University of Indianapolis, Indiana <b>David Ebert</b> , Oregon High School, Wisconsin
Eastern	<b>Shawn Towle</b> , Falmouth Middle School, Maine <b>Kathleen (Taffy) McAneny</b> , West Chester University, Landenberg, Pennsylvania
Southern	<b>Betty B. Long</b> , Appalachian State University, Boone, North Carolina <b>Jeremy Zelkowski</b> , University of Alabama, Tuscaloosa, Alabama
Western	<b>Denise Trakas</b> , Washoe County School District, Reno, Nevada <b>Jill Sumerlin</b> , (Retired), Tillamook, Oregon



## NCTM Gives You More— More Benefits, More Value

INSPIRING TEACHERS. ENGAGING STUDENTS. BUILDING THE FUTURE.

Your passion is ensuring your students receive the highest quality math education possible. NCTM provides a personalized, professional membership experience. We can help you:

- Discover new techniques and tools in the **mathematics education journal** that fits your students' education level
- Inspire your students with **classroom-ready resources** tailored to grade-band needs—elementary, middle, high school, and higher education
- Enjoy readily available **professional development** opportunities relevant to your career goals
- **Save** up to 25% off professional development and 20%–50% on books and digital products.

*Learn More Today!*  
at NCTM Central or  
at [www.nctm.org/membership](http://www.nctm.org/membership)





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 network with other attendees.

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

National Council of Teachers of Mathematics, Reston, Virginia

134 (MOSCONE NORTH)



2

## Opening Keynote



### Inspiring Change: Creating the Next Generation of Mathematics Leaders and Learners

#### General Interest Session

Drawing on his work with learners across the nation and his recent work for the National Research Council, Dr. Jolly will review the inspirational stories and lessons that enable us to envision approaches to mathematical engagement that will create a math-literate generation.

**Eric Jolly** is widely recognized for his work with communities and policy-makers and has published numerous articles and books. He has lectured around the world about the importance of STEM education and currently serves as the president and CEO of Minnesota Philanthropy Partners, which is the 14th largest community foundation in the country.

The 2016 NCTM Lifetime Achievement Awards will be presented to Edwin Dickey and Barbara J. Reys at the Opening Keynote.

#### **Eric Jolly**

President and CEO of Minnesota Philanthropy Partners, Saint Paul, Minnesota

ESPLANADE BALLROOM (MOSCONE SOUTH)

Taste some wonderful wines, toast the 2016 NCTM Lifetime Achievement Award recipients, and mingle with mentors, colleagues, and friends on Wednesday evening after the Opening Keynote at the **Mathematics Education Trust Wine Tasting.**

(Tickets can be purchased through registration.)

# Build Your Professional Resource Library with New Books from NCTM

## SAVE 25%!

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

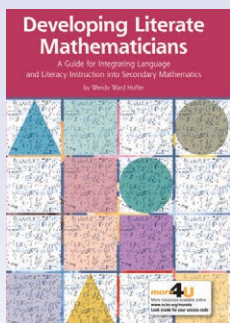
MATH IS ALL AROUND US

MATH IS ALL AROUND US

MATH IS ALL AROUND US

MATH IS ALL AROUND US

MATH IS ALL AROUND US



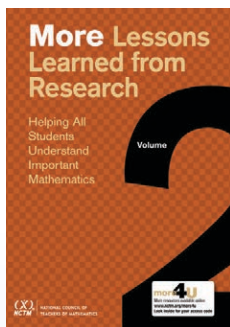
### Developing Literate Mathematicians: A Guide for Integrating Language and Literacy Instruction into Secondary Mathematics

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

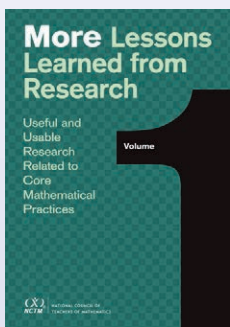
EDITED BY EDWARD A. SILVER AND PATRICIA ANN KENNEY

*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.

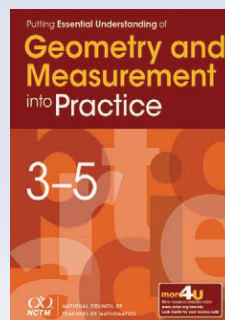
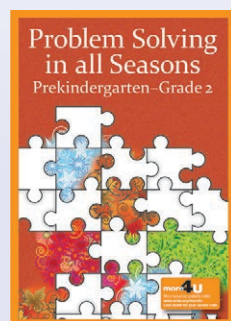
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### Problem Solving in All Seasons, Grades 3–5

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.

©2016, Stock #14809



### DON'T MISS! Problem Solving in All Seasons, Pre-K–Grade 2

BY KIM MARKWORTH, JENNI MCCOOL, AND JENNIFER KOSIAK

©2015, Stock #14808

## Additional Titles to be Released at the Annual Meeting & Exposition

*Get them here first!*

### Developing Mathematical Ideas: Building a System of Tens, Casebook and Facilitators Guide

©2016 Stock #15032 and #15039

### On the Money: Math Activities to Build Financial Literacy in High School

©2016, Stock #14589

### Annual Perspectives in Mathematics Education 2016

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### Discovering Lessons for the Common Core Standards in Grades 9–12

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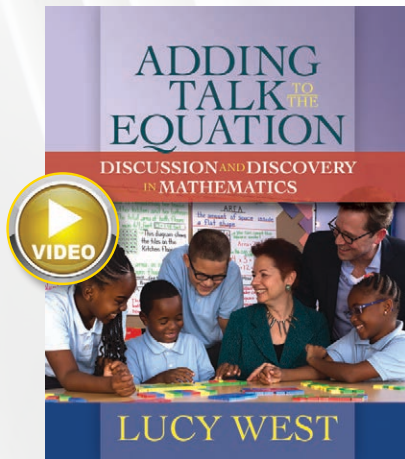
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Stenhouse math books paint vivid pictures of classrooms via vignettes, student work, and teacher reflections. Our videos provide an additional layer of detail and insight. Watch as Stenhouse authors draw out and deepen students' mathematical thinking.



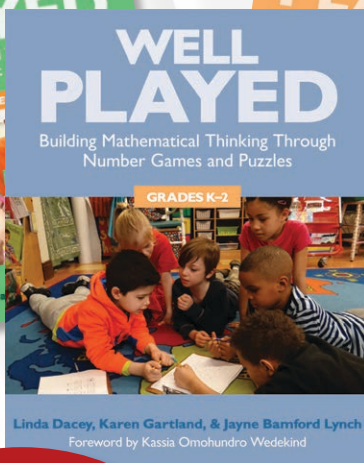
## Adding Talk to the Equation (Video/Guide)

*Discussion and Discovery in Mathematics*

**Lucy West**

*Adding Talk to the Equation* helps teachers learn how to skillfully lead math conversations so all students stay in the game, stay motivated about learning, and ultimately deepen their understanding. This video features five case studies filmed in grades 1–6 and shows teachers at various stages in their practice of generating and managing rich mathematics conversations. Lucy emphasizes the progression that occurs as teachers get more comfortable with new talk moves and as they learn to tune in and respond to the math conversations taking place among their students. The companion guide includes transcripts of all of the case studies, with detailed commentary from Lucy.

**Grades 1–8 | 2016 | 112 min. video + 100 pp. Companion Guide w/ full transcript & commentary DVD (4Z-1035) or 1-yr. streaming: \$150 | 3-yr. streaming: \$350 | Guide 10-pack: \$75**



## Well Played (Series of 3 Books)

*Building Mathematical Thinking Through Number and Algebraic Games and Puzzles in Grades K–8*

**Linda Dacey, Karen Gartland, and Jayne Bamford Lynch**

*Well Played* shows you how to make games and puzzles an integral learning component that provides teachers with unique access to student thinking. The twenty-five games and puzzles in *Well Played*, which have all been field-tested in diverse classrooms, contain:

- explanations of the mathematical importance of each game or puzzle and how it supports student learning;
- variations for each game or puzzle to address a range of learning levels and styles;
- clear step-by-step directions; and
- classroom vignettes that model how best to introduce the featured game or puzzle.

**Grades K–2 | 2015 | 224 pp/paper | 4Z-1034 | \$25.00**

**Grades 3–5 | 2015 | 234 pp/paper | 4Z-1032 | \$25.00**

**Grades 6–8 | April 2016 | 248 pp/paper | 4Z-1033 | \$25.00**

**Package: 4Z-P323 | \$60 (reg. \$75) Save \$15 when you buy all three!**

## Intentional Talk

*How to Structure and Lead Productive Mathematical Discussions*

**Elham Kazemi and Allison Hintz; Foreword by Megan Franke**

*Intentional Talk* provides teachers with a framework for planning and facilitating purposeful mathematics discussions that enrich and deepen student learning.

**Grades K–5 | 2014 | 168 pp/paper | 4Z-0976 | \$20.00**

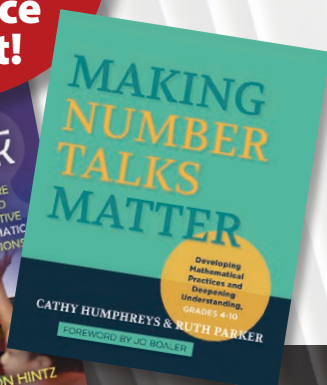
## Making Number Talks Matter

*Developing Mathematical Practices and Deepening Understanding, Grades 4–10*

**Cathy Humphreys and Ruth Parker; Foreword by Jo Boaler**

*Making Number Talks Matter* is about the myriad decisions facing teachers as they make this fifteen-minute daily routine a vibrant and vital part of their mathematics instruction.

**Grades 4–10 | 2015 | 212 pp/paper | 4Z-0998 | \$23.00**



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2016



## Tool Time! Implementing Tools to Help Students Achieve Number Sense

Lisa Rogers

Thursday, April 14, 2016

8:00–9:00 AM / Moscone, 306



## Math is Supposed to Make Sense!

Cathy Seeley

Thursday, April 14, 2016

9:30–10:30 AM / Moscone, 135



## Beyond Invert & Multiply: Making Sense of Fraction Computation

Julie McNamara

Thursday, April 14, 2016

9:45–10:45 AM / Moscone, 3008



## Math Talk: Mathematical Sense-Making Through Mental Math

Connie Horgan

Friday, April 15, 2016

8:00–9:00 AM / Moscone, 3003



## Building a Conceptual Understanding: Solving Systems of Linear Equations

Sheila Yates

Friday, April 15, 2016

1:00–2:15 PM / Moscone, 2003



## It Makes Sense: Using Number Lines in K-2

Ann Carlyle

Friday, April 15, 2016

3:30–4:30 PM / Nob Hill C/D (Marriott)



## Developing Numerical Understanding and Skills: Lessons Learned from Classroom Teaching

Marilyn Burns

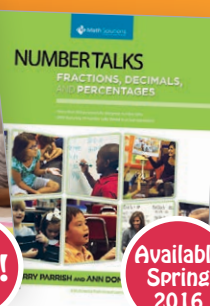
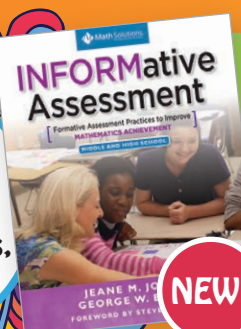
Saturday, April 16, 2016

11:00 AM–12:00 PM

Moscone, 134/135

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## Highlights

Annual Meeting Overview & Orientation (Presentation 3)  
 Sixty-Seventh Annual Delegate Assembly (Presentation 4)  
 New Teacher Workshop & Kickoff (Presentation 48)  
 NCTM's President's Address (Presentation 208)

## Strands

## Presentation Numbers

<b>PCPG</b>	<b>Building Capacity: Personal and Collective Professional Growth</b>	121, 128, 134.1, 152
<b>EQUITY</b>	<b>Equity</b>	131, 173, 244, 257
<b>EW</b>	<b>Exhibitor Workshops</b>	34.2, 34.3, 34.4, 34.5, 34.6, 34.7, 34.8, 85.2, 85.3, 85.4, 85.5, 85.6, 85.7, 85.8, 134.2, 134.3, 134.4, 134.5, 134.6, 134.7, 134.8, 168.1, 168.2, 168.3, 168.4, 168.5, 168.6, 216.1, 216.2, 216.3, 216.4, 216.5, 216.6, 216.7, 266.2, 266.3, 266.4, 266.5, 266.6
<b>E&amp;A</b>	<b>Instruction and Policies that Promote Equity and Access</b>	30, 83, 85.1, 174, 210
	<b>NCTM Committee</b>	119, 124, 134
<b>NT</b>	<b>New Teacher</b>	48, 162, 188, 224, 247, 266.1
<b>NGM</b>	<b>Next Generation Mathematics for ALL</b>	106, 156, 251
<b>PtA</b>	<b>Principles to Actions: Mathematics and Teaching Practices and Research</b>	13, 63, 158
<b>PPD</b>	<b>Promoting Productive Dispositions about Mathematics</b>	18, 56, 79, 113, 133, 146

## Get Social

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



**Conference App**  
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**Twitter**  
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**Facebook**  
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## Registration Hours

7:00 a.m.–4:00 p.m.

## Exhibit Hours

8:00 a.m.–5:00 p.m.

## NCTM Central Hours

8:00 a.m.–5:00 p.m.

## Fire Codes

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

7:15 A.M.–7:45 A.M.

3

### 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

GOLDEN GATE A (MARRIOTT)

7:30 A.M.–9:00 A.M.

4

### Sixty-Seventh Annual Delegate Assembly

#### General Interest Session

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

Affiliate Services Committee  
National Council of Teachers of Mathematics, Reston, Virginia

YERBA BUENA 9 (MARRIOTT)

8:00 A.M.–9:00 A.M.

5

### A Core Teaching Practice—Establishing and Using Goals Effectively

#### General Interest / All Audiences Session

Formulating clear learning goals sets the stage for everything from planning to instruction to assessment. Both teachers and students need to be able to answer: What math is being learned? Why is it important? What is the learning progression? Examine ideas, issues, and examples of effectively implementing this core mathematics teaching practice.

DeAnn Huinker  
University of Wisconsin–Milwaukee

2020 (MOSCONE WEST)

6

### Assessment and Grading Practices: Consideration of Academic and Non-Academic Factors

#### Research Session

Participate in a discussion about determining and designing assessments! In an era of student accountability and high-stakes testing, assessment and grading practices serve as an important responsibility. Learn and discuss research on the challenges and recommendations of determining which factors accurately represent student achievement.

Diana M. Yesbeck  
Randolph-Macon College, Ashland, Virginia

303 (MOSCONE SOUTH)

7

### Build Capacity through Lesson Study

#### 6–8 Session

Investigative. Interesting. Practical. Engaging. These were some of the words teachers used to describe lesson study. Come learn how we made lesson study a reality in an urban middle school. We will watch videos, share best practices, and provide tools to implement lesson study in your school as a means to build capacity and improve teacher practice.

Megan Gundogdu  
New York City Department of Education, New York  
Nicora Placa  
New York University, New York

2001 (MOSCONE WEST)

8

### Building Proficiency in Mathematical Modeling

#### 10–12 Session

Using bite-size modeling settings, many features of math modeling can fit into everyday lessons. This helps students make sense of the math they are learning and prepares them for more extensive modeling problems. Classroom-tested modeling problems and solutions will be shared as we move from small modeling problems to the more extensive variety.

Cheryl Gann  
North Carolina School of Science and Math, Durham

2007 (MOSCONE WEST)

## 9

**Changing the Mathematics Culture of Your School**

## 3–5 Session

Looking for ways to promote meaningful mathematics at your school? Trying to get parents and students on board with the mathematical practice standards? Come hear about initiatives used to increase parent participation and student perseverance through family math nights, quarterly math projects, and meaningful homework. Lots of resources will be shared!

**Rebecca Sue Borowski**  
Indiana University, Bloomington

YERBA BUENA 10/11 (MARRIOTT)

## 10

**Choosing and Using Tasks to Provide Access for All Students**

## 3–5 Session

What makes a mathematical task accessible to ALL students? In this session, participants will examine a variety of fraction tasks, consider the extent to which they provide multiple entry points to a wide range of learners, and discuss ways that teachers can modify tasks and implement them to enhance their accessibility.

**Rachael M. Welder**  
Western Washington University, Bellingham  
**Amy Hillen**  
Kennesaw State University, Georgia  
**Ziv Feldman**  
Boston University, Boston, Massachusetts

YERBA BUENA 8 (MARRIOTT)

## 11

**Creating a Learning Environment: How to Plan and Execute**

## Pre-K–2 Session

Planning and implementation of highly engaging and differentiated lessons can be challenging. Creating equity in a diverse classroom requires intentional planning and implementation of differentiated lessons that are built on the standards and math practices. I'll show how to use assessments and resources to create strong learning environments.

**Teresa A. Ryan**  
Napa Valley Unified School District, California

YERBA BUENA 12/13 (MARRIOTT)

## 12

**Developing Productive Dispositions through Technology-Based Problems Involving Algebra and Geometry**

## Coaches / Leaders / Teacher Educators Session

Productive dispositions about mathematics include confidence in mathematical practices such as using structure and developing viable mathematics arguments. Tasks designed to engage secondary teachers and students in non-routine technology-based problems that integrate algebra and geometry can broaden their confidence in engaging in such practices.

**M. Kathleen Heid**  
Pennsylvania State University

2022 (MOSCONE WEST)

## 13

PtA

**Discourse 3.0: Assembling Discourse, Access and Equity, and a Culture of Professionalism**

## General Interest Session

In this talk, I use the analogy of next generation technologies to consider three areas treated separately in *Principles to Actions*: discourse, access and equity, and a culture of professionalism. I draw on action-research collaborations to illustrate how assembling these areas might improve opportunities to learn for mathematics educators and students.

**Beth S. Herbel-Eisenmann**  
Michigan State University, East Lansing

2009 (MOSCONE WEST)

## 14

**Disrupting the Failure Mindset in Algebra: Rethinking Assessment Practices**

## 8–10 Session

This session will describe an assessment system that centers on students' levels of understanding. This system is part of a larger teaching practice that disrupts students' failure mindset in algebra I, as it holds students accountable for completing and revising assignments and assessments for mathematical understanding.

**Dechelle Rasheed**  
Deer Valley High School, Antioch, California  
**Mara Landers**  
Los Medanos College, Pittsburg, California

3003 (MOSCONE WEST)



**15****Empowering ELLs to Speak: Strategies That Make a Difference**

3–5 Session

Constructing arguments and critiquing the thinking of others is challenging for many students. It is even more so for our English language learners. Come learn concrete strategies to support ELL students in explaining their mathematical thinking and being more active participants in classroom discussions, partner games, and group activities.

**Lisa M. Meyer**

Dual Language Education of New Mexico, Albuquerque

**Erin R. Mayer**

Dual Language Education of New Mexico, Albuquerque

YERBA BUENA 5/6 (MARRIOTT)

**16****Expressions to Equations to Functions: Building Algebraic Concepts through Technology**

6–8 Session

Making sense of expressions and equations is fundamental to building algebra concepts. The dominant role of technology to date has been through multiple representations of functions: graphing, tables, and to a lesser extent, computer algebra. We will show how much more is possible by exploiting dynamic interactive technology in support of CCSSM.

**Thomas P. Dick**

Mathematics Department, Oregon State University, Corvallis

**Wade Ellis**

West Valley College, San Jose, California

3012 (MOSCONE WEST)

**17****Geometry from Scratch**

8–10 Session

Through the use of Scratch (free, web-based, drag and drop programming environment) we will see how students can informally explore many different Common Core geometry topics, including regular polygons and their properties, the coordinate plane, transformations, and so on. No prior knowledge of programming necessary (just like your students!).

**Daniel S. Anderson**

Queensbury High School, New York

3009 (MOSCONE WEST)

**18****PPD****Helping Students Develop Productive Dispositions toward Mathematics**

3–5 Session

How can we help students learn to appreciate and enjoy mathematics? How can we help them develop confidence in their ability to learn mathematics? This session will address ways that teachers support students in developing more productive dispositions toward mathematics.

**Randolph Philipp**

San Diego State University, San Diego, California

**John Zig Siegfried**

James Madison University, Harrisonburg, Virginia

2024 (MOSCONE WEST)

**19****Goal-Setting and Self-Assessment Strategies to Promote Achievement**

10–12 Session

Teaching students to self-assess and set clear goals enables them to take charge of their learning. Successful strategies and rubrics, adaptable for any class, and examples of student goal setting will be shared. Action research in our professional learning community has resulted in decreasing the achievement and opportunity gaps.

**Karen E. Hyers**

Tartan High School, Oakdale, Minnesota

3005 (MOSCONE WEST)

**20****Harnessing the Power of Transformations to Transform Your Teaching**

10–12 Session

The power of transformations has been underutilized in math curriculum. This session shows how to incorporate transformations as a common theme from eighth grade to precalculus. The goal is for students to develop an understanding of the connection between geometry and algebra and to utilize geometric interpretations to simplify complex calculations.

**Selena Oswalt**

Eureka Math, Washington, D.C.

**Wendy L. DenBesten**

Eureka Math, Washington, D.C.

3016 (MOSCONE WEST)

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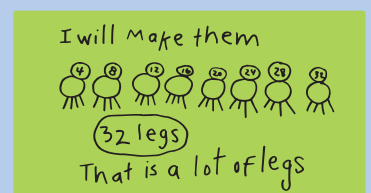
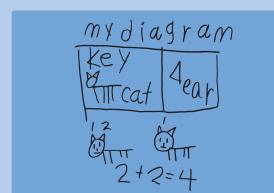
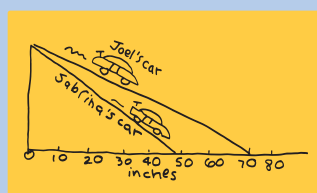
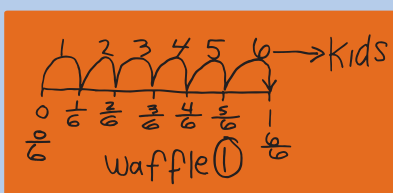


## Develop 21st Century Problem-Solving Skills

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- **Student rubrics** provide a tool for self- and peer-assessment.

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**21****How We Can “Attend to Precision” in Classroom Mathematics Discussions**

## General Interest Session

Explore examples of teacher and student imprecision in classroom mathematics discourse. Discuss types of imprecision that occur in classrooms, the ramifications of this imprecision, and strategies for addressing that imprecision. Learn how to minimize your own imprecision and to view student imprecision as an opportunity to learn mathematics.

**Keith R. Leatham**

Brigham Young University, Provo, Utah

**Blake E. Peterson**

Brigham Young University, Provo, Utah

**Lindsay Merrill**

Brigham Young University, Provo, Utah

305 (MOSCONE SOUTH)

**22****Math for Change: A Different Approach to Math PD**

## Coaches / Leaders / Teacher Educators Session

Learn about an innovative program that an Arizona district initiated to offer job-embedded professional development that deepens teacher’s conceptual understanding of mathematics and creates math leaders who can better serve their students.

**Andrea R. Munoz**

Casa Grande Elementary School District, Arizona

**Rachel A. McCoy**

Casa Grande Elementary School District, Arizona

**Teena Daniels**

Casa Grande Elementary School District, Arizona

307 (MOSCONE SOUTH)

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

**23****MMMMM (Making Math More Meaningful with Models) in Pre-K–2**

## Pre-K–2 Session

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, etc. Teachers will learn how to use these models to make math meaningful for their students.

**Duane Habecker**

Pleasanton Unified School District, California

NOB HILL C/D (MARRIOTT)

**24****NAEP and the International Assessments: What Are They Really About?**

## General Interest Session

Results from the 2015 NAEP, TIMSS, TIMSS Advanced, and PISA assessments have or will be released by the end of 2016. This presentation provides insight into how these assessments compare by examining the content each measures, who participates, and the results reported. There will be an opportunity to ask questions about current and future assessments.

**Kim Gattis**

American Institutes for Research, Washington, D.C.

**Ebru Erberber**

American Institutes for Research, Washington, D.C.

135 (MOSCONE NORTH)

**25****Pre-K–2 Students as Problem Solvers**

## Pre-K–2 Session

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

**Jenni K. McCool**

University of Wisconsin-La Crosse

**Kim A. Markworth**

Western Washington University, Bellingham

**Jennifer Kosiak**

University of Wisconsin-La Crosse

GOLDEN GATE C1 (MARRIOTT)



**26****Problem Structures for Tape Diagrams**

6–8 Session

Tape diagrams can model relationships in a wide variety of problems involving the arithmetic operations, fractions, ratios, and percent. We will examine the problem structures most amenable to tape diagram solution and illustrate how tape diagrams can be used to develop and support proportional and algebraic reasoning.

**Nirmala Nutakki**

SUNY Buffalo State, Buffalo, New York

2011 (MOSCONE WEST)

**27****Productive Math Talk in K–2 Classrooms? Absolutely!**

Pre-K–2 Session

Students as young as age five can engage in classroom discussions that focus on explaining their own thinking and responding to the reasoning of others. In this session, participants will learn about talk moves that help teachers manage productive discussions in K–2 math classes. Participants will view video clips of discussions in K–2 classes.

**Nancy C. Anderson**

Consultant, Pembroke, Massachusetts

YERBA BUENA 7 (MARRIOTT)

**28****Providing Students with the Power to Prove!**

10–12 Session

Proof is typically introduced by limiting the students' responsibilities and scaffolding in new skills, but this gives students a false impression of what it means to prove. In our presentation we present activities that place the burden of proof on students but discuss ways to scaffold their reasoning toward mathematical proof.

**Mark A. Creager**

Indiana University, Bloomington

**Michael Daiga**

Indiana University, Bloomington

3001 (MOSCONE WEST)

**29****Reflections after Implementing a Problem-Based Mathematics Curriculum**

8–10 Session

Thoughts and experiences will be shared from a seven-year period of curriculum research, development, implementation, and assessment which resulted in a problem-based math program adapted from materials written by the teachers at Phillips Exeter Academy.

**Richard Tony**

Solebury School, New Hope, Pennsylvania

**Michele Ament**

Shady Side Academy, Pittsburgh, Pennsylvania

2005 (MOSCONE WEST)

**30****E&A****Response to Intervention: Supporting Students Who Struggle in Mathematics**

3–5 Session

Rather than “telling” students how to do mathematics, this session will help you think about ways to build instruction that engages students in “doing math.” There will be an emphasis on teaching mathematics through a multi-tiered system of support such as Response to Intervention.

**Karen S. Karp**

Johns Hopkins University, Baltimore, Maryland

301 (MOSCONE SOUTH)

**31****Students with Disabilities CAN Do Math**

General Interest Session

Students with disabilities need to be part of the conversation as we move toward a focus on the equitable access of high-quality mathematics instruction for all students. Come explore strategies and modifications that allow students with developmental disabilities to access rich mathematics, highlighting the Standards for Mathematical Practice.

**Rachel Lambert**

Chapman University, Orange, California

**Andrew Gael**

Cooke Center Academy, New York, New York

**Danielle Egic**

Cooke Center Academy, New York, New York

134 (MOSCONE NORTH)

8:00 A.M.–9:00 A.M.

**32**

## Take a Walk on the Random Side

6–8 Session

Learn about the Museum of Math's 2014 Rosenthal Prize winning lesson! We'll stand shoulder-to-shoulder and let coin flips lead us forward or back. What will happen? For certain, you'll learn about randomness, compound events, combinations, and data distributions. Join our random walk! A greater sample size = a stunning display of probability!

**Ralph Pantozzi**

Kent Place School, Summit, New Jersey

**Cheryl Kaplun**

Kent Place School, Summit, New Jersey

3007 (MOSCONE WEST)

**33**

## Teaching High School Math through Real-World Applications

10–12 Session

How much should Nintendo charge for the Wii U? Can you really trust your memory? In this presentation, we'll explore lessons in which students apply mathematics to think critically about the world. Math is a powerful tool, and math class can be a place for the most interesting and important conversations.

**Ginny Stuckey**

Mathalicious, Austin, Texas

GOLDEN GATE A (MARRIOTT)

**34**

## The Front Lines of Modeling: Bar/Tape Models from Real Classrooms

3–5 Session

Tried your hand at bar modeling? Examine common errors, misunderstandings, and dispositions in actual student work. Leave with a deeper understanding of how children use (and misuse) models. Dr. Kevin Mahoney is a national presenter on Singaporean teaching strategies and will present examples from both his classroom and his own doctoral research.

**Kevin Mahoney**

Tenacre Day School, Wellesley, Massachusetts

GOLDEN GATE C3 (MARRIOTT)

**34.1**

## What Mathematics Is Truly Important for College and Career Readiness?

Higher Education Session

The essence of the Common Core State Standards for Mathematics is the notion that we want students to be college and career ready. But what mathematics is truly important for students to be college and career ready? This session will explore a new approach to ensuring college and career readiness through modularizing developmental mathematics.

**April D. Strom**

Scottsdale Community College, Arizona

2018 (MOSCONE WEST)



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**Meg Hearn** and the  
**Howard County, MD**  
Math Team to discuss:

### The Scaling Factor

Thursday | 9:45 a.m.  
Marriot Yerba Buena 3/4

Thursday



Building Capacity: Personal  
and Collective Professional Growth



Instruction and Policies that  
Promote Equity and Access



Equity



Exhibitor  
Workshop



Hot  
Topics



NCTM  
Committee



**34.2** **ew****Unleash the Power of Games-Based Learning with Mangahigh**

## 6–8 Exhibitor Workshop

Discover how Mangahigh ignites passion and engagement so that students learn to love math through an effective games-based environment that builds skills, increases academic achievement, and promotes collaboration through exciting competition. We will offer ideas and strategies to motivate and raise the bar for all math learners in your class.

**Mangahigh**  
London, United Kingdom

123 (MOSCONE NORTH)

**34.3** **ew****Bar Modeling with Math Buddies, the Singapore Math® Online Resource**

## 3–5 Exhibitor Workshop

Discover how students learn and use the Singapore Math® bar model in K–5. The foundations set in kindergarten with number sense and number bonds develop into meaningful links in the problem-solving process. Math Buddies, a K–5 digital resource will take your students through the Singapore Math® bar model approach to problem solving.

**Marshall Cavendish**  
Tarrytown, New York

124 (MOSCONE NORTH)

**34.4** **ew****Ask the Right Questions to Increase Achievement and Prepare for the Next Generation Assessments**

## General Interest Exhibitor Workshop

Looking for the answers in the wrong places? This workshop explores research-based techniques to increase cognitive demand in your classroom. You will experience how engaging the math practices, anticipating misconceptions, and shining a light on content will transform your classroom and prepare your students for Next Generation assessments.

**Pearson**  
Boston, Massachusetts

125 (MOSCONE NORTH)

**34.5** **ew****Facilitating Rich and Rigorous Discussion in the Mathematics Classroom**

## General Interest Exhibitor Workshop

This session focuses on ways to facilitate and enhance classroom mathematical discourse. Simulated lessons provide opportunities to practice questioning strategies, giving attendees tools and techniques they can immediately use to manage conversations, evaluate student responses, and elevate the rigor of discourse to boost college and career readiness.

**Curriculum Associates**  
North Billerica, Massachusetts

130 (MOSCONE NORTH)

**34.6** **ew****HP Prime: A Breakthrough in Mathematics Education Technology**

## 10–12 Exhibitor Workshop

Here's your chance to get acquainted with HP Prime: the app-based, full-color graphing calculator with a multi-touch, gesture-driven user interface. You will receive a free copy of the virtual HP Prime for PC at the end of the session. Come experience the simplicity and power of HP Prime, pinch to zoom on a graph, a table of function values, and more.

**HP Inc.**  
San Diego, California

122 (MOSCONE NORTH)

**34.7** **ew****What's Your Math Problem!?! Rich Problem Solving to Support Today's Standards**

## General Interest Exhibitor Workshop

Come learn how to evaluate and create rich tasks as well as how to support students as they develop their toolbox of effective problem-solving strategies. Easy-to-use resources to support the Standards for Mathematical Practice will be shared. Participants will also receive hands-on materials and participate in a drawing for free resources.

**Teacher Created Materials**  
Huntington Beach, California

120 (MOSCONE NORTH)



8:00 A.M.–9:00 A.M.

### 34.8

## Using NBA Data to Engage Students

### General Interest Exhibitor Workshop

Will Rajon Rondo tally more than 900 assists this season? Is there a formula that can be used to identify all-star players? The NBA season coincides with the school year, and current stats are always available from stats.nba.com. Powerful activities are possible when these stats are used for mathematical modeling. Come see how you can use NBA data to get middle and high school students excited about math.

**Discovery Education**  
Silver Spring, Maryland

121 (MOSCONE NORTH)

8:00 A.M.–9:15 A.M.

### 35

## A Hands-On Approach to Operations and Equivalent Expressions

### 6–8 Workshop

The Lab Gear manipulatives help students transition from numbers to variables, and from the concrete to the abstract, through activities that promote an understanding of operations: the distributive law, combining like terms, factoring, and so on. This is a necessary prerequisite to understanding equivalent expressions, a key concept in middle school.

**Henri Picciotto**  
MathEducationPage.org, Berkeley, California

3022 (MOSCONE WEST)

### 36

## Bridging Math and Science through Elementary Engineering

### 3–5 Workshop

How does math add meaning to science? Why is science essential to engineering? Come be a civil engineer and test bridge models, graph your data, and use what you learned to design a strong, stable bridge. Find out how the three disciplines of math, science, and engineering depend upon each other and together lead to a powerful learning experience.

**Chantal Balesdent**  
Engineering Is Elementary, Boston, Massachusetts

308 (MOSCONE SOUTH)

### 37

## Building a Whole School Foundation for Mathematical Rigor

### Coaches / Leaders / Teacher Educators Workshop

How do we design and implement strategic, focused professional development that ensures movement toward rich mathematical opportunities for all students? This session will provide you with the content and structures you need to lead your teachers into the world of rigorous mathematics in a cohesive, sequential format.

**Patricia Stephens-French**  
Canyons School District, Sandy, Utah  
**Jennifer Throndsen**  
Utah State Office of Education, Salt Lake City

YERBA BUENA 3/4 (MARRIOTT)

### 38

## Conceptual Understanding to Procedural Fluency: Reversing Your Ideas of Inverse

### 10–12 Workshop

The concept of inverse function is a fundamental mathematical idea. Many students miss the concept and develop misconceptions about inverses because the focus in classrooms has been on procedures. Embedding inverse functions in meaningful contexts supports students in developing robust understanding that can be applied across function types.

**Barbara B. Kuehl**  
Mathematics Vision Project, Salt Lake City, Utah

2016 (MOSCONE WEST)

### 39

## Developing Fact Fluency with Understanding—Not Gimmicks!

### Pre-K–2 Workshop

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

**James Leslie Burnett**  
ORIGO Education, St. Charles, Missouri

302 (MOSCONE SOUTH)



Building Capacity: Personal and Collective Professional Growth



Instruction and Policies that Promote Equity and Access



Equity



Exhibitor Workshop



Hot Topics



NCTM Committee

**40****Dive into Modeling: The Mathematics of Sustainability****10–12 Workshop**

Engage your students in modeling problems that evolved from a math teacher's field experience on the coast of Virginia. We will explore sustainability topics such as measuring biodiversity, how to weigh your fish with a ruler, and fish population models. Mathematical topics include data analysis, logarithmic, exponential, and recursive functions.

**Maria L. Hernandez**

North Carolina School of Science and Mathematics, Durham

**Taylor Gibson**

North Carolina School of Science and Mathematics, Durham

**2004 (MOSCONE WEST)**

**41****Engaging Children with Literature and Improving Discourse in the Classroom****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 C. Lynch**

Walden University, Minneapolis, Minnesota

**Mel Griffin**

Walden University, Minneapolis, Minnesota

**3004 (MOSCONE WEST)**

**42****Get on Board with GeoGebra!****8–10 Workshop**

This workshop is aimed toward novice users of Geogebra. Bring a device loaded with GeoGebra for a hands-on experience where you will learn the basics of sketch design and operation illustrating the versatility of GeoGebra in the classroom. It's not just for geometry—algebra teachers will leave with at least one sketch they can't wait to use!

**Suzanne R. Harper**

Miami University, Oxford, Ohio

**Dana C. Cox**

Miami University, Oxford, Ohio

**2008 (MOSCONE WEST)**

**43****Literature and Manipulatives: Use BOTH to Teach the Standards****6–8 Workshop**

Literature enlivens math concepts and invites understanding. Manipulatives turbo-charge the learning by making it experiential. In this fast-moving hands-on session, author Schwartz and manipulatives expert Moore show how books + manipulatives = a broader understanding of exponents, scaling, ratio, proportion, patterns, and structure.

**David M. Schwartz**

Author, Oakland, California

**Sara Delano Moore**

ETA hand2mind, Vernon Hills, Illinois

**3010 (MOSCONE WEST)**

**44****Math in the Moment: Exploring Number in Early Childhood****Pre-K–2 Workshop**

In this session, participants will consider how our youngest learners explore math concepts. What does math learning look like in the early years? How does learning in younger grades set the foundation for math in the elementary years and beyond? This session will include video of PK/TK classrooms and hands-on math activities.

**Barbara Chisholm**

San Francisco Unified School District, California

**Son-Hui (Sonny) Wong**

San Francisco Unified School District, California

**GOLDEN GATE C2 (MARRIOTT)**

**45****Math Mistakes and Error Analysis: Diamonds in the Rough****6–8 Workshop**

Explore why error analysis can help drive our instruction, curb student misconceptions, and strengthen formative assessment. Math mistakes are a valuable window into student thinking. We will turn student mistakes into free lesson ideas connected to the Common Core and opportunities for ongoing learning.

**Andrew Stadel**

Tustin Unified School District, California

**304 (MOSCONE SOUTH)**





**46****Motivating the Unmotivated: Access to Learning**

6–8 Workshop

Participants will explore ways to change traditional tasks to tasks that actively engage all students in rigorous mathematics, regardless of their achievement level. Aligned with the tasks are techniques to motivate students to do the tasks and discuss resulting generalizations. Establishing a positive classroom environment will be included.

**Barbara J. Dougherty**

University of Missouri, Columbia

**Lisa G. Bendall**

Sigsbee Charter School, Key West, Florida

2006 (MOSCONE WEST)

**47****My New BFF, the Number Line!**

3–5 Workshop

Come and learn why the number line is my BFF. Learn to intergrade manipulatives with the number line for deeper understanding. Participants will learn how to address every grades 3–5 Common Core standard involving a line. Hands-on activities and technology resources to follow the progression of the number line are an integral part of this presentation.

**Keysha G. McIntyre**

Fulton County Schools, Atlanta, Georgia

**Lauri Susi**

Conceptua Math, Petaluma, California

YERBA BUENA 14/15 (MARRIOTT)

**48****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 welcome.

**David Barnes**

National Council of Teachers of Mathematics, Reston, Virginia

3011 (MOSCONE WEST)

**49****Oh, the Math You'll Know!**

Pre-K–2 Workshop

This games workshop focuses on activities for centers, small group and guided math stations that teach the following Common Core concepts: counting and cardinality, number sequences to 20 and 100, counting forward from a number, understanding properties of + and −. Easily found number lines, dice, multi-sided dice to 20, and 0–9 to build place value will be used.

**Jane Felling**

Box Cars and One-Eyed Jacks, Edmonton, Canada

310 (MOSCONE SOUTH)

**50****PR1ME: PD-Embedded Program**

Coaches / Leaders / Teacher Educators Workshop

How is professional development embedded in a program to ensure teachers get the necessary guidance, help, and direction to teaching more and better mathematics? Professional development is key to great teaching and learning in the classroom, but since time taken to attend PD sessions is a major concern, the ideal solution is to receive PD with each lesson.

**Yueh Mei Liu**

Scholastic International, Singapore

3018 (MOSCONE WEST)

**51****Statistical Significance: What Is It?**

6–8 Workshop

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

**Jeff Ziegler**

Brookhill Institute of Mathematics, Waukesha, Wisconsin

**Sara Brown**

Brookhill Institute of Mathematics, Waukesha, Wisconsin

**Paige Richards**

Brookhill Institute of Mathematics, Waukesha, Wisconsin

2002 (MOSCONE WEST)

**52****Tool Time! Implementing Tools 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 K. Rogers**

Math Solutions, Sausalito, California

**Diane Reynolds**

Math Solutions, Sausalito, California

**306 (MOSCONE SOUTH)**

**53****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 touchscreens versus physical objects.

**Carla E. Strickland**

University of Chicago, Illinois

**Kathryn M. Rich**

University of Chicago, Illinois

**Catherine A. Donaldson**

McGraw-Hill Education, Chicago, Illinois

**3006 (MOSCONE WEST)**

**54****Two-Way Frequency Tables: Teaching a New Statistics Standard Conceptually****8–10 Workshop**

CCSSM 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 L. Orton**

Center for Mathematics and Teaching, Los Angeles, California

**Shelley Kriegler**

Center for Mathematics and Teaching, Los Angeles, California

**2003 (MOSCONE WEST)**

**54.1****Focus on Visual Representations: A Gold Mine for Reasoning and Sense Making****6–8 Workshop****President's Series presentation**

Visual models promote mathematical habits of mind and interaction that provide access and mathematical power to a wide range of student backgrounds and age levels. Participants will be challenged to represent and solve some number sense and geometry problems using only visual representations.

**J. Michael Shaughnessy**

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

**GOLDEN GATE B (MARRIOTT)**

**55****Visualizing Mathematics Concepts: A Key to Making Connections****8–10 Workshop**

Making connections, both within a concept and between concepts, is an important part of developing understanding. Discovering concepts through visual representations can provide a powerful entry point into making these connections. We'll explore a variety of tasks that can engage high school students to "see" the mathematics.

**Marc Garneau**

Surrey School District, Canada

**3008 (MOSCONE WEST)**



**56** **PPD****Abracadabra: Was That Really Magic?**

## General Interest Session

In order to build math competence, we must first build math curiosity. Participants in this session will explore “magic” as a tool to cultivate the desire to grapple with math in everyday encounters. By providing opportunities for students to wonder, teachers can reduce math anxiety and increase mathematical understanding.

**Jessica N. Hiltabidel**

Center for Inspired Teaching, Washington, D.C.

**Monisha Karnani**

North Carolina New Schools, Raleigh

301 (MOSCONE SOUTH)

**57****A Flipped-Traditional Teaching Hybrid to Optimize Time in Calculus I**

## Higher Education Session

Do you struggle with covering all the material without overwhelming students in your introductory college calculus class? This session will offer classroom-tested strategies for balancing flipped teaching with traditional methods to gain class time. Tools, technology, time and lesson structure, activities, and students’ feedback will be discussed.

**Jessica Pfeil**

Fairfield University, Connecticut

2022 (MOSCONE WEST)

**58****Already Flipping—How Do You Make It Better?**

## 8–10 Session

Are you already flipping? Do you understand how the technology works but feel that something is missing? We will use hands-on examples to model Common Core topics in geometry and algebra, demonstrating how to effectively use class time to check for understanding. We will provide examples related to practice standards, technology, and class strategies.

**Shelly K. Lindsey**

Lake Forest High School, Illinois

**Kyle Wilhelm**

Lake Forest High School, Illinois

2001 (MOSCONE WEST)

**59****Children Living in Poverty Can Solve Common Core OA Word Problems**

## Pre-K–2 Session

Children in kindergarten–grade 2 from backgrounds of poverty and non-native speakers of English can solve the ambitious types of word problems in the Operations and Algebraic Thinking (OA) domain of the Common Core. The learning path that the children experienced, and helpful relationships among the OA standards will be described. Participants will discuss how children represent and solve with math drawings.

**Karen C. Fuson**

Consultant, Fallbrook, California

**Steven T. Smith**

Self-Employed, North Hills, California

YERBA BUENA 10/11 (MARRIOTT)

**60****Diving Deeper into Decimals**

## 3–5 Session

How do you build a strong understanding of decimals so that computation makes sense? What is involved in teaching standard 5.NBT.7 that will ensure student concept attainment? Participants will discover how place value, estimation, and an understanding of decimal notation will build a strong foundation that will lead to successful computation.

**Kelly Krownapple**

Howard County Public Schools, Columbia, Maryland

**Maria Merrill**

Howard County Public Schools, Columbia, Maryland

YERBA BUENA 12/13 (MARRIOTT)

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



**61****Exploring Fraction Equivalence through Complex Fractions**

6–8 Session

Join us and explore different ways to model and interpret complex fractions to identify equivalent fractions. Find out how students manipulated and transformed complex fractions into equivalent fractions and used this experience to improve their understanding of fraction equivalence.

**Elif Safak**

Illinois State University, Normal

**Jennifer M. Tobias**

Illinois State University, Normal

3009 (MOSCONE WEST)

**62****Facilitating Rich and Rigorous Discussion in the Mathematics Classroom**

3–5 Session

This session focuses on ways to facilitate and enhance classroom mathematical discourse. Simulated lessons provide opportunities to practice questioning strategies, giving attendees tools and techniques they can immediately use to manage conversations, evaluate student responses, and elevate the rigor of discourse to boost college and career readiness.

**Gladis Kersaint**

University of South Florida, Tampa

3003 (MOSCONE WEST)

**63****PtA****From Principles to Actions: Research You Can Use**

General Interest Session

NCTM recently published two volumes that compile useful and useable research on mathematics teaching and learning. This talk will provide a glimpse of some of the research featured in these volumes related to equitable teaching practices and the teaching and learning of important mathematics content and core mathematical practices.

**Edward A. Silver**

University of Michigan, Ann Arbor

2024 (MOSCONE WEST)

**64****Hour Two—What Follows the “Hour of Code”?**

10–12 Session

The “Hour of Code” is a worldwide initiative that introduces students to coding with the hopes of sparking an interest in computer science. But if it works—then what?! Come to learn a variety of activities (many of which are free) to help students continue their exploration into this exciting field.

**Martin Funk**

New Trier High School, Winnetka, Illinois

**Julie Bar**

New Trier High School, Winnetka, Illinois

2005 (MOSCONE WEST)

**65****How Good Are U.S. Students in Math? Fact and Fiction**

General Interest Session

This session explores the conflicting mathematics results from the TIMSS, PISA, and NAEP assessments over the last fifty years. Examples of assessment items where U.S. students do well and where they struggle will be presented along with options for using assessment items to promote discourse in the classroom.

**Peter Kloosterman**

Indiana University, Bloomington

**Mark A. Creager**

Indiana University, Bloomington

GOLDEN GATE A (MARRIOTT)

**66****How to Engage Students in a Mathematics Discussion**

8–10 Session

Want a guaranteed response in the classroom? Try this: “Tell which problem you don’t like and why.” The right question stimulates conversation. This presentation discusses how to set tone with a growth mindset, provides examples of teacher questions and responses to encourage conversation, and offers discussion tools to encourage student discourse.

**Kathleen Strange**

College Park High School, Pleasant Hill, California

3016 (MOSCONE WEST)

Thursday

**67**

## Interpreting Mathematics Communications Standards: Relating Policy, Pedagogy, Communication, and Understanding

Research Session

Meaningful discourse is a key aspect of effective teaching and learning, and this discourse is used both to acquire and assess math understanding. A study of teachers in Denmark indicates that forms of math communication, and resulting student understanding, used in classroom curricula depend on educational policy and teachers' ideas about pedagogy.

**Matthew D. Reames**  
University of Virginia, Charlottesville

307 (MOSCONE SOUTH)

**68**

## It's All about the Task!

Pre-K–2 Session

Participants will glimpse inside K–2 classrooms to see the impact that mathematical tasks, small group instruction, lesson debriefs, and formative assessments have on the development of number sense and mathematical reasoning throughout a year. Video clips, work samples, and interviews will be used to highlight this journey. K–2 tasks provided.

**Loria A. Allen**  
Alabama Math, Science, and Technology Initiative, University of Alabama in Huntsville

YERBA BUENA 5/6 (MARRIOTT)

**69**

## Jumps and Leaps: Number Lines, Number Sense, and Solving Problems

3–5 Session

There are many advantages to using the number line model for building students' number sense. Learn more about this important representation and how it supports students' math understanding. This session will provide participants opportunities to learn the math behind the number line and obtain easy-to-implement number sense activities.

**Jessica F. Shumway**  
Utah State University, Logan, Utah  
**Jalyn Kelley**  
Logan City School District, Logan, Utah  
**Barbara Child**  
Logan City School District, Logan, Utah

GOLDEN GATE C1 (MARRIOTT)

**70**


## Lunchroom Ladies, Truck Drivers, and Native American Beadworkers: Mathematical Modelers

6–8 Session

The session shares mathematical models built by students in middle grades as they analyzed tasks developed by teachers. Teachers used the lived work experiences of head cooks, truck drivers, and Native American beadworkers to design tasks that required the use of mathematical modeling. We share work samples and reflections from students.

**Nirmala Naresh**  
Miami University, Oxford, Ohio  
**Lisa Poling**  
Appalachian State University, Boone, North Carolina  
**Tracy Goodson-Espy**  
Appalachian State University, Boone, North Carolina

2007 (MOSCONE WEST)



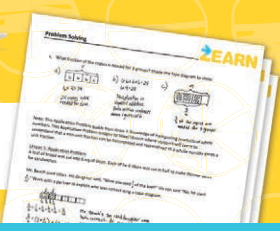
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**zearn.org**

**71****Making It Work! Aligning Math IEP Goals with Math Practices**

General Interest Session

How are needs of struggling learners and students with Individualized Educational Programs (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 E. Agness**

Howard County Public School System, Ellicott City, Maryland

**Kym Craig**

Howard County Public School System, Ellicott City, Maryland

**Bill Barnes**

Howard County Public School System, Ellicott City, Maryland

2009 (MOSCONE WEST)

**72****Making the Mathematical Practices Routine**

3–5 Session

Today's classrooms are full of routines. We often think of routines as being used for organizational purposes, but routines can also be used to develop the Standards for Mathematical Practice described in the Common Core. Come and learn some easily implemented routines that will help your students become proficient with the mathematical practices.

**Joann Barnett**

Missouri State University, Springfield

**Ann McCoy**

University of Central Missouri, Warrensburg

**Emily Combs**

Clinton Public Schools, Missouri

YERBA BUENA 7 (MARRIOTT)

**73****Math Content Professional Development—Focus on Understanding**

Coaches / Leaders / Teacher Educators Session

What's new about Common Core math? The word "understand" is on 72 of its 93 pages. What's new is that students must understand it thoroughly, use it fluently, and apply it with confidence. Teacher content knowledge is essential. Teachers who don't understand math well can't teach for understanding. A PD content model will be presented.

**Richard Bisk**

Worcester State University, Massachusetts

2020 (MOSCONE WEST)

**74****Math Is Supposed to Make Sense!**

General Interest Session

President's Series presentation

Helping students develop mathematical habits of mind may be the most important thing we do. How can every student learn to build numerical, spatial, and logical reasoning? Let's help them expect math to make sense—even demand that it make sense—both in what they learn and in what they and others do. Let's help them see that math is supposed to make sense!

**Cathy L. Seeley**

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

135 (MOSCONE NORTH)



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**The Math Forum** staff, and shop the  
latest titles at the **Bookstore**!



76

## Parent Partnerships: Collaborative Efforts to Promote Students' Mathematical Thinking

3–5 Session

Learning does not just happen in school. Parents can be powerful allies in their children's education. In this session, we share ways we have included and engaged parents around students' mathematical thinking and provide a space for participants to share and develop ideas for authentic family engagement in supporting mathematics learning.

**Carolee Koehn Hurtado**

UCLA Mathematics Project, Los Angeles, California

**Brandon McMillan**

UCLA Mathematics Project, Los Angeles, California

**Karen Recinos**

UCLA Mathematics Project, Los Angeles, California

NOB HILL C/D (MARRIOTT)

77

## Problems of the Month: Problem Solving for ALL

General Interest Session

This session introduces Problems of the Month (POMs)—non-routine problems that engage K–8 students in extensive inquiry and exploration of mathematical concepts, expanding their reasoning skills, problem-solving strategies, and perseverance. Come see how POMs can help build a schoolwide culture of mathematical inquiry.

**Trisha A. Bergthold**

Casa di Mir Montessori School, Campbell, California

**Ariadne Georgiou**

Casa di Mir Montessori School, Campbell, California

**Catherine Williams**

Casa di Mir Montessori School, Campbell, California

2011 (MOSCONE WEST)

79

PPD

## Snorkelers to Scuba Divers: Engaging Deep-Thinking Brains in Mathematics

General Interest Session

Developing deep-thinking brains in mathematics starts early and is strongly associated with engaging experiences in the classroom. This session will explore the latest research on student engagement in mathematics and how to design classrooms that unlock students' minds to promote deeper thinking (scuba divers) in mathematics.

**John T. Almarode**

James Madison University, Harrisonburg, Virginia

134 (MOSCONE NORTH)

80

## Strategies and Scaffolds: Bridges to Understanding for Struggling Math Learners

6–8 Session

Students with LD, ADHD, and executive function weaknesses need alternative approaches in order to access the math curriculum. We will define the developmental factors that affect math, discuss the ways different types of learning problems affect the acquisition of math skills, and share differentiated math learning strategies.

**Joan L. Steinberg**

Institute for Learning and Development and Research ILD, Lexington, Massachusetts

**Bethany N. Roditi**

Institute for Learning and Development and Research ILD, Lexington, Massachusetts

3001 (MOSCONE WEST)

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Exhibitor Workshop



Hot Topics



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The Math Learning Center  
booth or visit the link below.**

[mathlearningcenter.org/intervention](https://mathlearningcenter.org/intervention)

**81****The Art of Engineering for Elementary Grades**

Pre-K–2 Session

As our society evolves, more engineering challenges will develop that need to be addressed. Children need to be engaged in the process of solving challenges. Our presentation is designed to introduce engineering to younger children with the hope that it inspires them to become engineers themselves while developing math, science, and art skills.

**Peter Nosalik**

Royco Limited, Kitchener, Canada

**GOLDEN GATE C3 (MARRIOTT)****82****The Matrix: A Mathematical Thriller**

10–12 Session

Matrices are not only useful in solving systems of equations. Learn to teach matrix operations through real-world applications such as transportation networks, creating and breaking codes, and programming video games.

**Pam Goodner**

Eureka Math, Washington, D.C.

**3005 (MOSCONE WEST)****83****E&A****Using Identity and Agency to Frame Equitable Teaching Practices**

General Interest Session

This session uses vignettes and the voices of students and teachers to frame the Access and Equity Principle. Mathematics identity and agency serve as the framework for equitable teaching practices. Equitable teaching practices has significant implications for the eight Mathematics Teaching Practices discussed in *Principle to Actions*.

**Robert Q. Berry**

University of Virginia, Charlottesville

**3007 (MOSCONE WEST)****84****Video Club: Creating Vision, Pushing Beliefs, and Supporting Teacher Communities**

General Interest Session

Ever wonder how to discuss video with colleagues? Experience the power of community by doing math, seeing video, and participating in a facilitated discussion centered on student strengths. Hear how our teacher-facilitated Video Club builds a common vision of an equitable math classroom for teaching communities through pushing on teacher beliefs.

**Angela Torres**

San Francisco Unified School District, California

**Noam Szoke**

San Francisco Unified School District, California

**Alison Ellsworth**

San Francisco Unified School District, California

**303 (MOSCONE SOUTH)****85****Visualizing Instructional Equity**

Coaches / Leaders / Teacher Educators Session

Mathematics teachers dismiss the relevance of equity in the classroom because they view mathematics as a culture-free subject. Teachers and leaders in the mathematics education community must value the cultural and lived experiences of all children. Participants will engage in discussing three cases they may use to explore issues related to equity.

**Cynthia E. Taylor**

Millersville University, Pennsylvania

**Christa Jackson**

Iowa State University, Ames, Iowa

**Kelley E. Buchheister**

University of South Carolina, Columbia

**305 (MOSCONE SOUTH)**



**85.1 E&A**

## Mathematics Teaching as Subversive Activity: Common Core, Social Justice, Creative Insubordination

General Interest / All Audiences Session

Real teaching requires more than just knowledge of content, pedagogy, or students. Using examples from teachers who are successful at negotiating the politics of such things as racism, language policies, and high-stakes education, this session offers knowledge and tools for teachers to reclaim the profession.

**Dr. Rochelle Gutiérrez'** research focuses on equity in mathematics education, race/class/language issues in teaching and learning mathematics, effective teacher communities, and the kinds of political knowledge that mathematics teachers need to negotiate high stakes education. She has served as a member of the RAND National Mathematics Study Panel and the National Academy of Sciences' Committee on Increasing Urban High School Students' Engagement and Motivation to Learn, and is currently on the Association of Mathematics Teacher Educators' Standards Writing Team. In 2011, the Association of Mathematics Teacher Educators awarded her the Excellence in Research Award for the work she has conducted and the theories on equity she has offered to the field. On a Fulbright fellowship, she studied secondary mathematics teachers in Zacatecas, México, where she was able to document the different cultural practices and algorithms used in Mexican classrooms. Before and throughout graduate school, she taught middle and high school mathematics to adolescents in East San José, California.

**Rochelle Gutiérrez**

University of Illinois at Urbana-Champaign

YERBA BUENA 8 (MARRIOTT)

**85.2 ew**

## 10 Minutes of Code

10–12 Exhibitor Workshop

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

**Texas Instruments**

Dallas, Texas

120 (MOSCONE NORTH)

**85.3 ew**

## Making Every Day Count with Daily Math Discussion

Pre-K–2 Exhibitor Workshop

Calendar time offers teachers and students a wonderful opportunity to engage in daily discussion that involves reasoning, review, and preview, and develops number sense. Come hear this presentation by the author of Every Day Counts Calendar Math as she explains how you can make the most of 10–15 minutes daily. It's so much more than a calendar.

**Houghton Mifflin Harcourt**

Boston, Massachusetts

121 (MOSCONE NORTH)

**85.4 ew**

## Crazy 8s: It's Not Your Ordinary Math Club!

3–5 Exhibitor Workshop

Get the scoop on Crazy 8s, a high-energy after-school club for kids ages 5 to 10. Hands-on activities like Spy Training and Toilet Paper Olympics appeal to any kid. Bedtime Math provides a free kit with scripts and most materials; schools provide a few supplies and an enthusiastic coach. It's time to make math the cool thing to do after school!

**Bedtime Math Foundation**

Summit, New Jersey

122 (MOSCONE NORTH)

**85.5** **ew**

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

6–8 Exhibitor Workshop

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

**Mathspace**  
New York, New York

124 (MOSCONE NORTH)

**85.6** **ew**

**It's Here: the NEW Investigations 3 K–5**

3–5 Exhibitor Workshop

Intrigue students by creating a learning environment of high expectations. Guide students as they actively explore mathematical ideas to develop understanding and fluency. Create a New Learning Culture. Focus on mathematical problem solving, learner-centered activities, and guided inquiry. Welcome to *Investigations 3* in Number, Data, and Space.

**Pearson**  
Boston, Massachusetts

125 (MOSCONE NORTH)

**85.7** **ew**

**Teaching Mathematics from a Growth Mindset: Strategies To Support Math Success for All Learners**

General Interest Exhibitor Workshop

In this workshop, participants will experience instructional strategies that support the development of positive attitudes toward math. Attendees will explore and practice ways of sharing feedback, asking questions, and recognizing multiple ways of approaching a problem that help equip learners with a growth mindset toward mathematics learning.

**Curriculum Associates**  
North Billerica, Massachusetts

130 (MOSCONE NORTH)

**85.8** **ew**

**Demystify Math Using Targeted Math Practice**

General Interest Exhibitor Workshop

Accelerated Math 2.0 and STAR Math assessment software help teachers personalize dynamic math practice for both grade-level standards and foundational skill development. Learn how students who use these math solutions are nearly twice as likely to be college and career ready.

**Renaissance Learning**  
Wisconsin Rapids, Wisconsin

123 (MOSCONE NORTH)

Check out the  
**Exhibitor Workshops!**

**86****3 Act Math: A How-To**

8–10 Workshop

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

**Dane Ehler**

Mesquite Independent School District, Texas

2004 (MOSCONE WEST)

**87****A Pedi for the Lady and Other Engaging Calculus Investigations**

10–12 Workshop

Ever wondered how much polish it would take to give the Statue of Liberty a pedicure? Delve into activities such as this that can make your calculus classes meaningful and fun. Participants will use Wikki Stix, graphing calculators, and computer programs to investigate many AP Calculus topics including limits, derivatives, and integrals.

**Deedee Stanfield Henderson**

Oxford High School, Alabama

2006 (MOSCONE WEST)

**88****Beyond Invert and Multiply: Making Sense of Fraction Computation**

3–5 Workshop

Students often struggle with fraction computation. We'll share hands-on strategies for helping students learn to compute accurately, efficiently, and with understanding. Activities will develop and build on students' "fraction sense" and help students understand fractions as numbers as called for in CCSSM. Video from classrooms will be shared.

**Julie McNamara**

University of Michigan, Ann Arbor

3008 (MOSCONE WEST)

**89****Cuisenaire Rods to Number Lines: Multiplication and Division of Fractions**

6–8 Workshop

Many teachers ask how they can help students understand multiplication and division of fractions. We will answer that question by using Cuisenaire rods and number lines to transition all students from the conceptual development of the operations to the abstract algorithms developed from materials and representations used at the concrete level.

**Adam P. Harbaugh**

Missouri State University, Springfield

**Kurt Killion**

Missouri State University, Springfield

**Gay Ragan**

Missouri State University, Springfield

2003 (MOSCONE WEST)

**90****Envisioning 1, 2, 3**

Pre-K–2 Workshop

When your students think of a number, what do they visualize? Explore techniques to draw students' attention to the importance of being able to mentally picture what a number looks like. This will include subitizing and mental math strategies using tools such as dot cards, beaded measures, and ten-frames.

**Carol A. Matsumoto**

Retired, Seven Oaks School Division, Winnipeg, Canada

**Angela Bubnowicz**

Seven Oaks School Division, Winnipeg, Canada

GOLDEN GATE B (MARRIOTT)







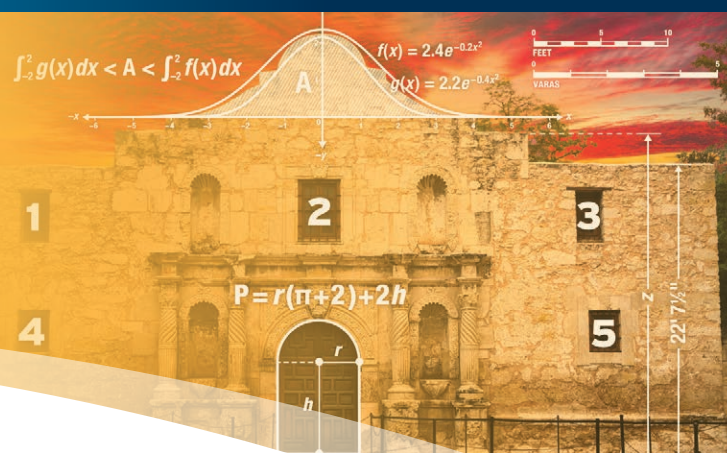
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TEACHERS OF MATHEMATICS

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- **Building Conceptual and Procedural Understanding**
- **Professionalism:** Learning Together as Teachers
- **Teaching, Learning, and Curriculum:** Best Practices for Engaging Students in Productive Struggle
- **The "M" in STEM/STEAM**
- **Tools and Technology:** Using Technology to Effectively Teach and Learn Mathematics

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**91****High on a Hill: Visualization, Spatial Reasoning, and Geometric Modeling**

Pre-K–2 Workshop

The role of visualization, spatial reasoning, and geometric modeling will be explored to create mental images and predict how models will vary through various representations, cuts, folds, and transformations. Connections to other topics will include number, measurement, data, maps, children's literature, language arts, art, and physical education.

**Mary C. Cavanagh**  
Arizona State University, Tempe  
**Carole E. Greenes**  
Arizona State University, Tempe

3006 (MOSCONE WEST)

**92****Making Mathematicians: Daily Routines That Build Number Sense**

Pre-K–2 Workshop

Develop deep, conceptual understanding through quick, engaging daily number sense routines and workstation activities. Learn how to use a variety of visual tools for subitizing, composing, and decomposing numbers. Number sense apps will also be shared, and you will leave with activities to use immediately.

**Karen Pasiuk**  
Lyme-Old Lyme Public Schools, Connecticut  
**Heidi Hayes**  
Old Saybrook Public Schools, Connecticut  
**Kate Madura**  
Clinton Public Schools, Connecticut

308 (MOSCONE SOUTH)

**93****Making Middle School Math Come Alive with Games and Activities**

6–8 Workshop

Participants will be actively engaged in this session. Manipulatives and games will be used to introduce and practice integer operations. We will work on order of operations not using PEMDAS. Participants will also do activities around graphing and tables. They will also do a scavenger hunt to look at justifying their answers to math situations.

**Christine Mikles**  
CPM Educational Program, Sacramento, California

3004 (MOSCONE WEST)

**94****Mathematics Carnival: A Vehicle for ALL to Learn CCSSM Geometric Concepts!**

8–10 Workshop

Ferris wheels, spinning tops, roller coasters! Hands-on activities that deepen the knowledge of key transformational 3-D and 2-D geometric concepts. Build, construct, solve, relate, and prove using the math practices. Differentiate tasks and activities. Go home with manipulatives and many activities that can be used in your classroom on Monday!

**Vivian La Ferla**  
Rhode Island College, Providence

2016 (MOSCONE WEST)

**95****Mentoring Each Other: Teaching Teachers to Teach with PBL**

Coaches / Leaders / Teacher Educators Workshop

To move to a problem-based approach in secondary math, we are pushed toward methods outside of our training and experience. A mentor and novice PBL teacher share their experience of learning together and how best practices were observed and imitated. Enjoy a simulated PBL class and leave with resources for supporting colleagues in PBL training.

**Carmel Schettino, Ph.D**  
Deerfield Academy, Massachusetts  
**Miriam Singer**  
Deerfield Academy, Massachusetts

YERBA BUENA 14/15 (MARRIOTT)

**96****Nspiring Students in Data Representation and Scientific Inquiry**

6–8 Workshop

Experience the power of allowing students the freedom to design, implement, and film their own scientific investigations in the mathematics classroom. Utilizing TI-Nspire calculators, students then engage in meaningful data representation and analysis. See student-made projects and receive full lesson plans and rubrics.

**Amber L. Muscarello**  
Fort Bend Independent School District, Sugar Land, Texas

2008 (MOSCONE WEST)

**97****One's Good But More is Better**

8–10 Workshop

Good mathematics instruction and good problem solving includes problems with multiple answers as well as problems with multiple approaches. Join us as we explore a number of interesting problems and explorations that can have multiple answers or are accessible by a variety of approaches.

**Michael Serra**

Self-Employed, San Francisco, California

2002 (MOSCONE WEST)

**98****Paper Cup + Gust of Wind = Yearlong Rich Task**

8–10 Workshop

Explore how what began as a cup rolling on a table became a low-floor, high-ceiling problem used to build significant math over the course of a year in geometry. Revisiting the same task emphasizes math as reasoning not simply answer-getting, as ideas from cut and paste to application of trig functions are employed to reason about the same scenario.

**Peg Cagle**

Vanderbilt University, Nashville, Tennessee

3018 (MOSCONE WEST)

**99****Professional Development 2.0: The Next Generation of PD**

Coaches / Leaders / Teacher Educators Workshop

Effective professional development should improve the learning experience for students. Instructional rounds, coaching cycles, modeling, and deliberate practice are tools for the next generation of professional learning. Participants will engage in these structures and develop a plan for implementation.

**Erin Wheeler**

Eureka Math, Washington, D.C.

**Kate Austin**

Eureka Math, Washington, D.C.

**Dawn Pensack**

Eureka Math, Washington, D.C.

GOLDEN GATE C2 (MARRIOTT)

**100****Routines + Great Questions + Small Changes = Number Sense**

3–5 Workshop

How can changing one word dramatically improve understanding? Which visual models and routines deepen number sense? What questions should you ask to reveal student understanding? In this interactive session, you will fill your tool box and leave armed with routines, questions, and visuals to help you build number sense! Small changes = big results!

**Alison J. Mello**

Foxborough Public Schools, Massachusetts

310 (MOSCONE SOUTH)

**101****Solving the Mystery: Using Digital Tools to Identify Proportional Relationships**

6–8 Workshop

Try to solve the “Gas Pump Mystery!” Engage in an interesting, middle school project that requires teamwork and communication. Investigate proportional relationships and engage with the Standards of Mathematical Practice as you determine which gas pumps have been hacked. Bring your own device! We will use a variety of technology to crack the case.

**William G. McGowan**

Amplify, Brooklyn, New York

**Sean Berg**

Amplify, Brooklyn, New York

3022 (MOSCONE WEST)

**102****Supporting Teacher Teams with Talk Protocols**

Coaches / Leaders / Teacher Educators Workshop

Teaching is a complex, dynamic activity best understood collaboratively. Working on a team studying practice is critical but unfamiliar. Team skills are learned and can be improved. We will share and practice protocols to support learning how better to collaboratively improve practice, developing critical structures for feeling safe in a team.

**Jesse E. Johnson**

New Visions for Public Schools, New York, New York

**Russell West**

New Visions for Public Schools, New York, New York

3011 (MOSCONE WEST)



**103****Taylor Series: A Beautiful Story behind the Most Dreaded Topic**

10–12 Workshop

Explore a carefully built progression of activities for the “sequence and series” topic of the AP Calculus BC curriculum that starts in precalculus and is woven into the entire BC course. Visualize series using Desmos. Participants will leave with ready-to-use materials and a deep appreciation for the beauty and connectedness of the topic.

**Bence Szamosfalvi**

Math for America Los Angeles, California

3010 (MOSCONE WEST)

**104****The Scaling Factor**

3–5 Workshop

Scaling isn't scary! Come explore Common Core 5.NF.5 more deeply to understand what prior math skills are needed to teach this standard as well as how to deepen your own understanding of what scaling means. We will engage in real-world problems and view multimedia resources that promote discussions that will lead to deeper math understanding.

**Jennifer L. Stairs**

Howard County Public Schools, Columbia, Maryland

**Joan Tellish**

Howard County Public Schools, Ellicott City, Maryland

**Meghan Hearn**

LearnZillion, Washington, D.C.

YERBA BUENA 3/4 (MARRIOTT)

**105****Visual Models: Connecting Representations and Algorithms for Multiplication and Division**

3–5 Workshop

Visual representations connect concepts with procedures. Help students make sense of mathematics by making these relationships explicit as students master multiplication and division. A variety of physical, visual, verbal, and symbolic representations will be used to work with whole numbers, decimals, and fractions.

**Sara Delano Moore**

ETA hand2mind, Vernon Hills, Illinois

302 (MOSCONE SOUTH)

**106****NGM****What Is the Current State of Mathematical Modeling Education**

General Interest Workshop

The panel will describe new developments in mathematical modeling education. Garfunkel will discuss the new GAIMME report along with developments in high school modeling competitions. Hirsch will discuss the new NCTM *Annual Perspectives in Mathematics Education (APME) 2016* volume on modeling. Turner will describe the efforts of the Society of Industrial and Applied Mathematics (SIAM). And Zbiek will relate present and future plans of NCTM and what those developments mean for our members.

**Solomon Garfunkel**

COMAP, Bedford, Massachusetts

**Christian R. Hirsch**

Western Michigan University, Kalamazoo

**Peter Turner**

Clarkson University, Potsdam, New York

**Rose Mary Zbiek**

Board of Directors, National Council of Teachers of Mathematics;

Penn State University, University Park, Pennsylvania

306 (MOSCONE SOUTH)

11:00 A.M.–11:30 A.M.

**106.1****Cross-State Collaboration for Common Core Implementation**

Coaches / Leaders / Teacher Educators Burst

Attendees will learn about professional learning modules that have enabled our states to reach larger audiences. Iowa, Montana, South Dakota, and North Dakota were awarded the Leona Helmsley Grant for effective implementation of the Common Core in rural states. With CCSSO's support the project has strengthened the collaboration among the states and within their PK–16 systems.

**LaCosta M. Potter**

South East Education Cooperative, Fargo, North Dakota

**Lynn Mitzel**

South East Education Cooperative, Fargo, North Dakota

**Cathy J. Williams**

Grand Forks Public Schools, Grand Forks, North Dakota

2003 (MOSCONE WEST)

**107****3 Reasons Kids Don't Know Facts and How to Help**

Pre-K–2 Session

Children have an overreliance on counting, they lack number sense, and the manipulatives we use in the early grades actually hinder students' abilities to progress to more advanced addition strategies. This session will discuss why these three ideas keep kids from being fluent with their addition facts *and* what we can do in the classroom to help.

**Christina Tondevoid**

Mathematically Minded, Orofino, Idaho

**Lynn Rule**

MathRack, Wheaton, Illinois

YERBA BUENA 7 (MARRIOTT)

**108****Algebraic Reasoning in Multiplication: The Power of Multiplicative, Contextual Tasks**

3–5 Session

What is algebraic about multiplication with whole numbers? This session explores how to use multiplicative, contextual tasks to develop and assess algebraic reasoning. Activities with the research-based tasks and videos of students working will illuminate their classroom implementation and connection to the Common Core.

**Jerry A. Woodward**

Ball State University, Muncie, Indiana

GOLDEN GATE A (MARRIOTT)

**109****A Not-So-Average Talk about Averages**

General Interest Session

This talk discusses how mathematical ideas from arithmetic, algebra, geometry, and calculus are intimately connected with the arithmetic mean, an idea often taught only as a statistical measure.

**Zalman Usiskin**

University of Chicago, Illinois

3009 (MOSCONE WEST)

**110****Building a Mathematics Growth Mindset**

8–10 Session

Students do not need the “math gene” to succeed in mathematics. Come learn how the use of micromessaging, self-monitoring, and other techniques can help reduce inequality in the classroom, improve student achievement, and open the doorway to STEM careers.

**Tujuana Greene Hinton**

Baltimore County Public Schools, Maryland

3012 (MOSCONE WEST)

**111****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 D. Cooperman**

Association of Mathematics Teachers of New Jersey, Chester

**Stephanie H. Cooperman**

School District of the Chathams, Chatham, New Jersey

2001 (MOSCONE WEST)

**112****Create Debate**

10–12 Session

Participants will leave this session with a set of strategies to create rich debates in their classroom, regardless of the content. Strategies include question stems and lesson structures. Participants will also learn how to choose rich problems for debate and where to find them. Research on the benefits of debate will be presented.

**William Stafford**

E. L. Haynes Public Charter School, Washington, D.C.

**Beth Thompson**

Georgetown Day School, Washington, D.C.

3003 (MOSCONE WEST)

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113

PPD



## Developing Growth Mindsets: Motivating Students to Grow Their Minds

General Interest Session

In this session we will examine the growth mindset, which is needed to unleash students' motivation and self-efficacy. Eduardo will summarize key takeaways from research and practice, including insights on how we can foster school cultures that facilitate this higher level of learning, resilience, and performance.

**Eduardo Briceño** is the co-founder and CEO of Mindset Works, the creator of a number of products and programs, such as Brainology, that now serve hundreds of schools and tens of thousands of teachers and students, helping people to develop as motivated and effective learners. He has spoken at numerous industry conferences and has delivered a highly rated TEDx talk on the growth mindset that has been viewed by over one million people.

**Eduardo Briceño**  
Mindset Works, San Jose, California

303 (MOSCONE SOUTH)

114

## Principles to Actions: For Young Learners, Too

Pre-K–2 Session

Through ideas for instructional tasks and examples of student work, learn how to use questioning to promote discourse and representation for young learners in counting, place value, problem solving, geometry, and measurement. Learn how the practices in *Principles to Actions* are important and appropriate for all students.

**Marcy M. Myers**  
Carroll County Public Schools, Westminster, Maryland  
**Laura C. Hunovice**  
Carroll County Public Schools, Westminster, Maryland

GOLDEN GATE C1 (MARRIOTT)

115

## Five Functions of Fractions

3–5 Session

Too often children are exposed to only one function of fractions: the part-whole model. This workshop will focus on all five functions of fractions and how to use them to increase children's conceptual and procedural understanding of fractions. Come and learn several easy ways to incorporate all five functions of fractions into your teaching!

**Claudia M. Bertolone-Smith**  
University of Nevada, Reno  
**Marlene Moyer**  
Douglas County School District, Minden, Nevada

YERBA BUENA 10/11 (MARRIOTT)

116

## Illustrating the Statistical Process with Regression

8–10 Session

Does sitting in the front improve test scores? How much does the value of a used car decrease for each extra mile it is driven? In this session, we will use technology to illustrate the four-step statistical problem solving process (formulate questions, collect data, analyze data, draw conclusions) in contexts involving two quantitative variables.

**Josh Tabor**  
Canyon del Oro High School, Oro Valley, Arizona  
**Daren Starnes**  
The Lawrenceville School, New Jersey

2007 (MOSCONE WEST)

117

## "No, That's a Rectangle": Activities to Combat Shape Misunderstandings

Pre-K–2 Session

This session's focus is to take a deeper look at shape hierarchies through inclusive and exclusive shape definitions and to discuss typical student misunderstandings. Participants will complete classroom-ready activities that allow young students to interact rigorously with shape attributes, categories, and subcategories.

**Michael Daiga**  
Indiana University, Bloomington  
**Mark A. Creager**  
Indiana University, Bloomington

YERBA BUENA 12/13 (MARRIOTT)

**118****I've Got My Students Sharing Their Mathematical Thinking—Now What?**

General Interest Session

Once students share their ideas, creating meaningful mathematics discourse requires that teachers decide which ideas are worth pursuing and how to capitalize on those ideas. We will share a framework for determining which student ideas have significant potential to support mathematics learning, and we will discuss how teachers might productively use those ideas.

**Shari L. Stockero**

Michigan Technological University, Houghton

**Laura R. Van Zoest**

Western Michigan University, Kalamazoo

**Keith R. Leatham**

Brigham Young University, Provo, Utah

307 (MOSCONE SOUTH)

**119****Learning from Research: Using Worked Examples in Math Class**

6–8 Session

Research suggests that engaging students in explaining “worked examples” is more effective than completing traditional problem sets. In this session, you will experience some samples of and strategies for using “worked examples” while engaging students with the Standards for Mathematical Practice.

**Cathy Carroll**

WestEd, Redwood City, California

3016 (MOSCONE WEST)

**120****Lessons from Our Students: Stories from Railside High School**

General Interest Session

Many concerned with issues of equity and math learning are discussing the story of Railside High, a math department that developed a program focused on detracking, multidimensional curriculum and Complex Instruction. Now let's hear from some of the students who were math learners at Railside. What did they take away from their experiences?

**Lisa M. Jilk**

University of Washington, Seattle

**Ana Mayen Torres**

Oakland Unified School District, California

NOB HILL C/D (MARRIOTT)

**121****PCPG****Lesson Study: Exemplary Process for Implementing the NCTM Teaching Practices**

10–12 Session

This session will demonstrate how the lesson study process can serve as a catalyst for improvements in teaching and learning through its effectiveness in facilitating implementation of NCTM's eight Mathematics Teaching Practices. The session will also consider strategies for addressing challenges to engaging in lesson study.

**Yvelyne Germain-McCarthy**

University of New Orleans, Louisiana

301 (MOSCONE SOUTH)

**122****Math Literacy! Acquire the Language of K–12 Mathematics**

General Interest Session

Apply the process of learning a second language to acquiring the language of mathematics. Students encounter a series of well-orchestrated reading, writing, listening, and speaking structures that allow them to progress from a beginning level of proficiency with the mathematics language to an advanced level of proficiency in grades K–12.

**Algrenon T. Nelson**

Educator, Houston, Texas

2009 (MOSCONE WEST)

**123****Native American–Based Mathematics Materials for Undergraduate Courses**

Higher Education Session

This project develops and researches undergraduate mathematics materials based in the culture and mathematics of Native American Peoples for integration into undergraduate courses. These materials are classroom ready. Topics include probability, number theory, transformational geometry, and elementary and secondary education.

**Miles R. Pfahl**

Turtle Mountain Community College, Belcourt, North Dakota

**Charles P. Funkhouser**

California State University, Fullerton

2020 (MOSCONE WEST)

Thursday

124



## NCTM's Mathematics Education Trust Provides Grants and Scholarships

### General Interest Session

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

**Carol A. Edwards**

Chair, MET Board of Trustees, Chandler, Arizona

305 (MOSCONE SOUTH)

125

## Not Using Speed Tests? Now What?? Assessing Math Fluency

### 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 Alyssa Hilty**

Staff Development for Educators, Peterborough, New Hampshire

GOLDEN GATE C3 (MARRIOTT)

125.1

## Mathematical Practices for Advanced Placement Calculus

### 10–12 Session

The AP Calculus course and exam description (also called the Acorn book) is being replaced with a new framework. What is different about this framework, and how do the mathematical practices for AP Calculus align with the effective teaching practices in NCTM's *Principles to Actions*? How can past exams inform how we teach calculus to support these practices?

**Vicki M. Carter**

West Florence High School, Florence, South Carolina

**Stephen Davis**

Davidson University, Davidson, South Carolina

**Gail Burrill**

Michigan State University, East Lansing, Michigan

**Ben Hedrick**

The College Board, Duluth, Georgia

2018 (MOSCONE WEST)

126

## Perspectives on Mathematics Methods Courses

### Coaches / Leaders / Teacher Educators Session

We will share three perspectives (situated, sociopolitical, and cognitive) from nationally prominent panelists who were keynote speakers at a NSF-funded conference on mathematics methods courses. We will share a research agenda along with goals, activities, and ways to assess activities in methods courses based on outcomes of the conference.

**Wendy B. Sanchez**

Kennesaw State University, Georgia

**Alyson E Lischka**

Middle Tennessee State University, Murfreesboro

2022 (MOSCONE WEST)

127

## Posing Powerful Questions by Exploring World Flags

### 8–10 Session

When you investigate the flags of nations, you discover that mathematics is an integral part of the design and construction of these flags. This session will allow teachers to see how high-quality, contextualized mathematics tasks are formed using these flags. Come and write more tasks of your own!

**Ron Lancaster**

University of Toronto, Canada

3007 (MOSCONE WEST)

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Equity



Exhibitor Workshop



Hot Topics



NCTM Committee



**128** **PCPG****Professional Collaborative Inquiry:  
Creating Responsive Mathematical  
Experiences for Elementary Students****Pre-K–2 Session**

Two collaborative inquiry projects will be shared including the structures used to support professional growth. The Reggio-Inspired Mathematics Project (K–3) looked at how Reggio-inspired practices enhance mathematical thinking and how the Place-Based Mathematics Project (K–5) examined practices that connect mathematics to the story of place.

**Janice Novakowski**

University of British Columbia, Vancouver, Canada

**3005 (MOSCONE WEST)**

**130****Social Networks for Teaching Graph  
Theory****10–12 Session**

Graph theory is a important topic in discrete mathematics and an excellent low-threshold topic for mathematical reasoning and problem-solving. In this presentation, we discuss the use of social networks for introducing and teaching graph theory. Social network theory is relatable and rich in context. Key ideas and activities will be discussed.

**Todd A. Abel**

Appalachian State University, Boone, North Carolina

**Mary E. Searcy**

Appalachian State University, Boone, North Carolina

**2005 (MOSCONE WEST)**

**131** **EQUITY****Spaces for Mathematics Learning:  
Advancing Equity and Excellence in  
Schools****General Interest Session**

In this session, I draw from research with mathematics doers of all ages (ranging from elementary students to professional mathematicians) to discuss ways to ensure students' opportunities to learn high-quality mathematics in all schools. I also use cases from practice to show how teachers and administrators can facilitate mathematics excellence.

**Erica N. Walker**

Teachers College, Columbia University, New York, New York

**134 (MOSCONE NORTH)**

**132****Teachers Lead Teachers in  
Professional Development****Research Session**

We explores the role and development of a teacher-driven professional development organization and its impact on teachers' classroom practices and self-efficacy toward teaching mathematics. Survey data was collected from teacher participants, and an online learning community was established to explore how teachers share practices and support colleagues.

**Patricia A. Dickenson**

National University, San Jose, California

**Judith Montgomery**

University of California Santa Cruz

**2011 (MOSCONE WEST)**

**133** **PPD****The Power of Students' Perceptions of  
Their Mathematical Ability****General Interest Session**

In this session, I will highlight and summarize research focused on relationships between students' perceptions of their mathematical ability and their mathematical performance. I will discuss implications of these research findings, and suggest ways teachers can better promote productive mathematics dispositions in students through a deeper understanding of students' perceptions of their mathematical ability.

**Lawrence M. Clark**

University of Maryland, College Park

**2024 (MOSCONE WEST)**



134



## Transforming Professional Learning in a Technology-Rich World

### General Interest Session

Looking for exciting ways to engage members of your organization in professional learning while leveraging available technology? This interactive session will discuss innovative ideas for professional learning using NCTM resources. Explore a model that can support your efforts to grow your leadership and engage all members of your organization.

#### NCTM Affiliate Services Committee

National Council of Teachers of Mathematics, Reston, Virginia

YERBA BUENA 8 (MARRIOTT)

134.1

PCPG



## Becoming the Math Teacher They Need!

### General Interest / All Audiences Session

The mathematics knowledge for teaching that teachers in K–12 need to be comfortable with must go beyond the details of curriculum

standards to reveal the big ideas in mathematics. It is by focusing on the bigger picture that teachers will help their students make critical connections. Experience a new perspective on what these big ideas are!

**Marian Small** speaks around the world showing how we can teach math more effectively and help a broader spectrum of students to succeed. Formerly the Dean of Education at the University of New Brunswick, she has written or co-authored around 100 publications for K–12 students and teachers, including such books as *Good Questions: Great Ways to Differentiate Mathematics Instruction*.

#### Marian Small

One, Two... Infinity Ltd; Ottawa, Ontario, Canada

135 (MOSCONE NORTH)

134.2

ew

## Embracing Principles to Actions

### General Interest Exhibitor Workshop

Wondering how to incorporate NCTM's *Principles to Actions* in your school? Let CPM show you! For over 25 years CPM has provided rich mathematics curricula that is student centered and problem based, encouraging thinking, persevering, and sense making. Experience the excitement that students do when exploring CPM's curriculum. Receive free access to the curriculum.

#### CPM Educational Program

Elk Grove, California

120 (MOSCONE NORTH)

134.3

ew

## How Do Global Top Performers Do It? Effective Math Practices of Top-Performing Nations

### 3–5 Exhibitor Workshop

Top-performing nations—such as Singapore, Hong Kong, and South Korea—share common practices for math instruction. This workshop demonstrates how five effective practices—making problem solving central, metacognition and mathematical thinking, Concrete-Pictorial-Abstract approach, process of learning mathematics, and consistent formative assessment—can be incorporated into everyday teaching.

#### Scholastic

New York, New York

122 (MOSCONE NORTH)

134.4

ew

## Empower Your Students with Algebra and Fractions Sense!

### 3–5 Exhibitor Workshop

Experience how visual and concrete models can make a dramatic difference in your students' understanding of algebra and fractions. With Hands-On Equations, they quickly learn to solve equations such as  $4x + 3 = 3x + 9$  and  $2(2x + 1) = 14$ . With fraction blocks, they can make solve equations such as  $\frac{5}{3} = \frac{?}{6}$  and display the solution to  $\frac{3}{5} \times 2 \frac{1}{2}$ .

#### Borenson and Associates

Allentown, Pennsylvania

123 (MOSCONE NORTH)



Building Capacity: Personal and Collective Professional Growth



Instruction and Policies that Promote Equity and Access



Equity



Exhibitor Workshop



Hot Topics



NCTM Committee

**134.5** **ew****Full STEAM Ahead: How Casio Can Unify Your School's Efforts**

## General Interest Exhibitor Workshop

In our current educational climate, non-core classes are being cut, budgets are being squeezed, and yet more and more mandates require cross-curricular experiences, sharing of resources, and ingeniously efficient lesson planning. Come and discover how Casio supports complete solutions for your school, including STEM and STEAM professional development, wide-ranging resources that are not curriculum-specific, and even synergistic equipment technology that provides schoolwide benefits.

**Casio America**  
Dover, New Jersey

124 (MOSCONE NORTH)

**134.6** **ew****A Look at enVisionMath2.0 K–8—Now for Middle School!**

## 6–8 Exhibitor Workshop

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

**Pearson**  
Boston, Massachusetts

125 (MOSCONE NORTH)

**134.7** **ew****Deci-Blocks: A Powerful Tool to Promote Rich Learning Tasks**

## General Interest Exhibitor Workshop

Explore how Deci-Blocks can be used in a variety of meaningful ways to promote rich learning tasks. Deci-Blocks expand the power of pattern blocks by adding six additional shapes to create a base ten manipulative. This combination forms a powerful mathematical tool designed to deepen students' understanding of numerous strands of mathematics.

**Nasco**  
Atlanta, Georgia

130 (MOSCONE NORTH)

**134.8** **ew****Mathletics by 3P Learning**

## 3–5 Exhibitor Workshop

Meet the Mathletics team and learn how our supplemental online math resource is helping American students achieve better results. Targeted, adaptive, and engaging K–12 content—designed to meet the requirements of the Common Core and state-based curricula, with reporting and assessments to match. Plus fun and engaging math challenges students love!

**3P Learning**  
New York, New York

121 (MOSCONE NORTH)

**135****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, Inc., St. Charles, Missouri

2002 (MOSCONE WEST)

Don't forget your badge!  
**Name badges** are needed  
to attend presentations  
and explore the Exhibit Hall.



11:30 A.M.–12:00 P.M.

**136****Magical Makeover! Strategies for Content Rigor, Relevance, and Richness**

Coaches / Leaders / Teacher Educators Burst

Participants will learn how to give problems a 3R (rigor, relevance, rich) makeover. Makeovers will be demonstrated using given feedback and revised user-submitted CueThink community (OER) content. The session will include before/after examples, audience-enabled polling, and sharing of resources for coaching magical makeovers.

**Norma Gordon**

CueThink, Boston, Massachusetts

GOLDEN GATE C2 (MARRIOTT)

**137****Navigating the Tricky Teens**

Pre-K–2 Burst

Language plays a critical role in the development of children's mathematical thinking and ability. In this session, we will look at how altering the complicated language of the teen years can help teachers to help all students make more sense of mathematics.

**TJ Jemison**

Math Coach/Consultant for TJ Consulting, Colchester, Vermont

**Barbara Blanke**

California Polytechnic State University, San Luis Obispo

310 (MOSCONE SOUTH)

**138****Smarter Balanced: Connecting Test Items to Instruction**

6–8 Burst

The phrase “teaching to the test” conjures up the image of students sitting in desks organized neatly in rows filling out endless worksheets. It's time to change that image. Participants examine Smarter Balanced test questions and discuss how they support the goal of deeper learning and how they signal a critical shift away from rote skills practice.

**Judy Hickman**

Smarter Balanced at UCLA, Los Angeles, California

**Shelbi Cole**

Smarter Balanced Assessment Consortium, Olympia, Washington

3022 (MOSCONE WEST)

**139****The Unreasonable Effectiveness of Mathematics**

10–12 Burst

Self-proclaimed “educational games” often aren't very good games. Thankfully, the potential for rich mathematical thinking exists in all sorts of games, not just ones that are billed as educational. In this session, we'll explore examples of mathematics in video games that don't typically come to mind when thinking about education.

**Matt Lane**

Math Goes Pop, San Francisco, California

3006 (MOSCONE WEST)

12:30 P.M.–1:30 P.M.

**140****3 Sets of 3 Questions—Practicing Inquiry with Taylor Series**

10–12 Session

Participants will be introduced to a framework for teaching mathematics, in the context of Taylor series, that starts the learning conversation with generative questions. This inquiry is the seed out of which grows lots of rich mathematical fruit, including patterns, theorems, and habits of mind.

**John Millar**

The Lawrenceville School, New Jersey

**Brent Ferguson**

The Lawrenceville School, New Jersey

2007 (MOSCONE WEST)

**141****Algebra Intervention, Rigor, Problem Solving, and CCSSM**

8–10 Session

What's rigor? What's procedural fluency at the conceptual level? What's it look like for intervention? Examine essential elements for conceptually based algebra intervention that supports CCSSM; embeds its Standards for Mathematical Practice; and emphasizes discourse, problem solving and writing. ELL and PLC friendly. Do math, and receive material that models the CCSSM assessments. Focused on grades 6–10

**Mardi A. Gale**

WestEd, Sherman Oaks, California

3009 (MOSCONE WEST)

**142****Choosing Tasks for Productive Struggle, Not Frustration**

10–12 Session

Identifying cognitively demanding real-world tasks is the first step toward promoting productive struggle in mathematics. Participants will explore how to choose worthwhile tasks for productive struggle, how to effectively implement them while keeping frustration in check, and how these experiences can shape students' mathematical dispositions.

**Jaclyn M. Murawska**

Saint Xavier University, Chicago, Illinois

3005 (MOSCONE WEST)

**143****The Status Quo Is Unacceptable: A Common Vision for Improving Collegiate Mathematics and Its Implications for K-12 and Preservice Mathematics Education**

General Interest / All Audiences Session

This session examines two efforts to support systemic improvement in curriculum, instruction, and assessment in the first two years of collegiate mathematics: the MAA Common Vision for Undergraduate Mathematical Science Programs in 2025 project and Transforming Post-Secondary Education in Mathematics (TPSE Math). We will also discuss the implications for pathways from K–12 to collegiate mathematics and for teacher preparation and professional learning.

**Diane J. Briars**

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

**Linda Braddy**

Tarrant County College; Hurst, Texas

**Uri Treisman**

The Charles A. Dana Center, University of Texas; Austin

**Christine D Thomas**

Georgia State University; Atlanta

2022 (MOSCONE WEST)

**144****Developing a Conceptual Understanding of Proportional Reasoning Using Manipulatives**

6–8 Session

Explore how manipulatives can be used to help your students develop a conceptual understanding of proportional relationships and unit rates, topics which are crucial in middle school and beyond. See how they can be used to develop effective strategies other than “cross-multiply and divide.” Walk away with ideas that you can implement immediately.

**Kevin Dykema**

Mattawan School District, Michigan

GOLDEN GATE C3 (MARRIOTT)

**145****Development and Validation of the Elementary Teacher Efficacy Beliefs Instrument for Math**

Research Session

This session describes the development of an instrument to measure preservice and in-service teachers' efficacy to teach elementary mathematics, based on revisions to the Mathematics Teacher Efficacy Beliefs Instrument (MTEBI). Data from the validation study will be presented as well as how to use the instrument as a formative assessment to refine methods courses or professional development.

**Elisabeth Johnston**

Plymouth State University, New Hampshire

**Elizabeth K. Ward**

Texas Wesleyan University, Fort Worth

307 (MOSCONE SOUTH)

Pick up a copy of the **Daily News** for up-to-date conference information.

Thursday

**146** **PPD****Do More for Students by Doing Less for Students**

## General Interest Session

Why are students so quick to ask for help? Because teachers are so quick to give them help. This session features classroom structures and strategies that help students unlearn learned helplessness and become persistent, proficient problem solvers. Activities include modeling via video and problems that engage participants in productive struggle.

**David Ginsburg**

Ginsburg Educational Consulting and Coaching, Philadelphia, Pennsylvania

305 (MOSCONE SOUTH)

**147****Do You Know It When You See It? CCSSM Implementation**

## Coaches / Leaders / Teacher Educators Session

Many districts are helping their teachers understand the shifts in CCSSM, but how can we gauge the degree to which teachers are shifting their practice? With the support of Dr. Tim Kanold, Dr. Dylan Wiliam, and WestEd, ten California districts are collaborating to answer this question.

**Christine D. Roberts**

Tulare County Office of Education, Visalia, California

**Neal Finkelstein**

WestEd, San Francisco, California

**Nick Resnick**

California Education Partners, San Francisco

2024 (MOSCONE WEST)

**148****Fortifying the First Five Minutes: Effective Period-Opening Activities**

## 10–12 Session

Eleven specific strategies designed to upgrade the “do now” will be presented via a 20+ page handout of sample work. These strategies, field-tested for over thirty years, include using foreign language math textbooks, manipulatives, explorations, history, quotations, amazing math facts, partner problems, optical illusions, quizzes, and much more.

**Robert K. Gerver**

North Shore High School, Glen Head, New York

3003 (MOSCONE WEST)

**149****Fractional Division Interpretation: Why DO Students “Keep, Change, Flip?”**

## 6–8 Session

The age-old “Keep, Change, Flip” strategy came from somewhere, right? Why does it work? And how can students make an intuitive connection to partitive division interpretation? In this session, participants will distinguish between two interpretations of division, partitive and measurement, in order to divide fractions.

**Erika Silva**

Eureka Math, Washington, D.C.

**Stafanie Hassan**

Eureka Math, Washington, D.C.

2001 (MOSCONE WEST)

**150****Healing Math Trauma: What to Do When Math Hurts**

## General Interest Session

The evidence is mounting. What we once called math anxiety appears to be a form of trauma for many people—about a third of the population. The damage can begin at a very young age and last a lifetime. Come hear about recent findings in neuroscience as well as psychology. Discuss the implications and learn about strategies to support healing.

**Kasi C. Allen**

Lewis &amp; Clark College, Portland, Oregon

**Kemble Schnell**

Inza Wood Middle School, Wilsonville, Oregon

**James D. Coombs**

West Linn - Wilsonville School District, Oregon

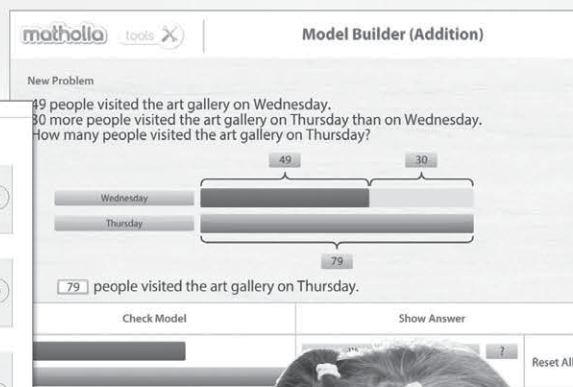
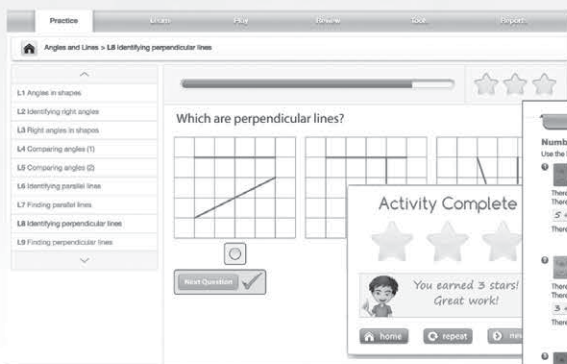
2011 (MOSCONE WEST)



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**151****High-Yield Algebra Routines: Building a Strong Algebra Foundation**

6–8 Session

President's Series presentation

Explore a few key activities that can serve as class openers to facilitate students' developing their understanding of foundational algebraic concepts (i.e., expressions, equations, and functions) throughout the school year. Participants will engage in several high-yield algebra routines and discuss connections to the mathematical practices.

**Juliana Utley**

Oklahoma State University, Stillwater

**Stacy Reeder**

University of Oklahoma, Norman

3001 (MOSCONE WEST)

**152****PCPG****Investing in Teaching: Creating Enduring and Joyful Professional Learning Environments**

General Interest Session

We want to create schools where children are invested in learning, where they are known, and where their social and emotional well-being is nurtured. Using cases and lessons learned from school-based professional development, we will learn how this vision is inextricably linked with the way we invest in collective teacher learning.

**Elham Kazemi**

University of Washington, Seattle

**Allison Hintz**

University of Washington Bothell

**Anita Lenges**

University of Washington, Seattle

3016 (MOSCONE WEST)

**153****Making Sense of Fractions: The Journey Is the Destination**

3–5 Session

Children struggle as they learn fractions, but this is a good thing! Productive struggle and learning go hand in hand. Kids take many paths as they make sense of fractions. We used the work of thousands to identify critical learning signposts. We will share these signposts, student work, and activities that help them explore these important ideas.

**Terry Wyberg**

University of Minnesota, St. Paul

**Krista Marks**

Woot Math, Boulder, Colorado

GOLDEN GATE C1 (MARRIOTT)

**154****Making the Leap from Patterns to Formulas**

6–8 Session

Come study a rich spectrum of pattern problems that give middle school students the opportunity to leap into the abstraction of creating formulas. Foster algebraic reasoning as students learn to create variables, expressions, and equations to describe and solve patterns. Help your students make authentic transitions from numbers to variables.

**Darin E. Beigie**

Harvard-Westlake School, Los Angeles, California

3012 (MOSCONE WEST)

**155****Measurement Concepts for Early Grades: Building Teachers' Level of Understanding**

Coaches / Leaders / Teacher Educators Session

How well do elementary teachers understand the importance of the big ideas in the conceptual development of measurement—zero point, partitioning, and units? In this presentation, results will be shared from a study conducted with elementary teachers and ideas for professional development will be highlighted.

**Sandi Cooper**

Baylor University, Waco, Texas

**Shametria Routt**

Round Rock Independent School District, Texas

303 (MOSCONE SOUTH)

**156** **NGM****Moving from Remembering to Thinking: The Power of Mathematical Modeling**

10–12 Session

Mathematical modeling introduces an exciting new world of mathematics, where creativity and thinking are paramount. Examples will illustrate both beginning quasi-modeling experiences and later truly open-ended opportunities which demonstrate student creativity, illuminate student understanding, and motivate the continued study of the mathematics.

**Daniel J. Teague**

North Carolina School of Science and Mathematics, Durham

301 (MOSCONE SOUTH)

**158** **PtA****Posing Purposeful Questions**

General Interest Session

Student talk is essential for learning math. Yet, as teachers, it is quite challenging to both reduce our talk and encourage students to say more. This presentation will describe how posing questions can purposefully engage students in rich mathematical discussions. We will also discuss how to overcome barriers that frequently stop student talk.

**Marcy B. Wood**

University of Arizona, Tucson

135 (MOSCONE NORTH)

**159****Ready to Run a Business? Linking LEGO and Algebra**

6–8 Session

This Lego™ Pets activity models a real-world problem situation. After concretely creating ducks and dogs from Lego™ pieces, participants will decide how many of each to make in order to make the most profit. Then they will find and interpret a solution to a larger problem with the help of a spreadsheet application.

**Thomas G. Edwards**

Wayne State University, Detroit, Michigan

**S. Asli Ozgun-Koca**

Wayne State University, Detroit, Michigan

**Kenneth R. Chelst**

Wayne State University, Detroit, Michigan

134 (MOSCONE NORTH)

**160****Stop Overgeneralizing: Should Math Instruction Look Like Reading Instruction?**

Pre-K–2 Session

Far too often research-based reading practices and structures are overgeneralized to mathematics instruction. Come join us as we examine research-based practices in elementary mathematics instruction and how to combat reading overgeneralizations to truly engage K–5 students in meaningful and important mathematical thinking.

**Claire Riddell**

St. Johns County School District, St. Augustine, Florida

**Zachary Champagne**

Florida Center for Research in Science, Technology, Engineering, and Mathematics (FCR-STEM), Florida State University, Tallahassee

YERBA BUENA 5/6 (MARRIOTT)

Relax and mingle with other attendees, and take advantage of **free Wi-Fi** in the **Networking Lounge**, located inside NCTM Central in the Exhibit Hall.



**161****Talking Math: Facilitating Academic Language in Math Education**

General Interest Session

This session will provide participants with a practical definition of academic language to support students during math instruction. An academic language tool will be presented to guide students in expressing what they have learned.

**Eugenia Mora-Flores**

University of Southern California, Los Angeles

2009 (MOSCONE WEST)

**162****NT****Developing and Extending the Concept of a Radian**

10-12 Session

This presentation engages you in a discovery-based task that supports students' development of a deep conception of radian angle measures. You will investigate ways to use this understanding as a solid foundation for exploring related topics in trigonometry, guided by the Mathematics Teaching Practices specified by NCTM's *Principles to Actions*.

**Roger S. Wolbert**

University at Buffalo, New York

**Erin R. Moss**

Millersville University of Pennsylvania

NOB HILL C/D (MARRIOTT)

**163****Tier 2 without All of the Tears!**

Pre-K–2 Session

All students should have access to effective teaching and high learning expectations in any mathematical setting. Come hear about the eight researched recommendation for Tier 2 intervention in a problem-solving setting using visual models and genuine questioning.

**Laurie Kilts**

Natrona County School District #1, Casper, Wyoming

GOLDEN GATE A (MARRIOTT)

**164****Understanding Quadratic Functions through Transformations**

8–10 Session

How can you help your students see the mathematics of quadratic functions? During this session, participants will explore how transformations of quadratic functions explain the properties of their graphs. Participants will explore connections between the graphs of functions and their relationship to the algebra used with solving quadratic equations.

**Carrie Hair**

Washoe County School District, Reno, Nevada

**Jenny Salls**

Washoe County School District, Reno, Nevada

2005 (MOSCONE WEST)

**165****Using Formative Assessment Strategies Every Day in Every Classroom**

Coaches / Leaders / Teacher Educators Session

What does it mean to use formative assessment strategies to gauge students' conceptual understanding and use of the SMPs? With the support of Dr. Timothy Kanold and Dr. Dylan Wiliam, ten California schools districts have been collaborating to answer this particular question on their journey toward full CCSSM implementation.

**Nick Resnick**

California Education Partners, San Francisco

**Eric Frandsen**

Oceanside Unified School District, Oceanside, California

2020 (MOSCONE WEST)

**166****Using Problem-Solving Situations to Develop Operation Sense**

3–5 Workshop

President's Series presentation

Do your students struggle to apply their understanding of operations to solving problems? The Common Core standards offer the opportunity to rethink that process and begin by using problems to develop operational "sense" in our students. Application of the effective teaching practices from *Principles to Actions* will be included.

**Linda M. Gojak**

Past President, National Council of Teachers of Mathematics, Willowick, Ohio

YERBA BUENA 7 (MARRIOTT)



**167****Mathematical Card Tricks**

General Interest / All Audiences Session

President's Series presentation

I will present a selection of card tricks based on the mathematics of card shuffling. No sleight of hand required!

**Francis Edward Su**

Harvey Mudd College; Claremont, California

2018 (MOSCONE WEST)

**168****Using Temperature to Support Understanding with Integer Addition and Subtraction**

6–8 Session

The teaching and learning of integer operations is challenging, but foundational to students' mathematical success. Come explore strategies and problems to help students represent integer addition and subtraction and learn instructional techniques to help them develop these ideas through temperature contexts.

**Jennifer M. Tobias**

Illinois State University, Normal

**Nicole M. Wessman-Enzinger**

Illinois State University, Normal

3007 (MOSCONE WEST)

**168.1****ew****The Answer Still Matters . . . Eventually**

General Interest Exhibitor Workshop

In effective classrooms today, teachers use engaging problems to help students develop mathematical thinking and learn mathematical skills. Sometimes we even say, "It's not the answer that matters, it's the process." But the answer does matter—we just need to find ways to slow down the race to answers and use the journey as a vehicle for learning.

**Houghton Mifflin Harcourt**

Boston, Massachusetts

121 (MOSCONE NORTH)

**168.2****ew****Using Technology to Achieve Equity in the STEM Classroom**

General Interest Exhibitor Workshop

Dr. Katrise Perera, National Director, Urban Markets for McGraw-Hill Education, discusses how technology helps level the playing field where physical equipment is lacking. Learn how technology extends learning beyond the classroom, integrates authentic assessments, and delivers content tailored to each student's learning needs.

**McGraw-Hill Education**

Columbus, Ohio

122 (MOSCONE NORTH)

**168.3****ew****Meeting Standards through Personalized Learning**

3–5 Exhibitor Workshop

Students arrive in our classroom with varying skill levels and content understanding. However, it is still an educator's job to ensure standards are met. Learn how LoveMath™ can be used to meet and improve progress toward standards through personalized learning.

**LoveMath™ by GPA Learn**

Atlanta, Georgia

123 (MOSCONE NORTH)

**168.4****ew****AP Calculus Panel Discussion**

10–12 Exhibitor Workshop

A panel with the current and immediate past chief readers, a representative of the College Board, and others will highlight this discussion for AP Calculus teachers. The lessons learned from grading the 2015 exams and the new Curriculum Framework will be among the topics discussed. There will be time for questions and answers, and a raffle.

**Bedford, Freeman and Worth Publishers, HP Inc., and D&S Marketing Systems Inc.**

Hamilton, New Jersey

124 (MOSCONE NORTH)

Thursday

12:30 P.M.–1:30 P.M.

**168.5** **ew**  
**Using Technology to Support  
Observational Assessments in K–5**

General Interest Exhibitor Workshop

Observation assessments are a critical element for monitoring student progress. Learn how technology can be used to support capturing, tagging, and using observational assessments.

**Pearson**  
Boston, Massachusetts

125 (MOSCONE NORTH)

**168.6** **ew**  
**Empower Your Instruction,  
Engage Students, Make Math Fun:  
Intervention That Does It All**

General Interest Exhibitor Workshop

Come learn how to empower your instruction through a rich, engaging, and fun intervention model that provides effective strategies for rigorous instruction, blending both conceptual and procedural learning. Participants will receive hands-on materials and participate in a drawing for free resources.

**Teacher Created Materials**  
Huntington Beach, California

120 (MOSCONE NORTH)

1:00 P.M.–2:15 P.M.

**169**  
**Accessing All Learning Styles through  
Math Poetry and Music Experience**

Coaches / Leaders / Teacher Educators Workshop

Music, Music, Music is what society uses to reach students on a daily basis. This session will focus on how rap music and poetry can be used in the classroom to improve student growth percentiles and address all learning styles. Attendees will leave with strategies and an understanding of how to incorporate music to promote student engagement.

**Takeelie Hicks**  
Teaching Everyday Math, Atlanta, Georgia  
**Ebony Bass**  
Teaching Everyday Math, Atlanta, Georgia

3004 (MOSCONE WEST)

**170**

**Be DI-nspired!: Exciting and  
Challenging Differentiated Instruction  
Tasks for ALL!**

6–8 Workshop

This highly participatory workshop will engage teachers in challenging, creative, and current problems that allow for differentiation in content, activity, and product. Join with us as we get a great math workout with energetic Common Core-aligned tasks and DI strategies that will allow all kids to enter and attack big problems.

**Marcie Abramson**  
Lesley University, Cambridge, Massachusetts

3010 (MOSCONE WEST)

**171**

**CCSS, Transformational Geometry,  
and the Pythagorean Theorem**

8–10 Workshop

The Common Core State Standards call for a renewed study of transformational geometry. Come see how a transformational approach with the TI-Nspire calculator and the use of geometric transformations will give new insights to an old friend, the Pythagorean theorem.

**Ray Klein**  
T3: Teachers Teaching with Technology, Glen Ellyn, Illinois  
2006 (MOSCONE WEST)

**172**

**Challenging All Students with  
Cognitively Demanding Tasks:  
Samples and Key Insights**

6–8 Workshop

We have been leading an Australian project with middle grades teachers that has focused on teacher strategies for encouraging student persistence on cognitively demanding tasks. We will share some exciting math tasks, student work, and classroom stories, and we will offer some key strategies for persistence that project teachers have found to be successful.

**Doug M. Clarke**  
Australian Catholic University, Melbourne, Australia  
**Barbara Clarke**  
Monash University, Melbourne, Australia

2004 (MOSCONE WEST)

**173 EQUITY****Math Fluency: Adding Clarity to a Divided Topic**

Coaches / Leaders / Teacher Educators Workshop

Attendees will participate in a number of hands-on activities designed to engage, challenge, and motivate students. Activities will include a number of games from the 24 game series. Number and pattern sensing, critical thinking skills, and “speaking mathematically” will all be part of this workshop.

**Cred Dobson**

Suntex International, Easton, Pennsylvania

**Melissa Walsh**

Suntex International, Easton, Pennsylvania

308 (MOSCONE SOUTH)

**174 E&A****Connecting Children’s Multiple Mathematical Knowledge Bases in K–8 Instruction**

Coaches / Leaders / Teacher Educators Workshop

The TEACH Math group will present a series of activities for prospective and practicing teachers. These activities are intended to support teachers in engaging in equitable and ambitious mathematics teaching practices by connecting to students’ mathematical thinking and students’ home and community-based funds of knowledge.

**Corey Drake**

Michigan State University, East Lansing

**Tonya Gau Bartell**

Michigan State University, East Lansing

**Mary Q. Foote**

Queens College—CUNY, New York, New York

**Amy Roth McDuffie**

Washington State University Tri-Cities, Richland, Washington

**Erin E. Turner**

University of Arizona, Tucson

**Julia M. Aguirre**

University of Washington—Tacoma

GOLDEN GATE B (MARRIOTT)

**175****Engaging Parents by Hosting a Family Math Night**

Coaches / Leaders / Teacher Educators Workshop

Family math game nights have proven to be a great way for schools to connect in a meaningful way with their parents to help them gain the capacity to assist their children at home with their math. Participants in this session will learn a variety of formats to insure success and receive an outline for games to teach; planning ideas will be shared.

**Allison Riddle**

Davis Unified School District, Salt Lake City, Utah

YERBA BUENA 3/4 (MARRIOTT)

**176****Fraction Interventions: Empowering Struggling Learners to Master CCSSM Expectations**

3–5 Workshop

Evidence-based interventions (RtI) for high-needs learners can help all students master fractions. Explore manipulatives and visual models for dividing fractions and ways to help students connect the models to standard symbolic representations. Leave with handouts containing activities, a summary of the recommendations, and a list of resources.

**Linda L. Forbringer**

Southern Illinois University Edwardsville

306 (MOSCONE SOUTH)

**177****Fractions: Tools, Tasks, and Talk**

3–5 Workshop

Are you looking for resources that meet your students’ needs in understanding fractions? Are you struggling to find tools that build fraction sense? This interactive session will explore the key ideas of unit fraction (“What is the whole? Part? Fraction?”), foundations for fraction computation, and various tools needed to build that understanding.

**Lynette R. Sharlow**

Wichita Public Schools, Kansas

**Debbie M. Thompson**

Wichita Public Schools, Kansas

GOLDEN GATE C2 (MARRIOTT)

**178****Getting Students Talking . . . Open Questions in High School Math**

10–12 Workshop

In this session, teachers will learn questioning strategies that can be used to provoke student thinking and develop argumentation in the math classroom. In particular, we will explore how to build math communication and discourse by integrating open questions in high school algebra, functions, and geometry based on the work by Dr. Marian Small.

**Mishaal Surti**

Thames Valley District School Board, London, Canada

3018 (MOSCONE WEST)

**179****Incredible Math Tasks!—Activating the Teaching Practices**

8–10 Workshop

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

**Jenny Novak**

Howard County Public Schools, Maryland

**Bill Barnes**

Howard County Public School System, Ellicott City, Maryland

2003 (MOSCONE WEST)

**179.1****Teaching Mathematics through Problem Solving**

Pre-K–2 Workshop

This presentation will guide participants through the process of teaching mathematics through problem solving in the primary grades. It will highlight how teachers have used Lesson Study to design mathematics lessons that allow primary students to make sense of problems, persevere in solving them, and communicate their ideas to fellow students.

**Andrew Friesema**

Dr. Jorge Prieto Math and Science Academy, Chicago, Illinois

**Aubrey Perlee**

Dr. Jorge Prieto Math and Science Academy, Chicago, Illinois

**Sari Freier**

Dr. Jorge Prieto Math and Science Academy, Chicago, Illinois

3022 (MOSCONE WEST)

**180****Linear or Quadratic? Engaging in Two Effective Mathematics Teaching Practices**

8–10 Workshop

Participants will explore a rich algebraic task that provides unique opportunities to uncover students' thinking about linear and quadratic functions. Participants will also examine student work samples and consider how to respond to students' current thinking as well as how to extend their ideas in order to deepen their conceptual understanding.

**Amy Hillen**

Kennesaw State University, Georgia

**Jennifer A. Outzs**

Pinellas County Schools, Seminole, Florida

**Matthew Blue Taylor**

New Visions for Public Schools, New York, New York

3011 (MOSCONE WEST)

Don't miss the **Closing Keynote**  
on Saturday afternoon with featured speaker  
**Hill Harper**, Actor, Author, and Philanthropist.



**181****Making Meaning from Multiple Strategies**

Pre-K–2 Workshop

Students may have multiple strategies, but do they understand how various strategies relate or how to choose which is best and most efficient? Learn how to support students in making connections among multiple addition and subtraction strategies so they become flexible and strategic problem solvers.

**Jennifer Mundt Leimberer**

University of Illinois at Chicago

**Elizabeth Cape**Teaching Integrated Mathematics and Science (TIMS) Project,  
University of Illinois at Chicago

310 (MOSCONE SOUTH)

**182****Mathematical Thinking across the Curriculum**

Pre-K–2 Workshop

Math in everyday life doesn't always come neatly packaged as a math problem. How can other subject areas provide opportunities for engaging in mathematical thinking and practices? Explore the ways that science and engineering activities provide opportunities for young learners to engage in math, with a focus on the use of mathematical practices.

**Jeanne Di Domenico**Center for Elementary Mathematics and Science Education,  
University of Chicago, Illinois**Liz Lehman**Center for Elementary Mathematics and Science Education,  
University of Chicago, Illinois**Deborah A. Leslie**

University of Chicago, Illinois

YERBA BUENA 14/15 (MARRIOTT)

**183****Place Value: Beyond the Chart!**

3–5 Workshop

Upper elementary children can easily identify how many 1s, 10s, 100s are in any given number. Yet a common complaint among teachers is that their kids “don’t understand place value.” Why is this? Participants will engage in activities that have been modified from traditional place value exercises to extend and deepen student base-ten relationships.

**Angie Godfrey**Idaho Regional Mathematics Center, Idaho State University,  
Pocatello

3006 (MOSCONE WEST)

**183.1****Exploring Length, Area, and Volume: Three Sequenced Hands-On Geometry Activities**

6–8 Workshop

Can you measure the length of an arc, compute the percentage of the sun’s disk covered by the moon in an eclipse, and compare volumes of cylindrical boxes and prisms with the same heights and base perimeters? Take these mathematically linked classroom-tested tasks (and artifacts) back to your students!

**Patricia Baggett**

New Mexico State University, Las Cruces

**Jacqueline S. Lopez**

Lynn Middle School, Las Cruces, New Mexico

304 (MOSCONE SOUTH)

**184****Professor CBR Solves Another Case**

6–8 Workshop

Armed with graphing calculators and calculator-based rangiers (CBR), you will help Professor CBR unravel another mystery. A unique CBR performance task that assesses understanding of rates of change will also be shared. Appropriate for both beginner and advanced users.

**Jane E. Damaske**

Retired, Lakeshore Public Schools, Stevensville, Michigan

**Judith Hicks**

Mathematics Consultant, Arvada, Colorado

2016 (MOSCONE WEST)



1:00 P.M.–2:15 P.M.

**185****Putting Principles to Action through Math Modeling with Science**

10–12 Workshop

Dive into Standard for Mathematical Practice #4 with this interactive session exploring a science phenomena! Participants will experience the modeling cycle of gathering data, creating math models in multiple representations, analyzing and interpreting results, and communicating reasoning with justification, using large “whiteboards” to show thinking.

**David A. Leib**

Wichita Public Schools, Kansas

**Arthur Ballos**

Wichita Public Schools, Kansas

2008 (MOSCONE WEST)

**186****The ABC's of Mathematics: Analyzing Children's Counting**

Pre-K–2 Workshop

We will engage in a hands-on activity that illuminates children's counting methods and allows participants to develop frameworks for classifying story problems and analyzing children's solution methods. Our goal is to understand how the research on children's early mathematical development is embedded in CCSSM and *Principles to Actions*.

**Doris Santarone**

Georgia College, Milledgeville

**Angel Rowe Abney**

Georgia College, Milledgeville

**Brandon Samples**

Georgia College, Milledgeville

302 (MOSCONE SOUTH)

New to teaching?

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

**187****Using Manipulatives and Investigations in Geometry**

10–12 Workshop

Participants will use hinged mirrors, rubber bands, patty paper, paper plates, and other manipulatives along with interesting problems to develop and apply geometry concepts and review vocabulary. The SMPs will be processed as we do the activities. Topics include similarity, triangle heights, transformations, central angles, polygons, area, and more.

**Karen Wootton**

CPM Educational Program, Sacramento, California

**Christine Mikles**

CPM Educational Program, Sacramento, California

2002 (MOSCONE WEST)

2:00 P.M.–3:00 P.M.

**188**

NT

**Be an Even Better Teacher Next Year by Tinkering This Spring!**

6–8 Session

It's back to reality on Monday . . . or is it? This time of the year is a perfect time to tinker with your teaching and prepare for full implementation in the fall. Learn how to build on what you learned and on what inspires you from the NCTM meeting, to design, implement, and refine pedagogical changes to address problems of practice.

**Joel Amidon**

University of Mississippi

YERBA BUENA 8 (MARRIOTT)

**189****Breaking Down Division**

3–5 Session

Do your students struggle with division? In this session participants will explore how place value, properties of operations, and making connections to multiplication will help build a deeper understanding of multi-digit division. Walk away with classroom strategies, lesson ideas, and resources for independent practice.

**Susan A. Jensen**

Howard County Public School System, Ellicott City, Maryland

**Cheryl Akers**

Howard County Public Schools, Ellicott City, Maryland

**Kim Quintyne**

Howard County Public Schools, Columbia, Maryland

YERBA BUENA 5/6 (MARRIOTT)



Building Capacity: Personal and Collective Professional Growth



Instruction and Policies that Promote Equity and Access



Equity



Exhibitor Workshop



Hot Topics



NCTM Committee



NATIONAL COUNCIL OF  
TEACHERS OF MATHEMATICS

PREMIER MATH EDUCATION EVENTS

Atlanta | July 11–13, 2016

# Engaging Students in Learning: Mathematical Practices

AN NCTM INTERACTIVE INSTITUTE FOR GRADES K–8



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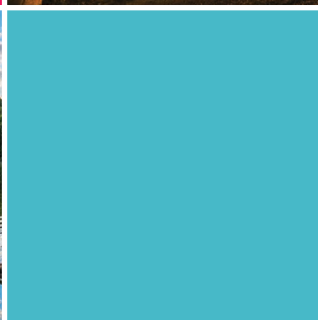


## Essential Classroom Strategies to Advance Student Learning

Preparing your students for success is all about building the right foundation. NCTM's Interactive Institute on Mathematical Practices includes two and half days of interactive sessions and workshops to help you effectively address the eight Mathematics Teaching Practices from *Principles to Actions: Ensuring Mathematical Success for All*, the Common Core mathematical practices, and NCTM Process Standards.

Immerse yourself in professional development that addresses these questions:

- How can I reframe what I'm already doing so that it sticks with students?
- How do I make these concepts come alive in the classroom?
- What tools and strategies can I learn to improve my teaching?
- How do I make these capacities part of my students' thinking habits?



Learn more at [nctm.org/institutes](http://nctm.org/institutes) and follow us on      #NCTMinstitutes

**190****Children's Literature and Manipulatives: When the Math Tells the Story**

Pre-K–2 Session

Children's literature integrated with manipulatives has the potential to be a powerful math learning experience in pre-K–2 classrooms. But how do we help our students "find" the math in a story? How might we connect story, activity, and problem solving in a meaningful way? Which manipulatives should we use? Come to this workshop and find out!

**Jennifer Edelman**

jedelman@westga.edu University of West Georgia, Carrollton

NOB HILL C/D (MARRIOTT)

**191****Coaching through Cognitive Dissonance: Using Video to Promote Change**

Coaches / Leaders / Teacher Educators Session

Engage in experiences designed to create an environment to support changing teachers' practices within schools and districts by creating disequilibrium using classroom videos connected to tasks. Four essential cues for coaching through cognitive dissonance will be shared and illustrated within this session.

**Juli K. Dixon**

University of Central Florida, Orlando

134 (MOSCONE NORTH)

**192****Connecting Word Problems and Manipulatives to Understanding of Basic Facts**

Pre-K–2 Session

Learn about research-based frameworks of students' mathematical understanding, how to use word problems effectively in your class, and targeted activities to make connections to help your students understand basic facts.

**Jeffrey C. Shih**

University of Nevada, Las Vegas

**Linda M. Gojak**

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

305 (MOSCONE SOUTH)

**193****Engaging in Math Tasks: How to Get Students Started!**

3–5 Session

Given the emphasis of the role of tasks and nonroutine problems in supporting students' reasoning and problem solving, what can teachers do if students are not actively engaging in the problem-solving process? In this session, we will examine three effective strategies for scaffolding student engagement in mathematical tasks.

**James C. Willingham**

Middle Tennessee State University, Murfreesboro

**Matthew Duncan**

Middle Tennessee State University, Murfreesboro

**Kristin S. Hartland**

Middle Tennessee State University, Murfreesboro

YERBA BUENA 10/11 (MARRIOTT)

**194****Explore Absolute Value & Contribute to the Development of NCTM's ARCs**

8–10 Session

Be a part of NCTM's effort to restructure Classroom Resource content available on nctm.org so that it best meets your needs. This workshop introduces the storyboard for a set of Activities with Rigor and Coherence (ARCs). Attendees will discuss the mathematics and pedagogy of an evolving ARC and participate in the co-creation of a storyboard for a potential future ARC. The ARCs are works in progress, so participants will be asked for feedback.

**Janet Oien**

Fort Collins High School, Fort Collins, Colorado

**Sarah DeLeeuw**

National Council of Teachers of Mathematics, Reston, Virginia

2001 (MOSCONE WEST)



**195****Flippin' Fun Professional Development**

Coaches / Leaders / Teacher Educators Session

Flipped instruction and elements of gaming are being used as ways to engage students. But have you thought about how these same techniques could be used to engage teachers in professional development? We will explore ways flipping and gaming can be used to help teachers grow, in both large and one-on-one professional development settings.

**Amy L. Nebesniak**

University of Nebraska at Kearney

YERBA BUENA 7 (MARRIOTT)

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

10–12 Session

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

**Jonathan M. Osters**

The Blake School, Minneapolis, Minnesota

2005 (MOSCONE WEST)

**197****Geometry Tasks That Promote Habits of Mathematical Thinking**

10–12 Session

We wanted problems that would stretch our students and allow them to develop their mathematical habits of mind and practices, particularly their abilities to persevere and strategize. So we invented “synthesis tasks,” which are assessment-like in nature, are challenging yet doable, and will definitely have your students thinking creatively.

**McKendry Marano**

James River High School, Midlothian, Virginia

**Ben Hyman**

Walter Payton College Prep, Chicago Public Schools, Illinois

3007 (MOSCONE WEST)

**199****Guided Math: Differentiating Small-Group Instruction**

General Interest Session

Meet students' needs through small-group instruction with this interactive Guided Math workshop. Explore two ways to differentiate standards-based, small-group lessons using data. Learn to use a task-based lesson structure to maximize mathematical thinking. Experience ways to use existing curricula within Guided Math. Receive lessons and resources.

**Karie F. Gladis**

Consultant, San Clemente, California

2024 (MOSCONE WEST)

**200****Improving Student Outcomes through Family and Community Engagement**

General Interest Session

Family and community engagement is a powerful tool for improving student outcomes. Join the team from the Alameda County Office of Education as we share some research on family engagement and discuss how the Common Core State Standards for Mathematics are a lens to make parents and families authentic partners in the various learning communities we support.

**Celine Liu**

Alameda County Office of Education, Hayward, California

**Juwen Lam**

Alameda County Office of Education, Hayward, California

**James R. Town**

Alameda County Office of Education, Hayward, California

2011 (MOSCONE WEST)

**201****INVESTigating Way to Integrate 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 doubling discounts, owning a car, and getting a job.

**Maggie B. McGatha**

University of Louisville, Kentucky

**Jennifer M. Bay-Williams**Board of Directors, National Council of Teachers of Mathematics;  
University of Louisville, Kentucky**Susan A. Peters**

University of Louisville, Kentucky

2007 (MOSCONE WEST)

**202****iPad Fun with Early Childhood Math Apps**

Pre-K–2 Session

Early childhood apps provide enriching opportunities for children to learn mathematics. Clearly, students who acquire number sense will have success in future mathematics courses. This session emphasizes the importance of number instruction for pre-K students. A collection of apps will be shared and discussed to promote mastery of math concepts.

**Amy Adkins**

University of Nevada, Las Vegas

**Dawn Lockett**

Clark County School District, University of Nevada, Las Vegas

**Lina DeVaul**

University of Nevada, Las Vegas

YERBA BUENA 12/13 (MARRIOTT)

**204****Making Sense of Inference Questions on the AP Statistics Exam**

10–12 Session

Inference makes up about half of most introductory statistics courses, including AP Statistics. In this session, we will examine the issues that make confidence intervals and hypothesis tests so difficult for students. Then we will discuss strategies for helping students perform inference successfully on the AP Statistics exam.

**Daren Starnes**

The Lawrenceville School, New Jersey

**Josh Tabor**

Canyon del Oro High School, Oro Valley, Arizona

3012 (MOSCONE WEST)

**205****Mathematical Practices for AP Calculus**

10–12 Session

AP Calculus is changing in the 2016–17 academic year and now includes and emphasizes Mathematical Practices for AP Calculus. What are these practices? How are they related to conceptual understanding of calculus? How are they similar to and different from the Common Core Standards for Mathematical Practice?

**Stephen Davis**

Davidson University, North Carolina

**Ben Hedrick**

The College Board, Duluth, Georgia

**Vicki M. Carter**

West Florence High School, South Carolina

3016 (MOSCONE WEST)

**206****Math with Intent: The Power of Intentional Instruction Strategies**

Pre-K–2 Session

Early childhood educators must establish specific goals to assure that their students gain the foundational mathematics knowledge and skills they require to succeed. This session will focus on the practice of intentional instruction, teacher- and child-driven learning opportunities, modeling thinking and behaviors, and visual learning strategies.

**Stuart J. Murphy**

Self-Employed Consultant, Boston, Massachusetts

**GOLDEN GATE C1 (MARRIOTT)****207****Meaningful Ways to Develop Math Facts**

3–5 Session

Games provide meaningful opportunities for students to develop problem solving and number-sense strategies for the math facts. We will share characteristics of a number-sense approach to developing students' math facts and an array of engaging and motivating games that you can take back to your classroom.

**Sandy Niemiera**

Learning Sciences Research Institute, University of Illinois at Chicago

**Liz Cape**

Learning Sciences Research Institute, University of Illinois at Chicago

**GOLDEN GATE C3 (MARRIOTT)****208****President's Address: Capitalizing on New Opportunities for Systemic Improvement in Mathematics Education**

General Interest Session

Recent reports and research studies, such as the Mathematics Association of America's "A Common Vision for Undergraduate Mathematical Sciences Programs in 2025" (2015) and the National Research Council's *Education for Life and Work* (2012), as well as NCTM's *Principles to Actions: Ensuring Mathematical Success for All* (2014), present very similar descriptions of high-quality mathematics teaching and learning. This emerging consensus provides new opportunities for systemic improvement in mathematics education, with particular emphasis on pathways from high school to collegiate mathematics. How can we best capitalize on these new opportunities? What actions should each of us, as teachers, school and district leaders, and professional organizations, including NCTM, take to turn these opportunities into increased mathematics learning for all students?

**Diane J. Briars** is president of the National Council of Teachers of Mathematics (NCTM). Previously, she was a mathematics education consultant, working primarily to support schools and districts in interpreting and implementing the Common Core State Standards for Mathematics. Briars has been mathematics director for Pittsburgh Public Schools and began her career as a secondary mathematics teacher.

**Diane J. Briars**

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

**135 (MOSCONE NORTH)****209****Putting the M in STEM to Drive Learning**

8–10 Session

STEM units engage learners to reason, problem-solve, and think critically across disciplines. Learn the basics of creating and implementing integrated STEM units that are relevant to students. Two classroom-tested STEM units will be presented, along with successes and challenges of these units to help teachers in their classrooms.

**Valerie R. Thomas**

Jefferson High School, Lafayette, Indiana

**3005 (MOSCONE WEST)**

**210** **E&A****Teaching Mathematics for Social Justice: Grieving through Probability**

10–12 Session

You will learn how high school students learned probability by investigating teenage driving fatalities after a peer died in a car accident. They mastered standards and performed as well as students who learned through traditional probability tasks. Using data on teenage fatalities, we will derive the addition rule of probability.

**Erin N. Talley**

Cobb County School District, Marietta, Georgia

**Wendy B. Sanchez**

Kennesaw State University, Georgia

**Jennifer Glendenning**

Cobb County School District, Marietta, Georgia

3001 (MOSCONE WEST)

**211****The Development of Modeling Integers in a Translation/Relativity Context**

6–8 Session

Operating and modeling with integers is challenging for students, but crucial for success. Come explore the ways a Translation/Relativity context was modeled with integers across twelve weeks by grade 5 students. Learn instructional techniques to help students develop these ideas with contexts that support Translation and Relativity reasoning.

**Nicole M. Wessman-Enzinger**

Illinois State University, Normal

3009 (MOSCONE WEST)

**212****The Importance of Meaningful Mathematics Discourse in the Elementary Classroom**

3–5 Session

Participants in this session will evaluate levels of math discourse in classrooms and will understand their role in establishing an environment that encourages students to analyze and compare approaches and arguments to build mathematical understanding. Educators will use a rubric to evaluate current levels of math talk in their own classrooms.

**Jennifer Christensen**

Math Learning Center, Salem, Oregon

**Pia M. Hansen**

Math Learning Center, Salem, Oregon

GOLDEN GATE A (MARRIOTT)

**213****Too Hot! or Too Cold!: An Integrated Hands-On Investigation**

8–10 Session

President's Series presentation

Let's do a fun activity integrating math, science, and technology by exploring the concepts of heat, temperature, measurement, statistics, and modeling. It will be open-ended, allowing participants to develop their own procedure for determining how to calibrate an unmarked Celsius thermometer to measure the temperature of a glass of tap water.

**Kathleen Cage Mittag**

Retired, University of Texas at San Antonio

**Gilbert Naizer**

Texas A&amp;M University, Commerce, Texas

301 (MOSCONE SOUTH)

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



**214****Translanguaging: How ELLs Use Language in an Online Precalculus Course****Research Session**

English language learners have language barriers they must overcome in order to participate in online courses. This qualitative pilot study addresses how ELLs engage in an online course. Students at a Hispanic-serving university describe translanguaging strategies in an online mathematics course and learning both English and math content.

**Julian Viera**

University of Texas at El Paso

**Olga M. Kosheleva**

University of Texas at El Paso

**303 (MOSCONE SOUTH)****215****Using Student-Response Systems in Entry-Level College Mathematics Courses****Higher Education Session**

Student-response systems (clickers) have been used extensively in physics classrooms. This session details how clickers can be used in introductory mathematics courses to help teachers determine what students know about mathematical topics during instruction, rather than at the end of instruction.

**Jonathan A. Engelman**

Kettering College, Ohio

**2020 (MOSCONE WEST)****216****Why S.T.E.A.M. Should Be Your Cup of T.E.A.!****Coaches / Leaders / Teacher Educators Session**

Technology, engineering, and art are the T.E.A. in S.T.E.A.M. education. Whatever your knowledge of or current position on the S.T.E.A.M. initiatives happening across the country, this engaging, interactive session will provoke you to consider why integrating T.E.A. in a mathematics curriculum should be your cup of tea!

**Jordana Benone**

Teacher Created Materials, Huntington Beach, California

**2022 (MOSCONE WEST)****216.1** **ew****Building Concepts: A Path for Discovering Connections in Math****6–8 Exhibitor Workshop**

What is the role of a variable in an expression? How can slope be explored through proportions? What can a sample tell us about a population? In this session, we will look at new ways of using technology to help students visualize, think about, connect, and discuss mathematics across grades 6 through 8.

**Texas Instruments**

Dallas, Texas

**120 (MOSCONE NORTH)****216.2** **ew****Six Secrets of Highly Effective Lesson Design!****General Interest Exhibitor Workshop**

In this inspirational and interactive session we will explore six research-affirmed lesson design elements that inspire student learning of mathematics each and every day. Students' mathematical learning experiences must be meaningful and relevant, and served with a high degree of active engagement! Let's uncover the secrets to great lessons together!

**Houghton Mifflin Harcourt**

Boston, Massachusetts

**121 (MOSCONE NORTH)****216.3** **ew****AP Calculus Panel Discussion****10–12 Exhibitor Workshop**

A panel with the current and immediate past chief readers, a representative of the College Board, and others will highlight this discussion for AP Calculus teachers. The lessons learned from grading the 2015 exams and the new Curriculum Framework will be among the topics discussed. There will be time for questions and answers, and a raffle.

**Bedford, Freeman and Worth Publishers, HP Inc., and D&S Marketing Systems Inc.**

Hamilton, New Jersey

**124 (MOSCONE NORTH)**

Thursday

2:00 P.M.–3:00 P.M.

**216.4** **ew**

**Leveraging Adaptivity in Your Grades 3–5 Classroom**

**3–5 Exhibitor Workshop**

Personalized learning. Adaptive learning. Assessment-driven instruction. Whatever you call it, the question is how can you use technology-driven adaptivity in the classroom. Learn how adaptivity can be used to support student progress and save you time in a core classroom as we look at a new partnership between enVisionmath and Knewton to bring adaptivity to grades 3–5

**Pearson**  
Boston, Massachusetts

**125 (MOSCONE NORTH)**

**216.5** **ew**

**Using Investigations to Engage All Learners in Geometry**

**10–12 Exhibitor Workshop**

Geometry investigations provide an opportunity for learners at all levels to engage in meaningful tasks. This session will provide examples of guided investigations and performance tasks from the new edition of *Discovering Geometry* that provide multiple entry points into the mathematics of CCSS.

**Kendall Hunt Publishing**  
Dubuque, Iowa

**122 (MOSCONE NORTH)**

**216.6** **ew**

**Engage Media-Savvy Students with Songs, Videos, Games, and Rewards**

**General Interest Exhibitor Workshop**

Teachers are turning to a new collection of musical, high-interest lessons called Math Upgrade to engage today's media-savvy students. Find out how teachers use games and rewards to bring below proficient students up to grade level. Join us for math, music, and fun!

**Learning Upgrade**  
San Diego, California

**123 (MOSCONE NORTH)**

**216.7** **ew**

**Using NBA Data to Engage Students**

**General Interest Exhibitor Workshop**

Will Rajon Rondo tally more than 900 assists this season? Is there a formula that can be used to identify all-star players? The NBA season coincides with the school year, and current stats are always available from stats.nba.com. Powerful activities are possible when these stats are used for mathematical modeling. Come see how you can use NBA data to get middle and high school students excited about math.

**Discovery Education**  
Silver Spring, Maryland

**130 (MOSCONE NORTH)**

2:45 P.M.–4:00 P.M.

**218**

**4 Games X 5 Ways = 20 Differentiated Activities**

**Coaches / Leaders / Teacher Educators Workshop**

We have a diversity of ability in our classrooms and integrate RTI and ELL along with our regular students. In this session, learning 4 games and then adapting them 5 ways = 20 differentiated activities for immediate use. Through carefully designed lesson planning and learning a repertoire of games and strategies, you'll ensure active engagement for all K–5 students.

**Nancy Paulson**  
San Marcos School District, California  
**Jane Felling**  
Box Cars and One-Eyed Jacks, Edmonton, Canada

**GOLDEN GATE C2 (MARRIOTT)**

Be a speaker! Submit your proposal now for the 2017 Annual Meeting & Exposition at **NCTM.org/speak**. Deadline is May 1.

**219****But My Kids Don't Think That Way!**

Pre-K–2 Workshop

The Common Core math standards repeatedly reference building fluency with computational strategies based on place value, the properties of the operations, and the relationship between addition and subtraction. Learn what these strategies look like and how they build students' computational fluency.

**Kevin Larkin**

Pinellas County Schools, Largo, Florida

**Adrienne DeLong**

Pinellas County Schools, Largo, Florida

**3008 (MOSCONE WEST)****220****Explore Real-World Statistics, Simulate a Bungee Jump & Meet NCTM's ARCs**

10–12 Workshop

Be a part of NCTM's effort to restructure Classroom Resource content available on [nctm.org](http://nctm.org) so that it best meets your needs. This workshop introduces the first component—newly developed Activities with Rigor and Coherence (ARCs). Participants will work through the mathematics in an exemplar ARC, led by a member of the ARC writing team. The ARCs are works in progress, so participants will be asked for feedback.

**Luke W. Wilcox**

East Kentwood High School, Kentwood, Michigan

**Diedra Baker**

Keota High School, Keota, Iowa

**3010 (MOSCONE WEST)****221****Changing the Math Mindsets for Struggling Learners and Their Teachers**

Coaches / Leaders / Teacher Educators Workshop

Higher expectations for student learning need to be accompanied by the belief that everyone can learn. In our second year of working with K–12 teachers about mindsets, we will share how we are using research and data through curriculum and professional development. Strategies, resources, and tools will be shared.

**Samantha Wuttig**

Fairbanks North Star Borough School District, Alaska

**Michelle Daml**

Fairbanks North Star Borough School District, Alaska

**3022 (MOSCONE WEST)****222****Creating and Implementing CCSS-Based Family Math Nights: Scaffolding Success**

3–5 Workshop

Have you hosted a FMN in the past with little success, or do you plan to host one soon? Come learn how to create successful Family Math Nights for your classroom, school, or system. Participants will learn how to easily organize and reuse “hands-on” activities for engaging parental events year after year.

**Stephanie A. Shultz**

Marietta City Schools, Georgia

**302 (MOSCONE SOUTH)****223****Developing Early Multiplication Understandings with Intensification Strategies**

3–5 Workshop

Why is it important to think intensification instead of remediation? This session will engage participants in exploring some big ideas, strategies, and models to help support students' construction of multiplicative reasoning while using research-based intensification strategies.

**Heather Crawford-Ferre**

University of Nevada, Reno

**Denise N. Trakas**

Washoe County School District, Reno, Nevada

**3018 (MOSCONE WEST)**

**224** **NT****Developing Partnerships with Parents to Support Their Child's Learning**

Pre-K–2 Workshop

Do you have parents who are baffled by the math their children are learning? Do you have parents who show kids how to solve problems in ways that conflict with developing understanding? Learn how to engage your students' parents in understanding math and strategies to best support their children with homework and math learning.

**Kathy Ernst**

Thinking Foundation, Lyme, New Hampshire

YERBA BUENA 3/4 (MARRIOTT)

**225****Finding Fractional Thinking through Cuisenaire Rods**

3–5 Workshop

The bigger understandings of fraction concepts can be daunting. Cuisenaire rods is a concrete model that provide context for developing the big ideas in fractions. Attend the session and experience first hand how students use Cuisenaire rods to establish these big ideas and how to make sense of the operations of fractions.

**Selina Millar**

SD 36 Surrey School District, Surrey, Canada

3004 (MOSCONE WEST)

**226****Get Your Model On: Mathematical Modeling in the Elementary Classroom**

Pre-K–2 Workshop

Elementary students are missing the mark when it comes to modeling with mathematics. As teachers, we've misinterpreted the term "model" as simply the use of manipulatives in math. By engaging in problem-based lessons, participants will leave with a deeper understanding of the modeling process and how to ensure it's happening in their classrooms.

**Graham Fletcher**

Griffin-Spalding County Schools, Georgia

GOLDEN GATE B (MARRIOTT)

**227****Hands-On Discovery of Trigonometric Functions**

10–12 Workshop

Given any circle of unknown diameter, how can we build all six trig functions leading to a complete trig unit? Come create your own measuring device and collect data to explore trig through a data-driven lens. How does this help our students unfold and understand the unit circle without memorizing anything? Let's explore together.

**Ronda Davis**

Ronda Davis, Albuquerque, New Mexico

304 (MOSCONE SOUTH)

**228****Lesson Study Collaboration: Creating a Teaching "Take Two"**

3–5 Workshop

Imagine you could watch the lesson you were going to teach, before you taught it. In a collaborative lesson study around an Illustrative Mathematics task, a diverse group of educators did just that. From design, implementation, observation, and revision, participants will engage in a lesson study process and leave with a vision for personal implementation.

**Kristin N. Gray**

Cape Henlopen School District, Lewes, Delaware

**Shelbi K. Cole**

Smarter Balanced Assessment Consortium, Olympia, Washington

**Alicia Farmer**

Anacortes School District, Washington

310 (MOSCONE SOUTH)

**229****Modeling Your Way to Understanding with Realistic Mathematics Education**

10–12 Workshop

Realistic Mathematics Education (RME) is a philosophy of math education that has guided the Netherlands to two top-five rankings on the Program for International Student Assessment (PISA). Participants in this session will learn about RME and explore a coherent series of informal, preformal, and formal tasks designed to support student understanding of advanced algebra and precalculus topics.

**Raymond Johnson**

University of Colorado Boulder

**Frederick Peck**

Freudenthal Institute US, Boulder, Colorado

**David C. Webb**

University of Colorado Boulder

3011 (MOSCONE WEST)



**230****Pop-Up Math: Algebra and Geometry through Paper Engineering**

6–8 Workshop

Become a paper engineer! Learn to make your own pop-up mechanisms using card stock and tape. Explore how these mechanisms work by measuring distances and angles, and analyze your data for its underlying patterns. Design and analysis of pop-ups offer entry points into linear equations and plane geometry in an engaging and surprising way!

**Cherubim Cannon**

P.S. 5, Brooklyn, New York

**Donna M. Johnson**

C.S. 21, Brooklyn, New York

**Janice Porter**

P.S. 5, Brooklyn, New York

2006 (MOSCONE WEST)

**231****Strengthening Conceptual Understanding through Formative Assessment Strategies**

3–5 Workshop

Participants will learn about and engage in formative assessment strategies that elicit student evidence of understanding. By promoting classroom discussions and engaging students, teachers strengthen connections between content and practices standards, deepening their conceptual lens. A tool for planning and coaching, will be shared.

**Astrid Fossum**

Milwaukee Public Schools, Wisconsin

**Marni Greenstein**

Student Achievement Partners, New York, New York

308 (MOSCONE SOUTH)

**232****Supporting Productive Struggle in Secondary Classrooms**

8–10 Workshop

*Principles to Actions* identifies promoting productive struggle as one of eight Effective Mathematics Teaching Practices that support student learning. In this session, we will explore tasks and teacher moves that support productive struggle and how productive struggle can support and foster other Effective Mathematics Teaching Practices.

**Mike Steele, Ed.D**

University of Wisconsin–Milwaukee

2004 (MOSCONE WEST)

**233****Talk Moves and Task Structures for Cultivating Mathematical Practice #3**

10–12 Workshop

In theory, Standard for Mathematical Practice #3 (constructing viable arguments and critiquing reasoning) ought to be a fertile field for group work, but in practice, it often breaks down into a social and emotional minefield. This session will present new talk moves and task structures that turn MP.3 into a rich, equitable, and sustainable set of classroom practices.

**Elizabeth Statmore**

Lowell High School, San Francisco, California

2003 (MOSCONE WEST)

**234****The Amazing Geometry of Bicycle Tracks: Math Teachers' Circle Demonstration**

6–8 Workshop

Math Teachers' Circles (MTCs) are professional development communities of middle school mathematics teachers and mathematicians focusing on the practice of mathematics. Participants in this session will experience a MTC firsthand by exploring this mathematical mystery: Can we tell which way a bicycle went based only on its tracks?

**James Tanton**

Mathematical Association of America, Washington, D.C.

**Brianna Donaldson**

American Institute of Mathematics, San Jose, California

2002 (MOSCONE WEST)

## 235

### Using Origami Boxes to Visualize Mathematical Concepts

10–12 Workshop

During this session, we will construct an origami box from a sheet of paper and discuss the mathematical ideas that are involved with the activity. We will explore the relationship between the dimensions of the sheet and the dimensions of the constructed box. We will also explore the volume of the constructed using graphing technology.

**Arsalan Wares**

Valdosta State University, Georgia

2016 (MOSCONE WEST)

## 236

### Who, Me? I Am Going to Teach Statistics?

8–10 Workshop

If you are teaching algebra 1 or algebra 2, come join us for a hands-on workshop engaging in the statistics content that is part of the Common Core standards. Participants will work collaboratively with in-class activities using technology and NCTM Effective Mathematics Teaching Practices. One- and two-variable data will be highlighted in this session.

**Robin Levine-Wissing**

Glenbrook North High School, Northbrook, Illinois

**Gail Burrill**

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

2008 (MOSCONE WEST)

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**237****Algebra I Experiments: Engaging All Students through Exciting Applications**

8–10 Session

President's Series presentation

Are you looking for some hands-on activities for your algebra I students? 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. Learn how to ask questions related to the experiments that promote sense making and discourse.

**Amy T. Herman**

Council of Presidential Awardees in Mathematics (CPAM),  
Louisville, Kentucky

135 (MOSCONE NORTH)

**238****Arrays: Access to Complex Properties of Multiplication and Division**

3–5 Session

We will examine how the array provides students with a deeper understanding of the meaning of multiplication and the two meanings of division. Experience how grade 3 students are introduced to the properties of multiplication through the array and how it sets the foundation for using these strategies in grades 4 and 5 with the area model.

**Susan B. Lee**

Eureka Math, Washington D.C.,

**Saffron L. VanGalder**

Curriculum Associate, Common Core, Inc.; Teacher, Spencer-Van Etten Elementary School, Washington, D.C.

YERBA BUENA 12/13 (MARRIOTT)

**239****Building Students' Discourse in Mathematical Reasoning and Sense Making**

Coaches / Leaders / Teacher Educators Session

President's Series presentation

This session presents teacher moves and instructional tasks that support students as they build personal mathematical knowledge, structures, facts, relations, and practices. Also, we will share strategies for you to assess your students' concept development and misconceptions that can inform your instructional decisions.

**Henry S. Kepner**

Past President, National Council of Teachers of Mathematics;  
University of Wisconsin–Milwaukee

3016 (MOSCONE WEST)

**240****Choosing Tasks: Shallow or Deep?**

Higher Education Session

How do we create rich learning environments where all students learn at a high level? This session focuses on teaching elementary teacher candidates to sort tasks into categories based on Webb's Depth of Knowledge. They rewrite level 1 or 2 tasks to be a level 3. They then use these tasks in a classroom and revisit depth. The results are surprising!

**Erica Slate Young**

University of Alabama in Huntsville

**Sheila Holt**

University of Alabama in Huntsville; AMSTI (Alabama Math Science Technology Initiative), Huntsville, Alabama

2022 (MOSCONE WEST)

**241****Collaborative Problem Solving through Productive Persistence**

3–5 Session

In this interactive session, leaders explore a student-centered paradigm that embraces complex problem solving through productive persistence. Through the lens of the mathematical practices, we investigate and evaluate a process in which problems are thoroughly understood and entry points identified prior to solving. Student samples will be shared.

**Robyn Silbey**

Robyn Silbey Professional Development, Gaithersburg, Maryland

3001 (MOSCONE WEST)



**242****Co-Teaching as a High School and College Mathematics Partnership**

8–10 Session

This session will detail a co-teaching partnership between high school and college math faculty. Through this partnership we have developed pedagogical content knowledge in geometry as well as teaching strategies. The session will use specific classroom examples to describe what we have learned and ingredients for an effective partnership.

**Jessika Tate**

Deer Valley High School, Antioch, California

**Mara Landers**

Los Medanos College, Pittsburg, California

3012 (MOSCONE WEST)

**243****Creating Thinkers—Not Mimickers**

3–5 Session

This interactive session uses the Standards for Mathematical Practice to frame an understanding of cognitive demand that tasks require and explores ways to raise the demand through question strategies. Participants consider best practices for including the mathematical practices in lesson design. Come engage in tasks appropriate for grades 3–5.

**Kit Norris**

Mathematics at Work, Bloomington, Indiana

**Sarah Schuh**

Mathematics at Work, Bloomington, Indiana

301 (MOSCONE SOUTH)

**244 EQUITY****Developing and Running Out-of-Schooltime Math Programs for Girls**

General Interest Session

After-school and summer programs can support classroom mathematics learning and can be especially important for underrepresented groups. This session will provide information on developing and conducting out-of-schooltime programs as a way to support math learning for diverse girls. A handout with key ideas and resources will be provided.

**Lynda R. Wiest**

University of Nevada, Reno

**Heather Crawford-Ferre**

University of Nevada, Reno

**Jafeth E. Sanchez**

University of Nevada, Reno

YERBA BUENA 7 (MARRIOTT)

**245****Drop the Timer and Step Away from the Flashcards!**

Pre-K–2 Session

Fluency is not about speed and memorization of facts; it's a deep understanding of how numbers work together. We will look at current brain-based research and explore developing fluency without all the anxiety-producing "drill-and-kill" practices. We will engage in intentional activities that allow students to develop their fluency and confidence.

**Becky Smith Nance**

Center for Mathematics and Science Education, University of Mississippi, Oxford

YERBA BUENA 5/6 (MARRIOTT)

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Change of Base Property  
 $\log_a x = \frac{\log_b x}{\log_b a}$

Distance formula  
 $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

Tangent

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 $ax^2 + bx + c < 0$

parabola negativa

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**246****Embracing Feedback: How to Orchestrate Lesson Study for Preservice Teachers**

Coaches / Leaders / Teacher Educators Session

Lesson Study is a dynamic, strength-based, professional development tool for transforming educational practice through “just in time” feedback. The challenge for teacher training programs is how to develop these practices within our programs. In this presentation, you will see how to structure your courses to harness the power of Lesson Study.

**Anthony Matthew Rodriguez**  
Providence College, Rhode Island

2020 (MOSCONE WEST)

**247****NT****Engaging Students In Active Learning: Tasks, Teaching Actions & Practices**

General Interest Session

Participate in an active learning mathematics task that is fun, content rich, and spans multiple levels. Experience as the learner, and analyze the teaching actions that make the learning possible and the connections to the mathematical practices. Group discussions and information on specific strategies and resources to support engaged learning.

**Angie Hodge**  
University of Nebraska Omaha

YERBA BUENA 8 (MARRIOTT)

**248****Essential Knowledge for Effective Teaching and Learning of Statistics**

General Interest Session

The Common Core and various state standards emphasize statistics, particularly in grades 6–12. This session presents the Statistics Education of Teachers recommendations, including putting the Standards for Mathematical Practice under a statistical lens as well as grade-band examples illustrating the statistical thinking process.

**Anna E. Bargagliotti**  
Loyola Marymount University, Los Angeles, California  
**Denise A. Spangler**  
Board of Directors, National Council of Teachers of Mathematics;  
University of Georgia, Athens

YERBA BUENA 10/11 (MARRIOTT)

**249****Exploring the Connection between Recursive Sequences and Composition of Functions**

10–12 Session

In this session, we will examine multiple representations of recursive sequences through iterative techniques. Various learning styles will be addressed through modeling of real-world situations. See how handheld technology promotes algebraic thinking and a deeper understanding of sequences, functions, and limits to help students move from algebra to calculus.

**David Kapolka**  
Forest Hills Public Schools (Emeritus), Grand Rapids, Michigan  
**Tom Beatini**  
Union City Public Schools, New Jersey

2001 (MOSCONE WEST)

**250****Fractions: Making Complex Mathematics Accessible to All Students**

3–5 Session

This session will engage participants in examining specific mathematical-instructional practices that support all students in doing complex mathematical work. These practices make it possible for teachers to unpack the mathematics in ways that give all students access to challenging ideas and kinds of reasoning without reducing the complexity.

**Meghan Shaughnessy**  
University of Michigan, Ann Arbor  
**Nicole Garcia**  
University of Michigan, Ann Arbor  
**Sarah Kate Selling**  
University of Michigan, Ann Arbor

NOB HILL C/D (MARRIOTT)

**251****NGM****GAIMME—Mathematical Modeling for Elementary School**

General Interest Session

This talk will present the content and recommendations of the new SIAM/COMAP report, Guidelines for Assessment in Mathematical Modeling Education. It will contain many modeling examples and practical advice for teaching modeling at the elementary grades.

**Rachel Levy**  
SIAM Vice-President of Education, Harvey Mudd College,  
Claremont, California

305 (MOSCONE SOUTH)

**252****How Do You Know? Helping Students Build Justifications**

3–5 Session

Having students justify claims is a key component of math classrooms. But it's often hard for them to do. We will examine tools and activities that help students develop arguments. Looking primarily at fractions, we will explore how students can use diagrams, objects, and drawings to develop arguments and justify conclusions.

**Nicora Placa**

New York University, New York

GOLDEN GATE C1 (MARRIOTT)

**253****Identifying and Growing Your Successful Secondary Math Coach**

Coaches / Leaders / Teacher Educators Session

What does it take to be an inspiring and effective secondary math coach? What do you expect and need from a math coach? We will focus on identifying qualities of successful coaches, how to recognize those in current teachers, and how to nurture new coaches with high potential. Leave with the tools to find and retain your next outstanding math coach.

**Donna Stump**

Woot Math, Boulder, Colorado

307 (MOSCONE SOUTH)

**254****Innovative Lessons: The National Museum of Mathematics' Rosenthal Prize**

General Interest Session

The Rosenthal Prize recognizes lessons that show math is a fun, interactive endeavor. Past awardees will share their winning lessons and the feedback of their students. Have your own low-prep, high-impact activity that inspires curiosity and creative thinking? Teach in grades 4–12? Learn from a Rosenthal Prize judge how to craft a great application.

**Glen Whitney**

President, National Museum of Mathematics, New York, New York

**Brent Ferguson**

The Lawrenceville School, New Jersey

**Ralph Pantozzi**

Kent Place School, Summit, New Jersey

2011 (MOSCONE WEST)

**255****Is Seeing Believing?**

10–12 Session

We often see amazing scenes in movies and ask ourselves is that is really possible. Participants will receive class-ready modules with video links, modeling suggestions, and other materials required to successfully develop, analyze, and evaluate individual models in the classroom.

**Gene Kramer**

University of Cincinnati Blue Ash, Ohio

**Charles E. Emenaker**

University of Cincinnati Blue Ash, Ohio

3009 (MOSCONE WEST)

**256****It Is What It Is . . . or Is It?**

8–10 Session

Did you know algebra can be organized in two ways: a functions-based (FBA) or an equations-based approach. Did you know that FBA creates more entry points for all students to be successful in algebra? Join us to learn about this organizing principle, along with ideas to implement FBA using your existing available resources!

**Sarah Stevens**

Wichita Public Schools, USD 259, Kansas

**Elizabeth Peyser**

Wichita Public Schools, USD 259, Kansas

3007 (MOSCONE WEST)

**257****EQUITY****Leadership Pedagogy for Closing the Opportunity Gap in Mathematics Education**

Coaches / Leaders / Teacher Educators Session

President's Series presentation

ALL leaders must focus on equity in mathematics education. This requires a paradigm shift to a leadership pedagogy, where excellence and equity are at the center of professional learning. This pedagogy includes the following knowledge, beliefs, and actions: mathematics content knowledge, equity, advocacy, partnerships, and outcomes focused.

**Susie W. Hakansson**

TODOS: Mathematics for ALL, Venice, California

134 (MOSCONE NORTH)

**258****Lesson Study: A Tool to Develop Social Justice Goals**

General Interest Session

Acknowledging social injustices is an important aspect of achieving equity and excellence. Through lesson study, teachers can deepen conceptions of mathematics as a means to teach and learn about social injustices. Negotiating mathematics goals and social justice goals and developing an implementation plan are important parts of the process.

**Linda M. Fulmore**

Mathematics Education Consultant, Cave Creek, Arizona

**2009 (MOSCONE WEST)****259****The Big Idea in Beginning Algebra? It's All about Variables!**

6–8 Session

Join us and learn how to engage students in the shift from arithmetic to algebra! You will explore how to support students in beginning algebra by using real-world tasks. Learn how to assist students in this transition by deepening their understanding of expressions and equations by attending to the changing concept of variables.

**Diana L. Moss**

Appalachian State University, Boone, North Carolina

**Teruni Lamberg**

University of Nevada, Reno

**David S. Moss**

Washoe County School District, Reno, Nevada

**3005 (MOSCONE WEST)****260****Using Categorization Tables to Help Students Make Conjectures about Mathematics**

10–12 Session

Categorization tables help students organize information to make conjectures about relationships in mathematics. Examples of such tables from geometry, algebra, precalculus, and calculus will be shared. The presenters will also share experiences with other learning strategies from the language arts classroom as adapted to mathematics.

**Tena L. Roepke**

Ohio Northern University, Ada, Ohio

**Debra Gallagher**

Bowling Green State University, Bowling Green, Ohio

**3003 (MOSCONE WEST)****261****Using Lesson Study to Build Schoolwide Improvement of Mathematics Practices**

General Interest Session

This network of educators from three districts uses school-based lesson study to build and spread enactment of the Common Core mathematical practices. Hear how we build buy-in, examine mathematical practices, and spread knowledge. Our panel includes educators from the districts along with lesson study researchers Akihiko Takahashi and Catherine Lewis.

**Stephanie Ervin**

San Francisco Unified School District, California

**Courtney Ortega**

Oakland Unified School District, California

**303 (MOSCONE SOUTH)****262****Using Number Talks in Middle School**

6–8 Session

Middle school Number Talks support the development of computational fluency by providing a powerful mental math classroom routine that supports students' number sense and encourages productive academic discourse. We will analyze and discuss different number strings and show classroom Number Talks videos of student's fractional reasoning.

**Joseph Giera**

School District of South Milwaukee, Wisconsin

**Connie Laughlin**

Eureka Math, Milwaukee, Wisconsin

**Beth A. Schefelker**

Milwaukee Public Schools, Wisconsin

**2005 (MOSCONE WEST)**

**263****Using Statistics to Help Students Make Connections in Grades 6–8**

6–8 Session

In this workshop, participants will engage in an experimental probability activity which acts as a simulation of a real-world event involving social justice. We will then compare the data collected with the theoretical outcome of the event, and we will end with an introduction to the Law of Large Numbers

**Kyndall Brown**

California Mathematics Project, Los Angeles

**Pamela A. Seda**

Sea Educational Consulting, LLC, Atlanta, Georgia

2024 (MOSCONE WEST)

**264****What Do I Do with Those Cuisenaire Rods?**

Pre-K–2 Session

Cuisenaire rods are manipulatives that provide great possibilities for developing mathematical ideas. They are proportional manipulatives constructed to show important relationships. Explore the opportunities these rods give in building students' understanding of mathematics. Participants will leave with ideas that can be used back in their classrooms.

**Sandra F. Ball**

Surrey School District #36, Surrey, Canada

GOLDEN GATE C3 (MARRIOTT)

**265****What the Heck Is Formative Assessment?**

8–10 Session

Are you a secondary teacher who wants to learn more about how to effectively use formative assessment techniques? Come join us and we will discuss the formative assessment cycle and show you what it looks like in a classroom. You will leave with quick and easy tools to help inform your teaching and boost student learning.

**Debi Mintz**

Pleasanton Unified School District, California

**Celine Liu**

Alameda County Office of Education, Hayward, California

2007 (MOSCONE WEST)

**266****When Will We Use This? Getting the Context Right!**

6–8 Session

CCSSM states that students should “use ratio and rate reasoning to solve real-world and mathematical problems.” We will share a series of tasks centered on authentic real-world contexts and criteria for their authenticity. Participants will develop the ability to both recognize inauthentic problem contexts and develop authentic contexts of their own.

**S. Asli Ozgun-Koca**

Wayne State University, Detroit, Michigan

**Thomas G. Edwards**

Wayne State University, Detroit, Michigan

**Kenneth R. Chelst**

Wayne State University, Detroit, Michigan

GOLDEN GATE A (MARRIOTT)

**266.1****NT****Strategies to Be Proactive and NOT Reactive with Challenging Students**

6–8 Session

All classrooms have students who struggle with (dislike) mathematics. Learn proactive steps to help students be successfully engaged in learning mathematics and have a little fun at the same time. Participate with low-floor, high-ceiling math tasks and other strategies that can motivate and help turn struggling learners into productive learners.

**Connie S. Schrock**

Emporia State University, Emporia, Kansas

2018 (MOSCONE)

**266.2****ew****AP and MyMathLab Options to Meet All Your Needs!**

General Interest Exhibitor Workshop

Ready for College. Ready for Life. With an interactive eText, a comprehensive multimedia library and personalized study plans for every student, MyMathLab for School comes complete with resources to ensure students are successful in their mathematics course and adequately prepared for college, career, and life.

**Pearson**

Boston, Massachusetts

123 (MOSCONE NORTH)



**266.3 ew****BYOD: Mathspace—Why You'll Never Grade Math Assignments Again. Seriously.****10–12 Exhibitor Workshop**

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

**Mathspace**  
New York, New York

**124 (MOSCONE NORTH)****266.4 ew****Questioning Strategies with Inquiry-Based Learning in Algebra****10–12 Exhibitor Workshop**

Inquiry-based learning is only successful when students connect the exploration with the learning objective. Successful questioning strategies help students develop skills from these experiences. We will provide examples from *Discovering Algebra* of the effective use of questioning to make connections between explorations and learning objectives.

**Kendall Hunt Publishing**  
Dubuque, Iowa

**122 (MOSCONE NORTH)****266.5 ew****Read It, Write It, Solve It: Improving Content-Area Literacy****General Interest Exhibitor Workshop**

Help students communicate their mathematical thinking and understanding with content-rich reading, writing, and problem-solving experiences. Participants will receive hands-on materials and participate in a drawing for free resources.

**Teacher Created Materials**  
Huntington Beach, California

**120 (MOSCONE NORTH)****266.6 ew****Using NBA Data to Engage Students****General Interest Exhibitor Workshop**

Will Rajon Rondo tally more than 900 assists this season? Is there a formula that can be used to identify all-star players? The NBA season coincides with the school year, and current stats are always available from stats.nba.com. Powerful activities are possible when these stats are used for mathematical modeling. Come see how you can use NBA data to get middle and high school students excited about math.

**Discovery Education**  
Silver Spring, Maryland

**130 (MOSCONE NORTH)**

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**Facilitating Rich and Rigorous Discussion in the Mathematics Classroom**

Thursday, April 14, 8:00 – 9:00 am  
Room 130

**Teaching Mathematics from a Growth Mindset: Strategies to Support Math Success for All Learners**

Thursday, April 14, 9:30 – 10:30 am  
Room 130

**Implementing Blended Learning: Best Practices for the K–8 Math Classroom**

Friday, April 15, 3:30 – 4:30 pm  
Room 125

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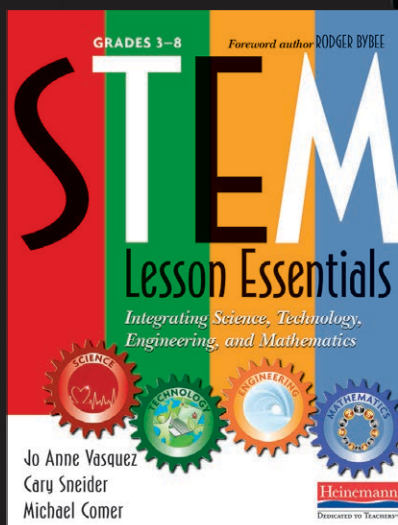
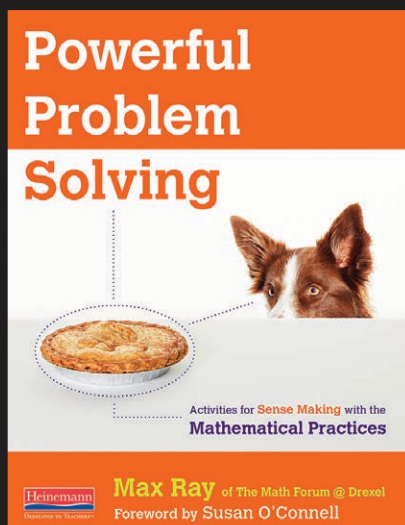
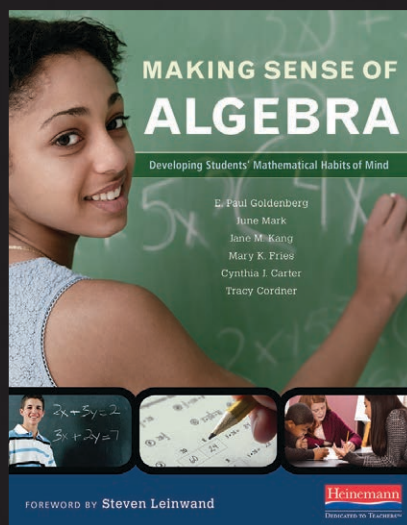
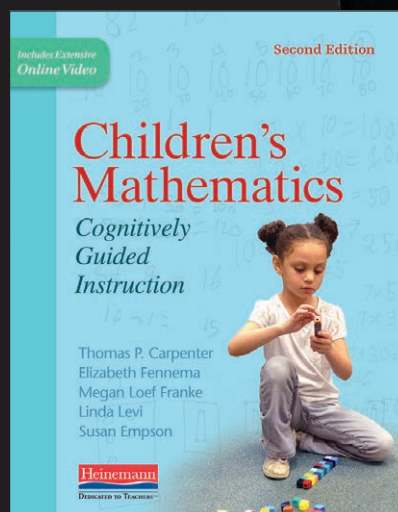
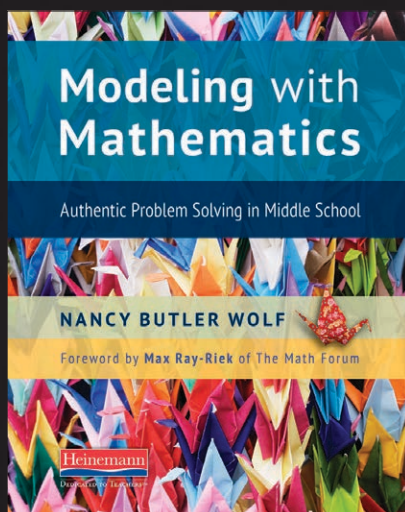
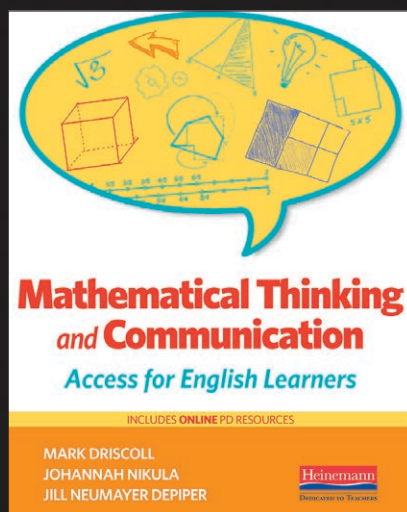


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Friday



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## Highlights

Iris M. Carl Equity Address (Presentation 364)


NCTM Business Meeting (Presentation 411)

NCTM President-Elect's Address (Presentation 438)

New Teacher Celebration (Presentation 511.6)

## Strands

## Presentation Numbers

<b>PCPG</b> Building Capacity: Personal and Collective Professional Growth	289, 363, 416
<b>EQUITY</b> Equity	291, 292, 316, 364, 383, 395, 440, 442, 496, 510
<b>EW</b> Exhibitor Workshops	292.1, 292.2, 292.3, 292.4, 292.5, 292.6, 292.7, 339.1, 339.2, 339.3, 339.4, 339.5, 339.6, 339.7, 385.1, 385.2, 385.3, 385.4, 385.5, 385.6, 385.7, 419.1, 419.2, 419.3, 419.4, 419.5, 419.6, 419.7, 465.1, 465.2, 465.3, 465.4, 465.5, 465.6, 465.7, 511.1, 511.2, 511.3, 511.4, 511.5
<b>HOT</b> Hot Topics	278, 511.7
<b>E&amp;A</b> Instruction and Policies that Promote Equity and Access	288, 358, 361, 400, 453
 NCTM Committee	466
<b>NT</b> New Teacher	357.1, 476, 511.6
<b>NGM</b> Next Generation Mathematics for ALL	274, 280, 403
<b>PtA</b> Principles to Actions: Mathematics and Teaching Practices and Research	309, 323, 351, 379, 441, 493
<b>PPD</b> Promoting Productive Dispositions about Mathematics	270, 407, 506
<b>TECH</b> Technology	467, 499

## Get Social

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



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@NCTM.math



**Facebook**  
www.facebook.com/TeachersofMathematics

## Registration Hours

7:00 a.m.–4:00 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.



**267****A Math Coach's Playbook for a Successful First Year**

General Interest Session

Thinking about becoming a math coach? Come learn about the transition from classroom teacher to mathematics coach. Explore tools and strategies to help guide and support adult learning and increase student achievement. Three unique experiences will be shared to build school community relationships, create change, and foster professional growth.

**Kristen L. Mangus**

Howard County Public School System, Ellicott City, Maryland

**Susan A. Jensen**

Howard County Public School System, Ellicott City, Maryland

**Michele Glenn**

Howard County Public School System, Ellicott City, Maryland

GOLDEN GATE C1 (MARRIOTT)

**268****Algebra Nation: Harnessing the Power of the Online Collaborative Community**

8–10 Session

Algebra Nation is a blended e-learning system custom-designed for algebra students and teachers. Since its launch by the University of Florida in 2013, Algebra Nation has experienced tremendous growth and success. Algebra Nation has shown positive impacts on first-time and repeat test taker scores.

**Joy Bronston Schackow**

University of Florida, Gainesville

**Stephanie S. Cugini**

University of Florida, Gainesville

**Melody Pak**

University of Florida and Study Edge, Gainesville

3012 (MOSCONE WEST)

**269****An Exciting, Effective, Enjoyable, Efficient, and Engaging Way to Educate**

10–12 Session

Having students work on one well-chosen problem, followed by a discussion of that problem enables students to learn content while they also learn how to think mathematically. This is more effective and efficient than show and practice. It is more fun for them and for the teacher. I will demonstrate how this approach works.

**John A. Benson**

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

2007 (MOSCONE WEST)

**270**

PPD

**Effective Mathematics Teaching Practices: Purposeful Questions and Meaningful Discourse**

General Interest Session

This session will focus on two of the effective teaching practices identified in *Principles to Actions*: posing purposeful questions and facilitating meaningful mathematical discourse. Video and narrative examples of these practices will be provided and ways to get starting in working on these practices in one's own classroom will be discussed.

**Margaret Smith** is a professor in the Department of Instruction and Learning in the School of Education and a Senior Scientist at the Learning Research and Development Center, both at the University of Pittsburgh. She has edited numerous books or monographs, book chapters, and peer-reviewed articles, and she has authored or co-authored over 75 books, including *5 Practices for Orchestrating Productive Mathematics Discussion* (coauthored with Mary Kay Stein). She was a member of the writing team for *Principles to Actions: Ensuring Mathematical Success for All* and is the chair of an NCTM working group that is creating materials to support implementation of the effective teaching practices in *Principles to Actions*.

**Margaret Smith**

University of Pittsburgh, Pennsylvania

2024 (MOSCONE WEST)

**271****Essential Understanding of Geometry for English Language Learners**

6–8 Session

Develop teaching strategies that support ELLs' language development by means of well-planned interrelated social and analytic scaffolding. Simultaneously assisting in essential understanding of geometry through engagement in mathematical discourse focused on the key practices of argumentation, strategic usage of tools, and attention to precision.

**José Francisco Sala García**

Balearic Education Council, Ibiza, Spain

3007 (MOSCONE WEST)

**272****From Nonsense to Number Sense: Exploring the Number Core!**

Pre-K–2 Session

Effectively sequencing how you teach numbers 1–5, 6–10, and then 10–20 MATTERS! Teaching number in the primary years is deceptively simple. After we peer into the classroom through video, walk away with strategies for teaching primary students to count, interpret, understand, and use numbers to problem-solve using developmentally appropriate models.

**Lacy Endo-Peery**

Eureka Math, Lead Curriculum Writer and PD specialist, Washington, D.C.

**Kate Austin**

Eureka Math, Washington, D.C.

YERBA BUENA 10/11 (MARRIOTT)

**273****Functions for ALL: Toward a Rigorous and Thorough Understanding**

8–10 Session

Getting students to understand the concept of a function can be challenging. This session provides examples and activities that will move your students beyond “inputs” and “outputs” and “the vertical line test,” and empower them to represent, manipulate, and interpret functions in both real-world and purely mathematical situations.

**Wendy L. DenBesten**

Eureka Math, Washington, D.C.

**Selena Oswalt**

Eureka Math, Washington, D.C.

3009 (MOSCONE WEST)

**274****NGM****GAIMME, Mathematical Modeling for Middle School**

General Interest Session

This talk will present the content and recommendations of the new SIAM/COMAP report, Guidelines for Assessment in Mathematical Modeling Education. It will contain many modeling examples and practical advice for teaching modeling at the middle school grades.

**Laura Pahler-Cortez**

K-8 School, Pomona, California

305 (MOSCONE SOUTH)

**275****Guidance on a Rational and Teachable Algebra I Course**

8–10 Session

The Common Core has done little to improve the 9–12 math curriculum especially algebra I, which seems mostly unchanged from decades past. This session will unveil a realistic algebra I scope and sequence compiled from a grassroots efforts to make significant changes to improve the algebra I curriculum.

**Eric Milou**

Rowan University, Glassboro, New Jersey

2005 (MOSCONE WEST)

**276****Explore Growing Patterns & Engage with Manipulatives with NCTM's ARCs**

3–5 Session

Be a part of NCTM's effort to restructure Classroom Resource content available on [nctm.org](http://nctm.org) so that it best meets your needs. This workshop introduces the first component—newly developed Activities with Rigor and Coherence (ARCs). Participants will work through the mathematics in an exemplar ARC, led by a member of the ARC writing team. The ARCs are works in progress, so participants will be asked for feedback.

**Patti Huberty**

Clarke County School District; Athens, Georgia

**Ann Holdren-Kong**

NCTM; Reston, Virginia

3005 (MOSCONE WEST)



**277****Language Arts, Science, Art, and Math . . . Oh, My!**

Pre-K–2 Session

Participants will experience hands-on activities that will enhance and integrate mathematics from a children's story. Activities will be initiated from familiar children's books, and using manipulatives we will highlight number sense, measurement, and geometry.

**Maria Diamantis**

Southern Connecticut State University, New Haven

GOLDEN GATE C3 (MARRIOTT)

**278** **HOT****LOCUS: A Formative Assessment and Professional Development Tool for Statistics**

6–8 Session

This session will share the freely available professional development materials that complement the suite of NSF-funded LOCUS assessments. Peer-reviewed items aligned with standards will be presented along with commentaries that are designed to help teachers understand changes in the way statistics will be assessed on high-stakes assessments.

**Tim Jacobbe**

University of Florida, Gainesville

**Steve Foti**

University of Florida, Gainesville

2011 (MOSCONE WEST)

**279****Making Algebra Visible: From Pictorial to Abstract in Problem Solving**

6–8 Session

Students struggle with formulating algebraic equations for problem solving, both in the abstraction and in making sense of relationships between the known and unknown quantities. The Bar Model method has been known for problem solving in numbers and the four operations, but it is also an effective visual tool for basic algebraic problems.

**Vei Li Soo**

Balaklava High School, Australia

2001 (MOSCONE WEST)

**280** **NGM****Math in the Movies**

General Interest / All Audiences Session

Filmmaking has undergone a revolution brought on by advances in areas such as computer technology, geometry, and applied mathematics. Using numerous examples drawn from Pixar's feature films, this talk will provide a behind-the-scenes look at the role that math has played in the revolution.

**Tony DeRose**

Pixar Animation Studios, Emeryville, California

3016 (MOSCONE WEST)

**281****Math Talk: Mathematical Sense Making through Mental Math**

8–10 Session

Math Talks are a powerful classroom routine that uses mental math to support the development of mathematical reasoning while encouraging productive academic discourse. In this session, we will engage in Math Talks designed for the algebra and geometry classroom, and we will address how to successfully implement this rigorous protocol.

**Connie J. Horgan**

Math Solutions, Sausalito, California

**Sheila Yates**

Math Solutions, Sausalito, California

3003 (MOSCONE WEST)

**282****Power of Collaboration & Co-teaching: A Department Model for Student Teaching**

Coaches / Leaders / Teacher Educators Session

What if student teachers are placed in a department rather than with a single cooperating teacher? This new model creates rich opportunities for co-teaching and collaboration. We can see the positive impact on our students and colleagues. Come hear about our learning and how it applies to all teachers.

**Kemble Schnell**

Inza Wood Middle School, Wilsonville, Oregon

**Kasi C. Allen**

Lewis &amp; Clark College, Portland, Oregon

**James D. Coombs**

West Linn - Wilsonville School District, Oregon

2022 (MOSCONE WEST)



**282.1****What Instructional Coaches Need to Know about Teaching Mathematics**

Coaches / Leaders / Teacher Educators Session

How do you coach a math teacher if you don't have a background in teaching math? See what we have learned in our two-year PLC of coaches from several school districts. We will share resources and activities to show what good math instruction looks like and how coaches can help make it a reality.

**Jeanne Simpson**Alabama Math, Science, and Technology Initiative (AMSTI);  
University of Alabama in Huntsville

2018 (MOSCONE WEST)

**283****The Common Core in Early Math and Developmental Appropriateness**

Pre-K–2 Session

Different perspectives can be positive, unless they result from biased or limited perspectives. Unfortunately, this is what is too frequently happening with the Common Core State Standards. Here we use research evidence as a basis to evaluate three main criticisms of the Common Core.

**Douglas H. Clements**

University of Denver, Colorado

**Julie Sarama**

University of Denver, Colorado

**Karen C. Fuson**

Northwestern University (Emeritus), Fallbrook, California

GOLDEN GATE A (MARRIOTT)

**284****Students and Teachers Navigate the Number Line Model for Fractions**

3–5 Session

We will share findings on three iterations of work with third and fourth graders as they made sense of the number line. We examine the role of the number line model in extending and reinforcing key ideas of fractions as numbers.

**Kathleen Cramer**

University of Minnesota, Minneapolis

**Sue Ahrendt**

University of Wisconsin–River Falls

**Terry R. Wyberg**

University of Minnesota, St. Paul

NOB HILL C/D (MARRIOTT)

**285****Supporting All Students in the Pursuit of Modeling**

Higher Education Session

President's Series presentation

Help your students become “doers” of mathematics by empowering them with a problem-solving process and a deep understanding of strategies. Come learn how to actively engage your students and equip them to handle problems arising in everyday life and society that makes mathematics more meaningful and relevant.

**John Staley**

Baltimore County Public Schools, Towson, Maryland

2020 (MOSCONE WEST)

**286****Teaching Practices in K–2: Let's Make Our Teaching More Effective!**

Pre-K–2 Session

Common instructional moves in K–2 often fall short of promoting deep learning of mathematics. We'll unpack high leverage practices highlighted in *Principles to Actions* and discuss practical ways to infuse the ideas into classrooms. Learn how to make purposeful questioning, problem solving, and productive struggle a reality for your young learners!

**Susie Katt**

Lincoln Public Schools, Nebraska

YERBA BUENA 5/6 (MARRIOTT)

**287****The Power of Quick Formative Assessments in Action**

8–10 Session

Are you looking for ways to quickly gauge student learning and understanding of math content? Come and experience quick ways to check for understanding that you could use next week in math class. We will focus on relating them to daily lesson design and how teachers can use them to adjust instruction immediately based on student learning needs.

**Kathleen A. Wilson**

St. Paul Public Schools, Minnesota

YERBA BUENA 12/13 (MARRIOTT)



**288 E&A****The Learning Mindset Movement and Its Implications for Addressing Opportunity Gaps**

General Interest / All Audiences Session

Brief educational interventions derived from recent advances in social psychology and learning theory have been demonstrated to substantially increase students' productive persistence in tackling mathematics problems. I will describe highlights of the relevant theory, their implications for instruction and equity, and the need for ethical guidelines when using psychological interventions in education.

**Uri Treisman**  
University of Texas; Austin

134 (MOSCONE NORTH)

**289 PCPG****Valuing Ourselves and Each Other: Online Communities for Professional Growth**

General Interest Session

The Math Forum has been using the internet to connect math educators since before the Web. Now that so many math teachers use Twitter and blogs to connect, what can we learn from the pioneers? One theme from the early days is helping ourselves and each other feel valued as teachers. We'll talk about how that happens online, and why it's important.

**Max Ray-Riek**  
The Math Forum, National Council of Teachers of Mathematics,  
Reston, Virginia

301 (MOSCONE SOUTH)

**290****Walk the Talk: Math Professional Development Using Practice Standards**

Coaches / Leaders / Teacher Educators Session

Teachers are expected to set up a collaborative classroom setting in which worthwhile tasks are presented and students engage in productive struggle. Shouldn't we model this type of instruction in PD settings as well? Come learn how to help your teachers learn in an engaging, supportive environment that models classroom expectations.

**Melinda Griffin**  
Massachusetts Department of Elementary and Secondary  
Education, Malden

307 (MOSCONE SOUTH)

**291 EQUITY****What Do Students Say about Equity in the Mathematics Classroom?**

8–10 Session

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

**Bill Barnes**  
Howard County Public School System, Ellicott City, Maryland  
**Jon Wray**  
Howard County Public Schools, Ellicott City, Maryland

135 (MOSCONE NORTH)

**292 EQUITY****Word Problems? Bring 'Em On! Access to Mathematics for ELLs**

General Interest Session

Word problems can challenge students, especially ELLs. A student's ability to interpret the language in word problems can present a significant obstacle to learning. This session will provide a model for and an effective and relevant framework for modifying linguistically complex tasks while preserving the mathematical content and cognitive demand.

**Michael Gilbert**  
University of Massachusetts Boston  
**Fabián Torres-Ardila**  
University of Massachusetts Boston  
**Ana Solano-Campos**  
University of Massachusetts Boston

2009 (MOSCONE WEST)

**292.1** **ew****HP Prime: A Breakthrough in Mathematics Education Technology!**

10–12 Exhibitor Workshop

Here's your chance to get acquainted with HP Prime: the app-based, full-color graphing calculator with a multi-touch, gesture-driven user interface. You will receive a free copy of the virtual HP Prime for PC at the end of the session. Come experience the simplicity and power of HP Prime, pinch to zoom on a graph, a table of function values, and more.

HP Inc.  
San Diego, California

120 (MOSCONE NORTH)

**292.2** **ew****Math Cubed: The Rubik's Cube**

General Interest Exhibitor Workshop

Students experience productive struggle while developing critical thinking, problem solving, and visualization skills when learning to solve the Rubik's Cube. Discover how you can bring Rubik's Cubes into your classrooms at little or no cost to support a variety of mathematical content areas as well as the mathematical practice standards.

You CAN Do the Rubik's Cube  
Danvers, Massachusetts

121 (MOSCONE NORTH)

**292.3** **ew****Unleash the Power of Games-Based Learning with Mangahigh**

6–8 Exhibitor Workshop

Discover how Mangahigh ignites passion and engagement so that students learn to love math through an effective games-based environment that builds skills, increases academic achievement, and promotes collaboration through exciting competition. Educators will learn ways to differentiate and personalize instruction both in and out of the classroom as well as to maximize time and resources in a blended environment. We will offer ideas and strategies to motivate and raise the bar for all math learners in your class.

Mangahigh  
London, United Kingdom

123 (MOSCONE NORTH)

**292.4** **ew****Leveraging Adaptivity in Your Grades 3–5 Classroom**

3–5 Exhibitor Workshop

Personalized learning. Adaptive learning. Assessment-driven instruction. Whatever you call it, the question is how can you use technology-driven adaptivity in the classroom. Learn how adaptivity can be used to support student progress and save you time in a core classroom as we look at a new partnership between enVisionmath and Knewton to bring adaptivity to grades 3–5.

Pearson  
Boston, Massachusetts

124 (MOSCONE NORTH)

**292.5** **ew****Changing the Conversation: With Math I Can**

General Interest Exhibitor Workshop

"With Math I Can. . ." is a movement to eradicate the societal norm of saying "I'm not good at math" by arming students with growth mind-set strategies. Join us as we discuss how teachers can shift students' mind-sets and provide purposeful practice so that all children master math and reach their full potential.

TenMarks, an Amazon Company  
Burlingame, California

125 (MOSCONE NORTH)

**292.6** **ew****Mathematics Practices? Interactive Mathematics Program's (IMP) Got You Covered!**

10–12 Exhibitor Workshop

IMP embodies the CCSSM practices and excels at topic progression resulting in mastery after four years. We will examine this through trig ratios, starting with a complex unit problem from Year 4, and tracing the scaffolding in Years 1–3 that prepared students to answer it. Expect to solve problems, review student work, and highlight CCSSM practices!

It's About Time  
Santa Maria, California

130 (MOSCONE NORTH)



8:00 A.M.–9:00 A.M.

**292.7** **ew**

**Getting Started with Math Modeling**

6–8 Exhibitor Workshop

Students need to engage in mathematical modeling on a regular basis. Should they do it every day, or is once a semester sufficient? How do you start small and help students succeed without reinventing the wheel? This session will share some modeling activities, provide strategies for using modeling in your classroom, and point you to some of the best modeling resources available online.

**Discovery Education**  
Silver Spring, Maryland

**122 (MOSCONE NORTH)**

8:00 A.M.–9:15 A.M.

**293**

**Accessing and Developing the Math Practices with At-Risk Students**

8–10 Workshop

Developing the math practices in at-risk students, including students with learning disabilities, can be challenging. Experience activities used in a special education math class that helped transform student mindsets and that engaged them in challenging math tasks, creating a culture of positive problem solving in the classroom.

**James L. Short**  
Ventura County Office of Education, Camarillo, California  
**Jennifer Silva**  
Moorpark High School, California  
**Vicki Viera**  
California State University Channel Islands, Camarillo

**2003 (MOSCONE WEST)**

**294**

**Algebraic Thinking for All Students**

3–5 Workshop

This session focuses on hands-on and minds-on algebraic thinking activities that will transform real-world problems into situations that develop students' abilities to generate, represent, and justify generalizations. Leave with classroom-ready activities and ideas to challenge the different levels of students in your classroom.

**Carolyn L. White**  
Rice University School Mathematics Project, Houston, Texas  
**Susan Troutman**  
Rice University School Mathematics Project, Houston, Texas

**3006 (MOSCONE WEST)**

**295**

**AMPing Up the Teaching of Mathematics**

Coaches / Leaders / Teacher Educators Workshop

This presentation will provide an overview of the Arizona Mathematics Partnership (AMP) project, which is focused on providing professional development for middle school teachers. Funded by the NSF, AMP is led by community college mathematics faculty who support teachers' transition to teaching for understanding and meaning. Come learn about AMP!

**April D. Strom**  
Scottsdale Community College, Arizona

**3018 (MOSCONE WEST)**

**CPM EDUCATIONAL PROGRAM**  
SUPPORTING EDUCATORS, ENGAGING STUDENTS

For over 25 years CPM EDUCATIONAL PROGRAM has been writing problem-based student-centered course materials. We support and empower the mathematics education community through exemplary curriculum for grade six through calculus, comprehensive professional development, and leadership.

We are pleased to support the National Council of Teachers of Mathematics. Stop by booth #1134 to meet with CPM authors and mentor teachers, to see our materials and request a preview, and to learn more about CPM and our summer program for new teachers.

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Friday



**296****Bridges That Don't Fall Down**

6–8 Workshop

Bridges is a hands-on, inquiry-based workshop that examines the geometric properties that give bridges stability and strength. Using low-cost materials and targeting middle school students' involvement in the world around them, this workshop will give teachers a number of science, engineering, and mathematics connections with which they can engage students.

**Mel Griffin**

Walden University, Minneapolis, Minnesota

**Monique C. Lynch**

Walden University, Minneapolis, Minnesota

2006 (MOSCONE WEST)

**297****Copy, Change, Flip? Why Not to Invert and Multiply.**

3–5 Workshop

Students are expected to understand how to divide fractions using various strategies. How do teachers do this without copy, change, flip? Participants will explore the progression of division from whole numbers to fractions while using a variety of tools and rigorous tasks to promote a deeper understanding of division of fractions.

**Kendra J. Johnson**

Swansfield Elementary, Howard County Public Schools, Columbia, Maryland

**Connie Conroy**

Howard County Public Schools, Ellicott City, Maryland

**Kathleen Carter**

Howard County Public School System, Ellicott City, Maryland

YERBA BUENA 14/15 (MARRIOTT)

**298****Discerning Geometric Patterns and Structure through Games**

Pre-K–2 Workshop

Teachers may view games as opportunities for practice rather than promoting mathematical reasoning. In this session, participants will (a) engage in hands-on activities such as What's My Rule, Attribute Trains, and Geometry Battleship and (b) discuss how games can be used to explore higher-order thinking with geometric patterns and structure.

**Kelley E. Buchheister**

University of South Carolina, Columbia

GOLDEN GATE C2 (MARRIOTT)

**299****Frogs, French Fries, and Faucets: Examining Proportions through Multiple Lenses**

6–8 Workshop

Participants will go on a journey analyzing proportional relationships through the use of tape diagrams, tables, and graphs, all within a real-world context. We will move beyond the cross-multiplication algorithm as we explore alternative approaches to promoting multiplicative reasoning.

**Valerie Sharon**

Sam Houston State University, Huntsville, Texas

**Mary B. Swarthout**

President, Research Council on Mathematics Learning; Sam Houston State University, Huntsville, Texas

3022 (MOSCONE WEST)

**300****From Yellowstone to Yosemite: Investigating the National Parks through Measurement**

6–8 Workshop

Have you ever wondered what proportion of Yellowstone is a super volcano? Come learn how to use your favorite parks as a means to develop notions of scale, compare length and area units, and develop proportional reasoning. We will share classroom-ready tasks as well as discuss students' strategies and misconceptions.

**Megan H. Wickstrom**

Montana State University, Bozeman

**Elizabeth W. Fulton**

Montana State University, Bozeman

**Jennifer Luebeck**

Montana State University, Bozeman

3008 (MOSCONE WEST)

**2016 Regional Conferences**

Phoenix • October 26–28

Philadelphia • October 31–November 2

**301****Geometry and Fractions Progressions—Yes, You Can Do This!**

Coaches / Leaders / Teacher Educators Workshop

Teacher candidates enter elementary mathematics methods with beliefs and procedural content knowledge. Many lack a conceptual lens. This session will focus on teaching problems conceptually within the 3–5 band. Participants will engage in discussions and practice of teaching geometry and fractions, and they will gain information, ideas, and strategies.

**Nicolette Nalu**Alabama Math, Science, and Technology Initiative (AMSTI);  
University of Alabama, Tuscaloosa**Amanda Pendergrass**

University of West Alabama, Livingston

YERBA BUENA 3/4 (MARRIOTT)

**302****Harmonizing Problem Solving and Place Value in PK–2**

Pre-K–2 Workshop

From subitizing to multi-digit operations, place value provides a critical foundation for success in math. Learn how to orchestrate meaningful experiences that harmonize visual models, context problems, and place-value strategies to make math meaningful in the early years.

**Kimberly A. Rimbey**

Rodel Foundation of Arizona, Scottsdale

**Peggy Akin**

KP Mathematics, Phoenix, Arizona

310 (MOSCONE SOUTH)

**303****I Know My “Just Right Number”! Do You?**

Pre-K–2 Workshop

Help your K–2 students and your grades 3–4 struggling learners by finding their “Just Right Number” to develop number sense with conceptual understanding and fluency while using differentiated processes with engaging multiple context activities that takes the student from Concrete-Pictorial-Abstract.

**Susan Hildebrand**

Jenks Public Schools, Oklahoma

3004 (MOSCONE WEST)

**304****Increasing Student Engagement Calculus through PBL, Oral Assessments, and Writing**

10–12 Workshop

We have designed a model for a calculus I course that blends PBL, oral assessments, and writing as a pedagogical strategy in order to deepen understanding and increase engagement and metacognitive skills. A framework for instruction, sample activities, student responses, data, and the potential to implement at the secondary level will be presented.

**Mary E. Pilgrim**

Colorado State University, Fort Collins

**Jessica Gehrtz**

Colorado State University, Fort Collins

3011 (MOSCONE WEST)

**305****Putting Probability into Practice and the Practices into Probability**

10–12 Workshop

This session focuses on using contexts that students commonly encounter, such as TV game shows, to provoke student engagement in the Standards for Mathematical Practice. I will discuss how representations and technology can be leveraged as tools to increase student discourse and to design probabilistic simulations.

**Rick A. Hudson**

University of Southern Indiana, Evansville

2004 (MOSCONE WEST)

**306****Reaching and Teaching English Language Learners Using the SIOP® Model**

8–10 Workshop

How can we support ELLs in our classroom while engaging all our students? Join us to find out! We'll share 20+ research-based activities, developed in our years of implementing the SIOP model. By making your own Graffiti Wall, Quiz Without Questions, and more, you'll discover fun ways to help all of your students experience mathematical success.

**Lindsey L. Brewer**

Huron School District 2-2, South Dakota

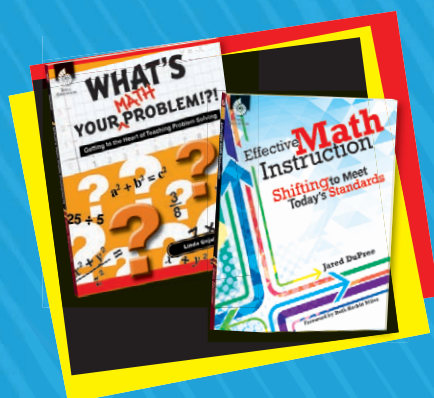
**Lori A. Keleher**

Huron School District 2-2, South Dakota

2008 (MOSCONE WEST)



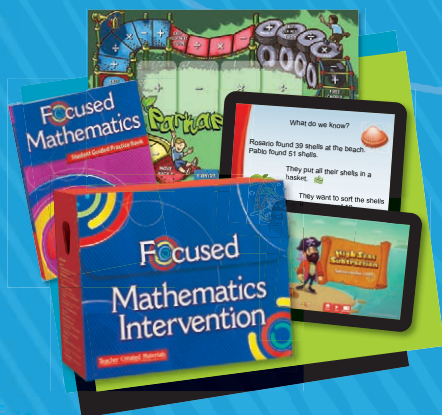
## Focus on Success! Check out our sessions:



### What's Your Math Problem?! Rich Problem Solving to Support Today's Standards

Thursday, April 14<sup>th</sup> at 8:00–9:00AM, Room 120

Come learn how to evaluate and create rich tasks, as well as how to support students as they develop their toolbox of effective problem-solving strategies. Easy-to-use resources to support the Standards for Mathematical Practice will be shared. Participants will receive hands-on materials and participate in a drawing for free resources.



### Empower Your Instruction, Engage Students, Make Math Fun: Intervention That Does It All

Thursday, April 14<sup>th</sup> at 12:30–1:30PM, Room 120

Come learn how to empower your instruction through a rich, engaging, and fun intervention model that provides effective strategies for rigorous instruction. Participants will receive hands-on materials and participate in a drawing for free resources.



### Read It, Write It, Solve It: Improving Content-Area Literacy

Thursday, April 14<sup>th</sup> at 3:30–4:30PM, Room 120

Help students communicate their mathematical thinking and understanding with content-rich reading, writing, and problem-solving experiences. Participants will receive hands-on materials and participate in a drawing for free resources.



**307****Statistics and Probability in Middle and High Schools with Technology****8–10 Workshop**

Statistics and probability is a significant shift for middle and high schools. Experience activities that you can do with students, both with and without technology, while learning about representations of univariate data, measures of spread and variability, scatterplots, regression, two-way tables, and how probability and statistics are related.

**Andres Marti**

San Francisco Unified School District, California

**Alison Ellsworth**

San Francisco Unified School District, California

**Elizabeth DeCarli**

San Francisco Unified School District, California

**3010 (MOSCONE WEST)**

**308****Tools for Young Mathematicians: Simple Yet Powerful Web-Based Technology****3–5 Workshop**

How can technology for young learners foster the joy of doing mathematics? Web-based hands-on activities engage students in mathematical practices as they create and explore their own visual models, using dynamic mathematics tools tailored to the activity. Bring a laptop or tablet. Leave with free access to over a dozen Web Sketchpad activities.

**Daniel Scher**

KCP Technologies, New York, New York

**Scott Steketee**

21st Century Partnership for STEM Education, Philadelphia, Pennsylvania

**2002 (MOSCONE WEST)**

**309****PtA****Understanding Fraction Multiplication: It Counts!****3–5 Workshop**

Fraction multiplication begins with skip counting by fractional amounts then gradually builds towards developing an understanding of the standard algorithm. Join us to explore a meaningful progression for teaching multiplication of fractions with meaning and leave with a great collection of activities.

**Jennifer M. Bay-Williams**

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

**Maggie B. McGatha**

University of Louisville, Kentucky

**308 (MOSCONE SOUTH)**

**310****Unpacking Algorithms: Leveraging Elementary Mathematics to Improve Secondary Algebra Instruction****10–12 Workshop**

A challenge in teaching polynomial operations with understanding is helping students to leverage their understanding of whole number operations. The Common Core's focus on alternative strategies for multiplication and division could provide a new resource to teachers. Participants will learn ways to leverage these ideas in high school classrooms.

**Amber Willis**

University of Michigan, Ann Arbor

**Nicole Garcia**

University of Michigan, Ann Arbor

**2016 (MOSCONE WEST)**

**311****Using Exit Ticket to Inform Instruction****General Interest Workshop**

Ever wonder what to do with those exit tickets thrown at you on the way out the door? During this hour, you will learn to transform exit tickets from one more thing to grade to valuable instructional tools. Learn how to make immediate, quick, and necessary adjustments to the next day's lessons to meet students' needs.

**Krysta Gibbs**

Eureka Math, Washington, D.C.

**Connie Laughlin**

Eureka Math, Washington, D.C.

**303 (MOSCONE SOUTH)**





**312****Algebra: An Investigative, Historical-Cultural Approach**

8–10 Session

Linking Common Core standards with investigative strategies that engage students, and with a focus on the historical development of algebra in Asia (and later in Europe), we present class-tested problems that intrigue students with their surprising solutions, along with ways that teachers can enliven their teaching and heighten student enthusiasm and success.

**Shlomo Libeskind**

University of Oregon, Eugene, Oregon

3009 (MOSCONE WEST)

**313****How to Develop Math Curriculum Reform in Latin America (and Not Die in the Attempt)**

General Interest / All Audiences Session

President's Series presentation

The most innovative—and so far successful—math curricular reform in Latin America is being carried out in Costa Rica. The implementation in 2013 of this internationally benchmarked curriculum, using cutting-edge resources, blended courses and, for the first time in the region, MOOCs for in-service teacher training. A model to follow?

**Angel Ruiz**

University of Costa Rica/Ministry of Public Education of Costa Rica; San José

3016 (MOSCONE WEST)

**314****Effective Tier 2 Intervention for Multi-Digit Multiplication and Division**

3–5 Session

Help students develop strategies for multi-digit multiplication and division, starting with models, including the array, that lead to clear, concise, and transparent algorithms. The activities and assessments we'll share feature effective instructional practices for intervention and help students develop understanding and computational fluency.

**Allyn Fisher**

Math Learning Center, Salem, Oregon

**Martha Ruttle**

Math Learning Center, Salem, Oregon

GOLDEN GATE C3 (MARRIOTT)

**315****Explorations with Rigid Motions in the Plane**

8–10 Session

President's Series presentation

Explore how to engage your students in investigations that scaffold learning of rigid motions in the coordinate plane using manipulatives and handheld technology. In this session you will develop and use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure.

**Christine D. Thomas**

Georgia State University, Atlanta

**Umamaheswari Subramanian**

Atlanta Public Schools, Georgia

3003 (MOSCONE WEST)

**316 EQUITY****Exploring Universal Design with Writing Prompts on Mathematics Exams**

General Interest Session

Some students have correct conceptual understanding, but they still make frequent errors that lead to incorrect responses. By asking students to explain what they understand with a writing prompt on exams, I can better determine what students know. This method has been particularly effective in learning more about struggling and underperforming students.

**Angela Thompson**

Governors State University, University Park, Illinois

2009 (MOSCONE WEST)



**317****Fighting the Good Fight: Standing Up for Equity In Mathematics**

Coaches / Leaders / Teacher Educators Session

San Francisco has worked for two years to develop and implement a board policy that detracks math classes through the end of tenth grade. Through research from the field and attention to our data we have framed this as a social justice issue and an instructional opportunity. Hear the superintendent and curriculum leaders reflect on our experiences.

**Lizzy Hull Barnes**

San Francisco Unified School District, California

**Richard Carranza**

San Francisco Unified School District, California

**2020 (MOSCONE WEST)****318****Going Google in the Math Classroom**

General Interest Session

Are you a Google Apps for Education school? Come learn how you can use Google Apps in your math classroom to add more collaboration between students, more creativity, and less paper. We will discuss Docs, Sheets, Forms, Drawing, Add-ons, and Chrome extensions. We will also see how Google Classroom can transform your classroom.

**Kim Scarbrough**

Sheridan Public Schools, Arkansas

**GOLDEN GATE A (MARRIOTT)****319****Hold My Calls: Introducing the Statistical Investigation Process with Activity**

8–10 Session

Statistical work is guided by the statistical investigation process. This session will introduce different models of that process and engage in an activity designed to introduce students to it. Key characteristics of statistical thinking will be identified through investigation, and issues related to teaching statistical thinking will be addressed.

**Lisa Poling**

Appalachian State University, Boone, North Carolina

**Todd A. Abel**

Appalachian State University, Boone, North Carolina

**2011 (MOSCONE WEST)****320****Ignite! We'll Enlighten You and We'll Make It Quick**

General Interest Session

What makes mathematics educators passionate? Join us and find out! Our ten mathematics educators 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 twenty slides that auto advance every fifteen seconds whether they're ready or not.

Featuring Peg Cagle, Michael Fenton, Annie Fetter, Matt Larson, Max Ray-Riek, Andrew Stadel, Lee Stiff, Marilyn Strutchens, Jennifer Wilson, Tracy Johnston Zager.

Emcee'd by Brian Shay. Facilitated by Suzanne Alejandre and Annie Fetter from The Math Forum.

**Suzanne Alejandre**

The Math Forum, National Council of Teachers of Mathematics, Swarthmore, Pennsylvania

**Annie Fetter**

The Math Forum, National Council of Teachers of Mathematics; Swarthmore, Pennsylvania

**134 (MOSCONE NORTH)**

Friday

Learn more about  
**The Math Forum** online resources—  
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**E&A**

Instruction and Policies that Promote Equity and Access

**EQUITY**

Equity

**ew**

Exhibitor Workshop

**HOT**

Hot Topics

**NCTM**

Committee

**321****Implementing CCSS Using the Student Achievement Partners' Instructional Practice Guide**

Coaches / Leaders / Teacher Educators Session

Find out how the AFT Innovation Fund Grant project in the Cincinnati Public Schools district (a project of the Cincinnati Federation of Teachers) was designed to build CCSSM knowledge and gauge implementation by supporting teachers focusing on the key shifts in math, through usage of the SAP Instructional Practice Guide (IPG) tool and peer teacher classroom visits.

**Amy Guzi Parkinson**

Cincinnati Public Schools, Ohio

**Theresa Allen**

Cincinnati Public Schools, Ohio

**Gale Jorgensen**

Hamilton County Educational Services, Cincinnati, Ohio

**2024 (MOSCONE WEST)****322****Inquiry-Based First, Flipped Second**

General Interest Session

Many teachers are interested in flipped learning but are not sure how to get started. Dr. Overmyer is one of the pioneers of flipped learning and will show how inquiry-based learning can transition to a flipped classroom model. This presentation will show pragmatic steps teachers can use to improve their mathematics teaching.

**Jerry R. Overmyer**

University of Northern Colorado, Greeley

**307 (MOSCONE SOUTH)****323****PtA****Insights and Practical Suggestions for Making Coaching for More Effective**

General Interest Session

It is increasingly clear that it is foolish to expect robust implementation of the vision of the Common Core without broad provision of effective coaching at all levels. We'll take a look at the research and my personal experiences to propose a set of practices and policies that teachers should demand from their administrators and coaches.

**Steven Leinwand**

American Institutes for Research, Washington, D.C.

**301 (MOSCONE SOUTH)****324****Math I Learned from a First Grader**

Pre-K–2 Session

We will explore selecting tasks that promote student reasoning and productive struggle to support the development of math understanding. Work samples showcasing strategies used by primary students to solve problems will be shared. Prepare to be amazed by what you can learn from a first grader!

**Lori Price**

St. Johns County Schools, St. Augustine, Florida

**GOLDEN GATE C1 (MARRIOTT)****325****Media and Research Analysis for Statistics Students**

10–12 Session

Strengthen your students' understanding of study design, probability, and statistical inference by incorporating and even challenging the analysis of research reported by popular news outlets. We will explore examples of news reports and professional journal articles we use to teach students to apply what they learn in our classrooms.

**Scott Galson**

Walter Payton College Prep, Chicago Public Schools, Illinois

**McKendry Marano**

James River High School, Midlothian, Virginia

**3007 (MOSCONE WEST)****326****Moving Principles into Actions: Assessment and Professionalism**

Coaches / Leaders / Teacher Educators Session

In *Principles to Actions*, NCTM sets forth five principles describing essential elements of effective school mathematics programs. This session focuses on specific actions that support the Assessment and Professionalism Principles through a set of professional learning resources designed to support teachers and other stakeholders.

**Jon Wray**

Howard County Public Schools, Ellicott City, Maryland

**Francis (Skip) Fennell**

Past President, National Council of Teachers of Mathematics;

McDaniel College, Westminster, Maryland

**305 (MOSCONE SOUTH)**

**327****New Resources for Supporting the Effective Teaching Practices: Elementary School**

3–5 Session

The session will focus on resources available in the Principles to Actions Teaching and Learning Toolkit, which was created to support teachers' implementation of the Mathematics Teaching Practices. Participants will engage in activities at the elementary level that highlight different effective Mathematics Teaching Practices.

**Amy Hillen**

Kennesaw State University, Georgia

**DeAnn Huinker**

University of Wisconsin–Milwaukee

**Victoria Lynn Bill**

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

135 (MOSCONE NORTH)

**328****Secondary Strategies That Sustain Sense Making**

8–10 Session

Elementary math strategies like fact families, area models, tape diagrams, number lines, and manipulatives make math meaningful and fun. Why, then, do we use mnemonics, memorized algorithms, and tricks in secondary math instruction? In this session we will consider sense-making strategies that can and should be utilized in secondary mathematics.

**Victoria L. Miles**

Middleborough High School, Massachusetts

**Shephali K. Chokshi-Fox**

Webster Public Schools, Massachusetts

2001 (MOSCONE WEST)

**329****Starting a Math Fight**

8–10 Session

The Standards for Mathematical Practice have given math teachers an opportunity to dig into the justification of mathematics in conjunction with “right answers.” We will explore free online resources to get students out of their chairs and into a structured mathematical discussion. Be prepared to move around and be a part of the math fight of the year!

**John L. Stevens**

Chaffey Joint Union High School District, Ontario, California

3005 (MOSCONE WEST)

**331****Students Take Data for a Spin!**

Pre-K–2 Session

Explore tasks that shift from telling students how to read a graph to students telling each other. In the engaging tasks presented, students in K–2 reason and problem-solve their way to graph comprehension! In the game format, students “test” their strategies as they spin to win the game. The activities are easily modified to fit your students' needs.

**Linda Gillette-Koyen**

Washoe County School District, Reno, Nevada

NOB HILL C/D (MARRIOTT)

**332****Tape Diagrams . . . NOT Just for Early Elementary Grades**

3–5 Session

Participants will examine the use of tape diagrams throughout CCSSM and solve questions from first grade through algebra. Participants will leave with knowledge of where tape diagrams apply in many types of mathematics. Some tape diagram solutions will be compared to traditional solutions to illuminate the usefulness of this tool.

**Jodelle S. W. Magner**

SUNY Buffalo State, Buffalo, New York

**Sue McMillen**

SUNY Buffalo State, Buffalo, New York

YERBA BUENA 5/6 (MARRIOTT)

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Equity



Exhibitor Workshop



Hot Topics



NCTM Committee



**333****Tasks for Effective Mathematics Instruction****6–8 Session**

Want to find out how to identify and develop appropriate mathematical tasks to promote reasoning and problem solving across different strands? Want to provide opportunities to motivate student learning *and* help students build mathematical knowledge? Come to this session to find out how to select and create such tasks to develop student thinking!

**DesLey V. Plaisance**

Nicholls State University, Thibodaux, Louisiana

2007 (MOSCONE WEST)

**334****Trajectories of Fractions Quantities: Students with Learning Disabilities and Difficulties****Research Session**

Come and learn about the key developmental understandings evidenced by 45 elementary school children with learning disabilities and difficulties in the area of fractions. We share a trajectory of children's development along with tasks teachers can use to uncover what children conceive of fraction quantities.

**Jessica Hunt**

University of Texas, Austin

303 (MOSCONE SOUTH)

**335****Using Financial Applications to Build Algebra 2 Competence and Confidence****10–12 Session**

Financial knowledge is an important part of college and career readiness. This session will examine selected algebra 2 and precalculus topics that can be used to model financial situations (data analysis, regression, logarithms, functions, systems, piecewise functions, linear programming, and more). A 20+ page handout will be distributed.

**Richard J. Sgroi**

Bedford Central Schools, Bedford, New York

2005 (MOSCONE WEST)

**336****Explore Area Concepts & Contribute to the Development of NCTM's ARCs****6–8 Session**

Be a part of NCTM's effort to restructure Classroom Resource content available on [nctm.org](http://nctm.org) so that it best meets your needs. This workshop introduces the storyboard for a set of Activities with Rigor and Coherence (ARCs). Attendees will discuss the mathematics and pedagogy of an evolving ARC and participate in the co-creation of a storyboard for a potential future ARC. The ARCs are works in progress, so participants will be asked for feedback.

**Ann Holdren-Kong**

NCTM; Reston, Virginia

**Toby Levenson**

Games for Kids; Oakland, California

**Sarah DeLeeuw**

NCTM; Reston, Virginia

2018 (MOSCONE WEST)

**337****Using the Computerized Algebra Program ALEKS for Intermediate Courses****Higher Education Session**

Implementing a computerized algebra program in intermediate courses with integrated content instruction is challenging. In this session, experience in using ALEKS in math 95 and 96 will be shared. Topics will include why to use ALEKS, how to set up courses, feedback from instructors and students, overall pros and cons, and suggestions for applications.

**Lina DeVaul**

University of Nevada, Las Vegas

**Micah Stohlmann**

University of Nevada, Las Vegas

**Amy Adkins**

University of Nevada, Las Vegas

2022 (MOSCONE WEST)



**338**

## What Is Academic Rigor in the Primary Classroom?

Pre-K–2 Session

The subject of rigor brings up lots of questions that need to be examined. What makes a task rigorous? Is harder always better? How do we know when struggling is productive and when it is harmful? We will look at what we need to consider to provide rigorous, yet appropriate, tasks for young children.

**Kathy Richardson**

Math Perspectives Teacher Development Center, Bellingham, Washington

YERBA BUENA 7 (MARRIOTT)

**339**

## What's the Difference? Two Important Ways to Think About Subtraction

Pre-K–2 Session

Do your students think about subtraction as takeaway, or as distance? We will discuss both conceptual models of subtraction and how each of them can help students to compute efficiently and with understanding. We will view video clips of students solving problems and discuss ways to help them develop essential understandings of subtraction.

**Zachary Champagne**

Florida Center for Research in Science, Technology, Engineering, and Mathematics (FCR-STEM), Florida State University, Tallahassee

**Robert Schoen**

Florida State University, Tallahassee

**Amanda Tazaz**

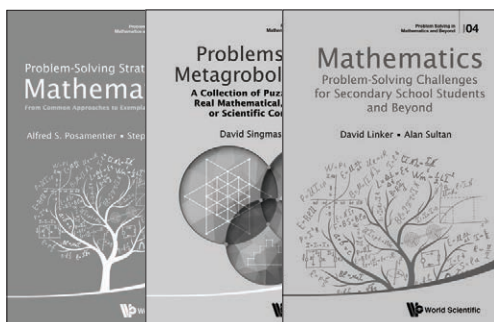
Florida Center for Research in Science, Technology, Engineering, and Mathematics (FCR-STEM), Florida State University, Tallahassee

YERBA BUENA 12/13 (MARRIOTT)

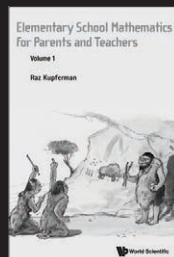
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Series edited by **Alfred S Posamentier**



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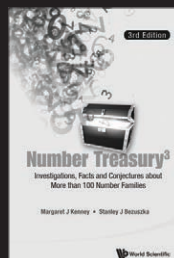


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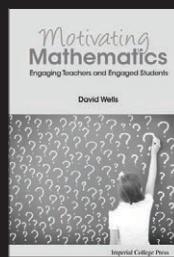
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Engaging Teachers and Engaged Students  
by **David Wells**

978-1-78326-753-8 US\$34 / £22

**339.1** **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 true manipulatives within the CRA method, participants will engage in hands-on activities for the weakest math objectives. Teachers and administrators love the ease of use and the improved results.

**Math Teachers Press**  
Minneapolis, Minnesota

120 (MOSCONE NORTH)

**339.2** **ew****Six Essential Expectations for Effective Mathematics Instruction**

General Interest Exhibitor Workshop

What should we look for in effective mathematics instruction? How do we support teachers to increase student achievement? Explore six essential coach and administrator expectations for effective mathematics instruction through the use of engaging tasks and classroom videos. See firsthand how these six expectations connect with classroom success.

**Houghton Mifflin Harcourt**  
Boston, Massachusetts

121 (MOSCONE NORTH)

**339.3** **ew****A Look at enVisionMath2.0 K–8—Now for Middle School!**

6–8 Exhibitor Workshop

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

**Pearson**  
Boston, Massachusetts

124 (MOSCONE NORTH)

**339.4** **ew****Statistics—A Great Fourth-Year Math Opportunity**

10–12 Exhibitor Workshop

Teaching an on-level statistics course? Thinking about it? Come find out about a uniquely-designed textbook, written for high-school students by high-school teachers. During this session, we will also feature some newly developed statistical applets that can be used to analyze data and perform both traditional and simulation-based inference.

**Bedford, Freeman, and Worth Publishers**  
New York, New York

125 (MOSCONE NORTH)

**339.5** **ew****Engage Every Student with Personalized Education**

General Interest Exhibitor Workshop

Looking for an effective and easy-to-use way to ensure all students receive quality education? Front Row provides personalized math and ELA programs for K–grade 8, including innovative, real-world inquiry-based lessons, math fact practice, and more. Learn how to use Front Row in your classroom to become an even more effective teacher.

**Front Row Education**  
San Francisco, California

130 (MOSCONE NORTH)

**339.6** **ew****A Balancing Act: Providing Grade-Level and Foundational Skills Practice**

General Interest Exhibitor Workshop

Do you struggle with providing effective math practice for grade-level standards and foundational skill development? The new Accelerated Math 2.0 and STAR Math help you find this balance in your classroom! Learn how teachers get the help they need to advance students from kindergarten through high school and better prepare them for college and career.

**Renaissance Learning**  
Wisconsin Rapids, Wisconsin

123 (MOSCONE NORTH)



9:30 A.M.–10:30 A.M.

**339.7** **ew**

**Getting Started with Math Modeling**

10–12 Exhibitor Workshop

Students need to engage in mathematical modeling on a regular basis. Should they do it every day, or is once a semester sufficient? How do you start small and help students succeed without reinventing the wheel? This session will share some modeling activities, provide strategies for using modeling in your classroom, and point you to some of the best modeling resources available online.

**Discovery Education**  
Silver Spring, Maryland

122 (MOSCONE NORTH)

9:45 A.M.–11:00 A.M.

**340**

**Assessment, Groups, Monitoring, Restructuring, Differentiation—Winning Mathematical Modeling Combo**

10–12 Workshop

Using timely assessment to create and later restructure collaborative groups for math modeling sessions facilitates the mathematical practices. Come work on a modeling problem in collaborative groups formed in this manner during the session. As you work, we'll discuss how assessment aided the depth of the mathematical discussions and experience.

**Allan E. Bellman**  
University of Mississippi, Oxford

3018 (MOSCONE WEST)

**341**

**Bringing the Coherence of CCSSM to life in PLCs**

Coaches / Leaders / Teacher Educators Workshop

Coherence is one of the least understood concepts related to Common Core math. This hands-on session will help coaches capitalize on the learning progressions found in the standards to strengthen instruction. The interactive session will also explain how to connect and build on grade level standards to support student success in mathematics.

**Barbara Beske**  
Student Achievement Partners, New York, New York

3006 (MOSCONE WEST)

**342**

**Can I Get This Furniture Upstairs into My Bedroom?**

8–10 Workshop

Participants will grapple with real-world math problems that require students to ask thought-provoking questions to provide the data to solve a real-world mathematical problem. For example: When purchasing a new bed or bureau how would you determine if you can get it up the stairs and into a second-floor bedroom? Can our friend Pythagoras help?

**Eileen M. Cyr**  
Springfield College, Massachusetts

**Kelli A. Nielsen**  
Balliet Middle School, Springfield Public Schools, Massachusetts

2016 (MOSCONE WEST)

**343**

**Creating a Puppy: A Transformational Geometry Activity**

6–8 Workshop

Participants will use the “list” and “stat plot” features on the TI-84 to graph a puppy. By experimenting with changes in the  $x$  and  $y$  values participants will discover and develop rules to create translations, reflections, rotations, and dilations.

**Fred Decovsky**  
Teachers Teaching with Technology, Millburn, New Jersey

3004 (MOSCONE WEST)

**344**

**Developing Number Sense in K–Grade 2 with Math Games**

Pre-K–2 Workshop

K–grade 2 teachers 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.

**Nancy L. Smith**  
Emporia State University, Kansas

**Marvin E. Harrell**  
Emporia State University, Kansas

**Tiffany Hill**  
Emporia State University, Kansas

306 (MOSCONE SOUTH)





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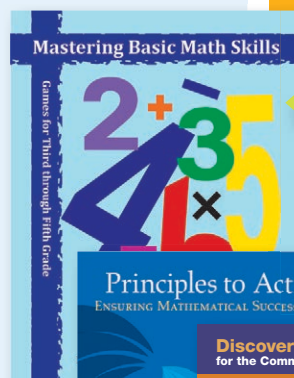
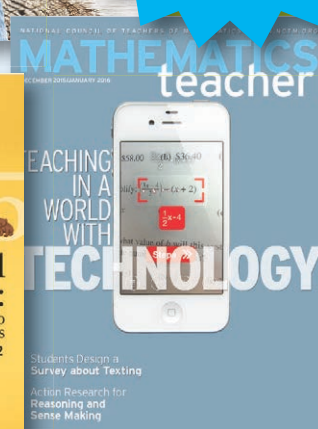
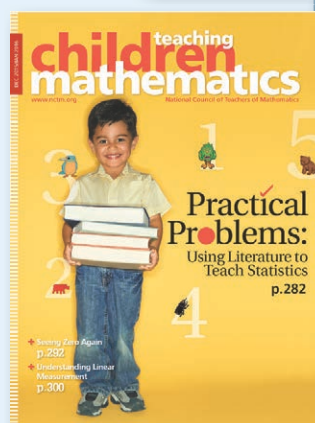
- Learn about **grants and awards** for mathematics educators and students

## Networking Lounge

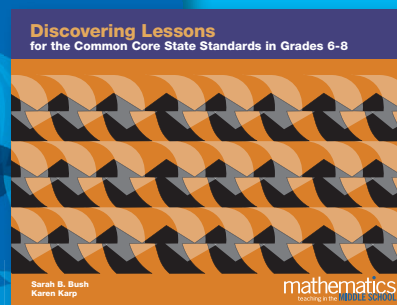
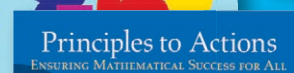
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**345****Embracing Frustration: Allowing Students to Persevere as Problem Solvers**

3–5 Workshop

In an engaging classroom simulation, learn how to guide students as they engage in high-cognitive demand activities, communicate strategic thinking, critique problem-solving strategies, and use tools and multiple strategies to solve rich problems. Learn how formative embedded assessment and providing meaningful feedback moves learning forward.

**Elizabeth Anne Cape**

Teaching Integrated Math and Science Project, University of Illinois at Chicago

**Jennifer Mundt Leimberer**

University of Illinois at Chicago

302 (MOSCONE SOUTH)

**346****Get Teachers Talking about Standards and Thinking Vertically**

Coaches / Leaders / Teacher Educators Workshop

This hands-on workshop will engage attendees in interactive sorts that can help coaches and leaders get teachers thinking and discussing the Common Core State Standards at and beyond their grade level. Join us as we examine both the practice and content standards in a fun environment. Participants will receive materials and resources.

**Lindsey Sawyer**

Needham Public School, Massachusetts

**Judith Wojtczak**

Needham Public School, Massachusetts

308 (MOSCONE SOUTH)

**347****Learning from Students' Productive Struggle**

Coaches / Leaders / Teacher Educators Workshop

"Ensure that students are engaged in a productive struggle with mathematics rather than on the receiving end of a lecture" (Shannon 2011). Tools, including clue cards and the Q-Pyramid (Texas & Jones 2014) as well as lessons learned from their use in classrooms will be shared to support teachers as they support student learning.

**Leslie A. Texas**

Texas &amp; Jones Consulting, Nashville, Tennessee

**Tammy L. Jones**

Texas &amp; Jones Consulting, Nashville, Tennessee

GOLDEN GATE C2 (MARRIOTT)

**348****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**

Teachers Teaching with Technology, Louisville, Kentucky

2008 (MOSCONE WEST)

**349****Negotiating Models for Teaching Fractions: Which Ones Work for Students?**

3–5 Workshop

Research indicates that extended time with models can build students' conceptual understanding of rational number. Choosing the correct models and appropriately sequencing them is important to support young children's initial fraction learning. We will identify effective models for instruction and consider ways and rationale for sequencing them.

**Debra Monson**

University of St. Thomas, St. Paul, Minnesota

**Kathleen Cramer**

University of Minnesota, Minneapolis

**Karen Colum**

Minnesota State University, Mankato

YERBA BUENA 3/4 (MARRIOTT)



**350****Perplexing Platonic: What Relationships Can We Find and Prove?**

8–10 Workshop

Come construct regular polyhedra, also known as the Platonic solids. Use your models to discover two special relationships related to the characteristics of these solids. Employ mathematical reasoning to develop a proof of the relationships. Classroom-ready materials will be available.

**Teri Willard**

Central Washington University, Ellensburg

**Janet M. Shiver**

Central Washington University, Ellensburg

2006 (MOSCONE WEST)

**351****PtA****Principles to Actions: Fluency, Understanding, and Evidence of Thinking**

General Interest Workshop

Students who are fluent in mathematics choose flexibly among methods and strategies to solve problems, understand and explain their approaches, and produce answers efficiently. This interactive session focuses on actions teachers and students can do to build procedural fluency from conceptual knowledge. Examples of student thinking are included.

**Ruth Harbin Miles**

Board of Directors, National Council of Teachers of Mathematics; Mary Baldwin College, Staunton, Virginia

**Linda M. Gojak**

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

3022 (MOSCONE WEST)

**352****Regressions and Statistics Demystified**

8–10 Workshop

Come learn how to explore regressions and statistics. We'll compare how new tools (including the Desmos Graphing Calculator) make it possible to explore best-fit lines, residuals, and statistical measures faster, more easily, and more intuitively than ever before. We'll apply these skills to some fun real-world problems.

**Jason W. Merrill**

Desmos, Inc, Worcester, Massachusetts

**Eli Luberoff**

Desmos, Inc., San Francisco, California

2004 (MOSCONE WEST)

**353****Transformational Geometry—Immediate Interactive Investigations—Awesome Engaging Activities**

8–10 Workshop

Students discover the geometry in fifteen seconds! Get hands-on experience and Play-Investigate-Explore-Discover geometric properties. Using a handheld, iPad, or computer software, students will become engaged quickly and deeply. Get a free complete unit of materials for grades 8–10 and see how to implement. Compass, reasoning, technology, and pedagogy.

**Tom Reardon**

Youngstown State University, Ohio

2002 (MOSCONE WEST)

**354****Understanding Measurement through Children's Literature and Classroom Investigations**

Pre-K–2 Workshop

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

**Kristin E. Harbour**

University of Louisville, Kentucky

304 (MOSCONE SOUTH)



**355**

## Using Representations to Explore Mathematics of Multi-Digit Addition and Subtraction

Pre-K–2 Workshop

This interactive session will engage participants with various tools for thinking, such as number lines, story contexts, drawings, and cubes to explore the mathematical ideas that underlie common strategies for addition and subtraction calculations. The focus is on maintaining conceptual understanding while moving to procedural fluency.

**Virginia Bastable**

Mount Holyoke College, South Hadley, Massachusetts

**GOLDEN GATE B (MARRIOTT)**

**356**

## Using Technology to Teach Congruence and Similarity through Geometric Transformations

6–8 Workshop

One of the big shifts introduced in the Common Core State Standards for Mathematics is a transformations-based approach to similarity and congruence in geometry. Learn how to bring these topics to life in your classroom with digital math tools and tasks that use students' intuitions to promote and build a deep conceptual understanding.

**Blake Whitley**

Amplify, Durham, North Carolina

**William G. McGowan**

Amplify, Brooklyn, New York

**2003 (MOSCONE WEST)**

**357**

## Write for *Mathematics Teacher*—Write Now!

10–12 Workshop

Do you have an idea to share? Put your ideas on paper! Department editors from NCTM's *Mathematics Teacher* and former members of the editorial panel will help participants start writing an outline or rough draft of an article. Editors from "Mathematical Lens," "The Back Page," and "Calendar" will share writing tips. Don't delay—write today!

**Margaret E. Coffey**

Thomas Jefferson High School for Science and Technology, Alexandria, Virginia

**Roger P. Day**

Illinois State University, Normal

**Ron Lancaster**

University of Toronto, Canada

**3010 (MOSCONE WEST)**

**357.1**

**NT**

## Number Choice: Building Children's Mathematical Understanding

Pre-K–2 Workshop

We will explore how to make use of number choice to build on children's mathematical thinking. More specifically, we will define and identify aspects of number choice, convey how to use number choice to differentiate instruction, and consider how to use number choice to respond to children's mathematical thinking.

**Tonia Land**

Drake University, Des Moines, Iowa

**Corey Drake**

Michigan State University, East Lansing, Michigan

**Molly B. Sweeney**

Heartland Area Education Agency 11, Johnston, Iowa

**NCTM Central**, located in the Exhibit Hall, has activities, lessons, sample journals, and more—stop by!



Building Capacity: Personal and Collective Professional Growth



Instruction and Policies that Promote Equity and Access



Equity



Exhibitor Workshop



Hot Topics



NCTM Committee



**358 E&A****Access to Mathematics: A Story of Possibilities**

## General Interest Session

This session is an interactive journey of the presenter's life's experiences that led to her access to mathematics and subsequently to a career in mathematics education. She will share her early experiences as a poor, Black girl living in a southern rural community and the factors that presented her with opportunities for success in mathematics.

**Thomasenia Lott Adams**  
University of Florida, Gainesville

2024 (MOSCONE WEST)

**359****App-Smashing: Students Products That Engage and Promote Learning**

## 10–12 Session

In this session, participants will learn how to use various apps to showcase student learning. We will use Edmodo, Desmos, Haiku Deck, ThinkLink, and Nearpod to create products that showcase what they have learned. We will also cover how to have students share their products with the class and the teacher.

**Wendy E. Bartlett**  
Parkland Magnet High School, Winston-Salem, North Carolina

2001 (MOSCONE WEST)

**360****Challenging (Non-Routine) Problems That Develop Persistence and Creativity**

## 6–8 Session

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

**Hoyun Cho**  
Capital University, Columbus, Ohio  
Gary Lawrence Mustard Seed School, Hoboken, New Jersey

2005 (MOSCONE WEST)

**361 E&A****Common Core and Equity: Focusing on Mathematical Practices**

## General Interest Session

This talk describes research-based recommendations for equitable mathematics instruction aligned with the Common Core focusing on mathematical practices. I first summarize research on effective and equitable mathematics teaching and then use examples to illustrate how instruction can focus on student participation in mathematical practices.

**Judit N. Moschkovich**  
University of California, Santa Cruz

305 (MOSCONE SOUTH)

**362****Developing a Growth Mindset**

## 3–5 Session

Do you have students who give up when learning becomes hard? Or do you have students who get their work done just to get it done but without the quality or reflection you desire? This session will provide structures and resources teachers can use to engage students in learning that motivates them to work hard and achieve at high levels.

**Jennifer Throndsen**  
Utah State Office of Education, Salt Lake City

YERBA BUENA 12/13 (MARRIOTT)

**363 PCPG****Digging into Depth of Knowledge**

## 6–8 Session

Learn how to use rigorous Open Middle math problems at multiple depth of knowledge (DOK) levels with your students. The problems begin with the same task and end with the same answer, yet they allow for multiple solving methods. Participants will complete math tasks, watch videos of students solving them, and leave with access to hundreds of free problems.

**Robert B. Kaplinsky**  
Downey Unified School District, California

301 (MOSCONE SOUTH)



**364 EQUITY**

## **Iris M. Carl Equity Address**

### **Divergent: Supporting “Factionless” and Underserved Students in Mathematics Education**

**General Interest Session**

Divergent policies, practices, and programs have targeted traditionally underserved students to support their learning of mathematics. Examples include Title I funding, charter schools, school accountability strategies, early childhood education, high school mathematics graduation requirements, mathematics curriculum standards, teacher certification guidelines, and STEM specialty schools. I will argue that the predominant approach to educational reform is analogous to triage in medicine. The effects of triage policy in education have been anemic. Its failure is reinforcing segregation and other social disparities. I contend that there is a need to develop a different approach to education and youth development that takes an intergenerational perspective on education achievement, attainment, and student development in our communities experiencing the hardships of poverty and segregation. Recommendations for intergeneration policy tools and practices will be discussed.

**William F. Tate IV** is the Edward Mallinckrodt Distinguished University Professor in Arts & Sciences at Washington University in St. Louis, where he currently serves as the Dean of the Graduate School of Arts & Sciences. His research has focused on the social determinants of mathematics performance, and he co-edited the NCTM book *Disrupting Tradition: Research and Practice Pathways in Mathematics Education*, which captures his interest in connecting researchers, policy makers, and practitioners to improve opportunities to learn in mathematics education.

**William F Tate IV**  
Washington University in St. Louis, Missouri

**303 (MOSCONE SOUTH)****365**

## **Explore, Prove, and Apply—Generating and Using the FTC**

**10–12 Session**

Participants will consider an inquiry-based approach to teaching this central topic in calculus: first generating the intuitive conceptual sense through targeted exploration, then defining and proving, and finally tapping into a rich mix of contexts and writing exercises.

**Brent Ferguson**  
The Lawrenceville School, New Jersey

**3003 (MOSCONE WEST)****366**

## **Exploring Regrouping across Multiple Contexts**

**3–5 Session**

This presentation engages participants in solving different types of regrouping problems and exploring conceptual connections among them. Working with expanded forms and emphasizing regrouping in multiple contexts may support students' understanding of addition and subtraction involving mixed numbers.

**Erin R. Moss**  
Millersville University, Pennsylvania  
**Cynthia E. Taylor**  
Millersville University, Pennsylvania

**YERBA BUENA 7 (MARRIOTT)****367**

## **Facilitating Algebraic Thinking Development with Appropriate Tools and Technology**

**8–10 Session**

Join us as we explore specific tasks that effectively (and not so effectively) utilize technology to develop algebraic thinking. What are the essential elements to consider for effective use of technology and other tools to develop algebraic thinking in the middle grades? Let's talk about it!

**Trena Wilkerson**  
Board of Directors, National Council of Teachers of Mathematics; Baylor University, Waco, Texas  
**Ryann Shelton**  
Waco Independent School District, Texas  
**Alexa Samuel**  
Baylor University, Waco, Texas

**2009 (MOSCONE WEST)**

**368****Fumbling toward Inquiry: Starting Strong in Problem-Based Learning**

8–10 Session

Attaining the lofty goals of a problem-based classroom can be challenging for teacher and student alike: they may not be prepared for that paradigm shift or know where to turn for resources. This session will aid in preparing a classroom for inquiry by identifying initial tasks, protocols, goals, and resources to scaffold success.

**Geoff M. Krall**

New Tech Network, Napa, California

3007 (MOSCONE WEST)

**369****Kids Can Do It! Expanding Early Problem-Solving Opportunities**

Pre-K–2 Session

Come and see the varied and amazing ways that first- and second-grade children solve word problems involving multiplication, division, and complex multi-step structures. Presenters and participants will (1) analyze video of students, (2) explore how such problems relate to CCSSM, and (3) discuss implications for early grades classrooms.

**Wendy Bray**Florida Center for Research in Science, Technology, Engineering, and Mathematics (FCR-STEM), Florida State University, Tallahassee  
**Charity Bauduin**Florida Center for Research in Science, Technology, Engineering, and Mathematics (FCR-STEM), Florida State University, Tallahassee  
**Amanda Tazaz**

Florida Center for Research in Science, Technology, Engineering, and Mathematics (FCR-STEM), Florida State University, Tallahassee

YERBA BUENA 5/6 (MARRIOTT)

**370****Letting Teachers Drive: A Powerful Approach to “Live” Coaching**

Coaches / Leaders / Teacher Educators Session

A math teacher, her coach, and a researcher bring their perspectives to this session, in which participants consider, through narrative and video, the role of teacher agency in making it possible for coaches and teachers to collaborate in the rich and risky practice of “live” coaching, in which a coach supports a teacher to learn while she teaches.

**Evra M. Baldinger**

University of California, Berkeley

**Tina Weiting Hu**

MLK Middle School, San Francisco, California

2022 (MOSCONE WEST)

**371****Leveraging the SMPs through Reciprocal Teaching**

3–5 Session

Reading strategies in math are not uncommon, but what can be done in addition to close reading strategies? Reciprocal teaching can serve as an additional support to increase student thinking in the math classroom. Learn how to create student-led discussion groups that seamlessly embed the SMPs into the four strategies common to reciprocal teaching.

**Elizabeth E. Pruitt**

St. Lucie County Schools, Fort Pierce, Florida

**Jason Bragg**

St. Lucie Public Schools, Fort Pierce, Florida

**Christina M. Worley**

St. Lucie Public Schools, Fort Pierce, Florida

GOLDEN GATE C1 (MARRIOTT)

**372****Making Sense of Logarithms**

10–12 Session

Logarithms were incredibly useful and popular for centuries! But many students hate them and they do not know why we have them. We can help make sense of logarithms if we explored why they were invented, how they were used in the past, and why they remain relevant today.

**Michael Manganello**

Downingtown Area School District, Pennsylvania

**David R. Miller**

West Chester University, Pennsylvania

2011 (MOSCONE WEST)



**373****Making the Math Practices Come Alive in the Classroom**

6–8 Session

Explore how specific teacher actions and purposeful planning can engage students with the Standards for Mathematical Practice. We will watch videos and identify teacher moves that promote student discourse or deepen student understanding of math content. We will also look at student work and plan purposeful feedback to students that can push conceptual understanding.

**Ronnie Ernandes**

Aspire Public Schools, Huntington Park, California

**Geneva Europa**

Aspire Public Schools, Oakland, California

**Jennifer Marchy**

Aspire Public Schools, Memphis, Tennessee

3005 (MOSCONE WEST)

**374****Moving beyond Balanced Scales—Contextualizing the Concept of Equality**

6–8 Session

What is an equal sign? How would you explain it to a young mathematician? In this session, participants will unpack the concept of equality through math tasks with real-life contexts and routines. Participants will walk away with student-friendly conceptual language to discuss equality, as well as kinesthetic learning activities.

**Lincoln Campbell**

Ascend Learning, Brooklyn, New York

2018 (MOSCONE WEST)

**375****Math Power! Simple Solutions for Supporting Families**

Coaches / Leaders / Teacher Educators Session

Join us as we explore strategic ways to bring math content to life for families as they support their children. Direct communication, strategic conferencing, and creative homework are just a few of the many ways we can successfully increase parent engagement by making the content standards and mathematical practices accessible.

**Chryste Berda**

Rodel Foundation of Arizona, Scottsdale

**Kimberly A. Rimbey**

Rodel Foundation of Arizona, Scottsdale

307 (MOSCONE SOUTH)

**376****Moving from Multiplicative Comparison Problems to Solving Ratio Problems**

6–8 Session

The study of ratios and proportional relationships in grades 6–7 extends students' work in multiplicative comparisons from earlier grades. The selected problems and related student work will highlight the increasingly formal 6–8 solution methods arising from understanding multiplicative thinking and ratios.

**Connie Laughlin**

Eureka Math, Milwaukee, Wisconsin

**Krysta Gibbs**

Eureka Math, Aurora, Colorado

3012 (MOSCONE WEST)

**377****Moving Principles into Actions: Curriculum and Technology**

Coaches / Leaders / Teacher Educators Session

In *Principles to Actions*, NCTM sets forth five principles describing essential elements of effective school mathematics programs. This session focuses on specific actions that support the Curriculum and Tools and Technology Principles through a set of professional learning resources designed to support teachers and other stakeholders.

**W. Gary Martin**

Auburn University, Alabama

**Bradley M. Bearden**

Dadeville High School, Alabama

134 (MOSCONE NORTH)

Be a part of a new learning experience,  
**Innov8 Conference,**  
November 16–18 in St. Louis!



Building Capacity: Personal and Collective Professional Growth



Instruction and Policies that Promote Equity and Access



Equity



Exhibitor Workshop



Hot Topics



NCTM Committee



# 2016 NCTM ANNUAL MEETING & EXPOSITION

April 13–16 • San Francisco

## NCTM Journals. Read. Write. Contribute. Connect.

Take advantage of all that the school journals have to offer. Spend 20 minutes with the editors and learn how to access and use the extra online materials, turn your experiences into the written word, or contribute to the peer-review process to keep the journals relevant publications.

This year, you'll also have the opportunity to ask any of the journal editors a question, float an idea, or allay any fears about getting that manuscript started toward publication. Don't pass up this annual event. Check out the series of mini-sessions listed below. Each one is packed with information, tips, and hints to help you excel.

**ALL SESSIONS WILL BE HELD AT NCTM CENTRAL  
IN THE EXHIBIT HALL.**

### GET ACQUAINTED

### TALK WITH THE NCTM JOURNAL EDITORS

Thursday, April 14 • 11:00–11:30 a.m.  
Friday, April 15 • 12:30–1:00 p.m.  
Saturday, April 16 • 10:00–10:30 a.m.

### Don't Miss These!

#### GET MORE, GO ONLINE.

Explore journal resources  
beyond the printed  
page.

Presented by Rick Anderson,  
*MTMS* editor

Thursday, April 14 • 10:00–10:20 a.m.  
Friday, April 15 • 1:30–1:50 p.m.  
Saturday, April 16 • 11:00–11:20 a.m.

#### GET INVOLVED, SHARE YOUR EXPERTISE.

Engage with your professional  
community and influence journal  
content.

Presented by Tara Slesar,  
*MT* editor

Thursday, April 14 • 10:30–10:50 a.m.  
Friday, April 15 • 12:00–12:20 p.m.  
Saturday, April 16 • 11:30–11:50 a.m.

#### GET PUBLISHED, SHAPE YOUR IDEAS.

Discover how simple it is to turn  
your experiences into articles and  
avoid writing pitfalls.

Presented by Beth Skipper,  
*TCM* editor

Thursday, April 14 • 11:30–11:50 a.m.  
Friday, April 15 • 1:00–1:20 p.m.  
Saturday, April 16 • 10:30–10:50 a.m.

**MATHEMATICS**  
teacher

mathematics  
teaching in the MIDDLE SCHOOL

teaching  
**children**  
mathematics

**378****Practices Promoting Student Learning and Productive Persistence in Developmental Mathematics**

Higher Education Session

This session presents practices supporting deep learning, motivation, and persistence in developmental mathematics based on two research-based frameworks: the Learning Opportunities (i.e., productive struggle, deliberate practice, and explicit connections) and Productive Persistence (i.e., growth mindset, social belonging, and learning strategies).

**Ann Edwards**

Carnegie Foundation for the Advancement of Teaching, Stanford, California

**Rachel Beattie**

Carnegie Foundation for the Advancement of Teaching, Stanford, California

2020 (MOSCONE WEST)

**379****PtA****Promoting Productive Struggle**

10–12 Session

What does productive struggle look like? How can we encourage students to be engaged when success doesn't happen instantly? We will work a geometry task, look at a video case based on it, and then examine key steps that were used to keep students on task, discussing, and moving forward with their learning.

**Fred Dillon**

Ideastream, Cleveland, Ohio

3016 (MOSCONE WEST)

**380****Reken-What?**

Pre-K–2 Session

We will explore the use of a rekenrek as an interactive tool to teach counting and cardinality, place value, and addition and subtraction. Learn how this visual model can help bridge the gap between concrete and abstract thinking. The use of this tool can be extended to grades 3–5 to support work with multiplication and division.

**Beth Barnes**

Eureka Math, Washington, D.C.

**Saffron VanGalder**

Eureka Math, Washington, D.C.

GOLDEN GATE C3 (MARRIOTT)

**381****The Beautiful Connection between Polynomials and Probability**

10–12 Session

We will engage in a series of tasks to explore how polynomials can be used to represent probability models and vice versa. Work classroom-tested tasks about the Binomial theorem, polynomial multiplication, and combinations. Probability rules will be discovered all over again and finally make sense!

**Brian Shay**

San Dieguito Union High School District, San Diego, California

3009 (MOSCONE WEST)

**382****The Question G.E.M.s: Unlock Your Treasure through Purposeful Planning**

Pre-K–2 Session

Questions are valuable components of the mathematics classroom. This presentation will provide a brief overview that highlights characteristics of the four types of questions as described in *Principles to Actions* (NCTM 2014). Participants will engage in ways to unlock the treasures of questioning through the use of a purposeful planning tool.

**Lakesia L. Dupree**

University of South Florida, Tampa

**Sarah van Ingen**

University of South Florida, Tampa

GOLDEN GATE A (MARRIOTT)

**383****EQUITY****Using Art to Develop Girls' Measurement Skills**

General Interest Session

Girls, especially girls from low-income families, display weaker measurement knowledge than boys. Geometric measurement—such as linear measurement, area, perimeter, volume, surface area, and angle measurement—is integral to STEM performance. This session will provide instructional ideas for helping girls (and boys!) develop measurement skill through art.

**Tia L. Flores**

Coral Academy of Science, Reno, Nevada

**Lynda R. Wiest**

University of Nevada, Reno

2007 (MOSCONE WEST)

**384****Using Authentic Performance Tasks Effectively in the Mathematics Classroom**

3–5 Session

How does Authentic Performance Assessment fit into the math classroom? How can we make performance tasks with rigorous connections to standards? Do we have time to do performance tasks with everything else we must teach? Come see examples and learn an effective implementation process that is working in districts all across the country.

**Aimee Corrigan**

HMH Education Services, Denver, Colorado

**Pam Palmer**

Houghton Mifflin Harcourt, The Leadership and Learning Center, Englewood, Colorado

NOB HILL C/D (MARRIOTT)

**385****What's Puzzling You?**

General Interest Session

President's Series presentation

Do you find yourself with nothing to do and wishing you knew how to solve puzzles online or in the newspaper? Find out some helpful hints for solving Ken Ken, Sudoku, and other brain-enhancing puzzles. Apps for smartphones and tablets will be discussed. Also, if time permits, we will discuss how these puzzles can be used in the mathematics classroom.

**Jane D. Tanner**

President, American Mathematical Association of Two-Year Colleges, Memphis, Tennessee

YERBA BUENA 10/11 (MARRIOTT)

**385.1****ew****Embracing Principles to Actions**

General Interest Exhibitor Workshop

Wondering how to incorporate NCTM's *Principles to Actions* in your school? Let CPM show you! For over 25 years CPM has provided rich mathematics curricula that is student centered and problem based, encouraging thinking, persevering, and sense making. Experience the excitement that students do when exploring CPM's curriculum. Receive free access to the curriculum.

**CPM Educational Program**

Elk Grove, California

120 (MOSCONE NORTH)

**385.2****ew****How LearnBop's Step-by-Step Approach Helps Personalize K–12 Math Instruction**

General Interest Exhibitor Workshop

Everyone knows one-on-one tutoring can be incredibly impactful for student learning. But how can we provide one-on-one attention for all students in mathematics? Attend this workshop to see how LearnBop's step-by-step system simulates the impact of one-on-one tutoring and helps teachers personalize math instruction for every single student.

**LearnBop**

New York, New York

123 (MOSCONE NORTH)

**385.3****ew****Transforming Teaching and Learning with MathXL for School**

General Interest Exhibitor Workshop

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

**Pearson**

Boston, Massachusetts

124 (MOSCONE NORTH)

**385.4****ew****Promoting Success on the AP Exam with *The Practice of Statistics***

10–12 Exhibitor Workshop

The AP Statistics exam is a month away. How can you use *The Practice of Statistics* to help students succeed on the AP 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 provided.

**Bedford, Freeman, and Worth Publishers**

New York, New York

125 (MOSCONE NORTH)



11:00 A.M.–12:00 P.M.

**385.5** **ew**

**Rediscovering Geometry and Proof:  
Lessons Learned from CanFigureIt™  
Classroom Pilots**

10–12 Exhibitor Workshop

Proving shouldn't be a struggle to list statements and reasons. We'll explore multiple strategies that empower students to independently solve proof problems, and we will share insights from pilot teachers who have used CanFigureIt Geometry in their classes to support students' individual needs. Bring a laptop for a hands-on experience and a free trial!

**CanFigureIt**  
New York, New York

130 (MOSCONE NORTH)

**385.6** **ew**

**Mathletics by 3P Learning**

3–5 Exhibitor Workshop

Meet the Mathletics team and learn how our supplemental online math resource is helping American students achieve better results. Targeted, adaptive, and engaging K–12 content—designed to meet the requirements of the Common Core and state-based curricula, with reporting and assessments to match. Plus fun and engaging math challenges students love!

**3P Learning**  
New York, New York

121 (MOSCONE NORTH)

**385.7** **ew**

**Creating an Environment for Student-Centered Instruction**

10–12 Exhibitor Workshop

When students are the center of instruction, they are active, engaged, and noisy. Passionate discussion replaces passive absorption. Time passes quickly, and though students will be mentally fatigued, they will want to keep exploring and won't want to leave. Sound too good to be true? Come experience an inquiry-based classroom, and see examples of teacher moves and classroom activities that will make your students the center of attention.

**Discovery Education**  
Silver Spring, Maryland

122 (MOSCONE NORTH)

11:30 A.M.–12:00 P.M.

**386**

**Anticipation Guide for Teaching Limits  
in Calculus: Promoting Conceptual  
Understanding**

Higher Education Burst

Unique misperceptions of limits are a rationale for promoting more accurate conceptual understanding. As part of a Literacy Toolkit on Limits, a written "Anticipation Guide" collaborative group activity helps teachers assess initial misperceptions of limits and graphs, get feedback, develop a concise lesson plan, and assess post-lesson understanding.

**Margaret Smolinka Adams**  
Northern State University, Aberdeen, South Dakota

310 (MOSCONE SOUTH)

**387**

**Avoiding Middle Grades Rules That  
Expire!**

6–8 Burst

We engage participants in a discussion of common rules and vocabulary shared by teachers that middle grades students tend to overgeneralize such as tricks and tips that do not promote conceptual understanding, rules that "expire" later in students' mathematics careers, and vocabulary that isn't precise. CCSSM "expiration dates" will be shared!

**Sarah B. Bush**  
Bellarmine University, Louisville, Kentucky  
**Karen S. Karp**  
Johns Hopkins University, Baltimore, Maryland  
**Barbara J. Dougherty**  
University of Missouri, Columbia

2008 (MOSCONE WEST)

Don't Miss the  
**2017 NCTM Annual Meeting & Exposition**  
in San Antonio, Texas • April 5–8



**388****Planning Tool: Developing the Language of Math for English Learners**

Coaches / Leaders / Teacher Educators Burst

Presenter will share a planning tool designed to bridge the gap between language and math content for English learners. The tool includes guiding questions to determine linguistic demands of mathematical concepts and integration of language-based supports (sensory, graphic, interactive, and verbal) to provide access to content and improve discourse.

**Galina Jmourko**

Prince George's County Public Schools, Adelphi, Maryland

**GOLDEN GATE C2 (MARRIOTT)****389****Smarter Balanced: Mapping Items Back to Instruction**

3–5 Burst

The phrase “teaching to the test” conjures up the image of students sitting in desks organized neatly in rows filling out endless worksheets. It’s time to change that image. Participants examine Smarter Balanced test questions and discuss how they support the goal of deeper learning and how they signal a critical shift away from rote skills practice.

**Shelbi Cole**

Smarter Balanced Assessment Consortium, Olympia, Washington

**Judy Hickman**

Smarter Balanced at UCLA, Los Angeles, California

**3022 (MOSCONE WEST)****390****Three Phases of Constructing Viable Arguments**

8–10 Burst

Learn strategies and resources for teaching your algebra and geometry students how to ask effective questions, engage in dialogues (using academic language to build, challenge, and negotiate relevant ideas, and justifying conclusions), and produce output that communicates their reasoning using Google Docs and tutorial creation tools.

**Noirin Foy**

Los Altos School District, Los Altos, California

**Shelley Carranza**

Mountain View Los Altos School District, California

**2002 (MOSCONE WEST)****391****Writing as Communication in the Mathematics Classroom**

10–12 Burst

Writing in mathematics class is not just a mandate—it is necessary for facilitating deeper understanding. Including writing is hard in the traditional classroom, but adding GeoGebra and student-centered communication makes it second nature. Learn how it strengthens language and deepens understanding through “talking” in Google Docs.

**Eileen B. Mooney**

Miss Porter's School, Farmington, Connecticut

**GOLDEN GATE B (MARRIOTT)****392****A Deep Dive into Fraction Operations**

6–8 Session

“I’m going to dress up as a fraction for Halloween because I can’t think of anything scarier”—a sixth grader. This session will delve into multiple procedures for operations on fractions and, more importantly, why these procedures work. We will also discuss how to help students who are struggling and how to problematize exercises for students who are not.

**Avery Pickford**

The Nueva School, Hillsborough, California

**3012 (MOSCONE WEST)****394****Building Number Sense through Engaging Activities**

6–8 Session

The development of number sense is crucial to success in upper mathematics. This presentation will show teachers how they can foster rich number sense using simple and powerful strategies. A ready-for-Monday handout will be available.

**Brad S. Fulton**

Mistletoe STEM Institute, Redding, California

**2001 (MOSCONE WEST)**

**395 EQUITY****CCSSM—Please INVITE Me into Your Math Lesson****General Interest Session**

Too often students struggle to find a point of entry into the lesson. There is no frame of reference and no relevance for the students. Participants will look at math topics, and determine “WHAT IT IS.” We will then select various social orders to connect to the lives of the children and create invitations for the students’ entry into the lesson.

**Kwame Anthony Scott**

Benjamin Banneker-Djehuti Ma’athematics, LTD, Chicago, Illinois

**2009 (MOSCONE WEST)**

**396****“Clap Like Me”: Early Math Learning (Birth to Five)****Pre-K–2 Session**

The core of early math learning begins at home by making numeracy a natural part of everyday. Experience California Math Council’s “PD in Your Pocket” as a companion to *Early Learning, Math at Home*. Receive copies of the booklets in English and Spanish and begin sharing with families, your children and grandchildren.

**Vicki Vierra**

California State University Channel Islands, Camarillo

**Rebecca Lewis**

Shasta County Office of Education, Redding, California

**3009 (MOSCONE WEST)**

**397****Cultivating Real-World Problem Solvers through Game-Based Instruction****6–8 Session**

How can educators tap into the allure of gaming while cultivating 21st-century problem solvers? We’ll show you how to do it! Join PBS alongside an outstanding California educator to learn how play and gaming are being used to develop critical skills like design thinking, empathy, and creative problem solving.

**John Sessler**

PBS, Arlington, Virginia

**Cheryl Morris**

Del Mar Middle School, San Rafael, California

**3007 (MOSCONE WEST)**

**398****Develop Fraction Number Sense and Promote Reasoning****3–5 Session**

Do your students have strong number sense about fractions? Can they reason about fractions? We will share student videos and student work, and we will engage in classroom-tested activities using manipulative materials to improve students’ conceptual understanding and promote reasoning about comparing fractions on the number line.

**Nadine Bezuk**

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

**Steve Klass**

Encinitas Union School District, California

**GOLDEN GATE A (MARRIOTT)**

**399****Digital Tools and Three-Act Tasks: Marriages Made in the Cloud****3–5 Session**

Bring your iPad and your inquisitive mind. What do you notice? What do you wonder? And how can you use free online tools to solve free online problems? This session features rich math tasks with video anchors and online virtual manipulatives. Themes will include: inquiry, rich discourse, perseverance, and authentic connections for grades 3–5.

**Arjan Khalsa**

Conceptua Math, Petaluma, California

**Graham Fletcher**

Griffin-Spalding County Schools, Georgia

**YERBA BUENA 5/6 (MARRIOTT)**

**400****E&A****Diversity as an Asset in Mathematics Education****General Interest Session**

We will discuss various meanings of the notion of diversity (e.g., different ways to solve a problem but also linguistic and cultural diversity) from a resource point of view. The focus is on how to build on the diversity present in our classrooms to enhance the mathematics learning opportunities for all of us (teachers, students, and parents).

**Marta Civil**

University of Arizona, Tucson

**2024 (MOSCONE WEST)**

**402**

## From Skepticism to Success: Shifting to Student-Centered Learning

Pre-K–2 Session

Does teaching math scare you? Do you attend PD and think, “That’s great, but my students are not at that level”? You are not alone. Come get inspired by one second-grade classroom teacher’s journey from presenter to facilitator. Bring your fears, questions, hopes, and dreams, and together we will dispel the myth of teaching math.

**Cheryl Fricchione**

Rodeph Sholom School, New York, New York

**Lauren Bogosian**

Stevens Cooperative School, Jersey City, New Jersey

YERBA BUENA 7 (MARRIOTT)

**403**

**NGM**

## GAIMME—Mathematical Modeling for High School

General Interest Session

This talk will present the content and recommendations of the new SIAM/COMAP report, Guidelines for Assessment in Mathematical Modeling Education. It will contain many modeling examples and practical advice for teaching modeling in high school grades.

**Landy Godbold**

Westminster Schools, Atlanta, Georgia

305 (MOSCONE SOUTH)

**404**

## Helping Our Students Look for and Make Use of Structure

Coaches / Leaders / Teacher Educators Session

The practice of looking for and applying structure in mathematics (MP.7) is often underutilized and may not be well understood. We will explore tasks and examine student work looking for and making use of structure to promote deeper understanding, flexibility, and efficiency. Taking time to work “slow to fast” on tasks that progress across grade levels.

**Kathryn Ernie**

University of Wisconsin–River Falls

**Erick B. Hofacker**

University of Wisconsin–River Falls

**Sherrie Serros**

University of Wisconsin–Eau Claire

2020 (MOSCONE WEST)

**405**

## Making Sense of Expressions and Equations: A Technology-Leveraged Approach

6–8 Session

President’s Series presentation

A carefully developed learning progression for basic algebraic concepts can bring coherence to the story of algebra. In the context of well-chosen tasks, we will consider how to use the practices for effective instruction described in *Principles to Actions* to move beyond procedures and algorithms and teach for learning as outlined in CCSSM.

**Gail Burrill**

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

3016 (MOSCONE WEST)

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Learn more at [nctm.org/annual](http://nctm.org/annual) and follow us on      #NCTMannual



**406****Making Sense of Fraction Division with Remainders**

3–5 Session

This presentation will focus on the results of our fraction study. Our study highlights the role of student-led learning in a discourse-rich environment designed to encourage productive struggle leading to deepening conceptual understanding of fraction division with remainders.

**Laura Tapp**

University of Central Florida, Orlando

**Rebecca Gault**

University of Central Florida, Orlando

**Juli K. Dixon**

University of Central Florida, Orlando

GOLDEN GATE C3 (MARRIOTT)

**407**

PPD

**Mathematical Mindsets: How to Inspire All Students with Open Math**

General Interest Session

This session will share the latest brain science on ways to inspire all students to higher levels of math. We will consider together ways to open math tasks making them creative and engaging as well as other teaching ideas that will inspire students in new and interesting ways.

**Jo Boaler** is a professor of mathematics education at Stanford University and co-founder of [www.youcubed.org](http://www.youcubed.org). Her former roles have included being the Marie Curie Professor of Mathematics Education for England, a mathematics teacher in London comprehensive schools, and a lecturer and researcher at King's College, London. She is the author of eight books, including *What's Math Got To Do With It?* (2015) and *Mathematical Mindsets* (2016).

**Jo Boaler**

Stanford University / youcubed, California

134 (MOSCONE NORTH)

**408****Modeling with Mathematics: Mathematizing Student Experiences in the Primary Grades**

Pre-K–2 Session

What does it mean to model in mathematics in the primary grades? How do students mathematize the world when their own mathematical knowledge is just developing? In this session, we will explore this mathematical practice through a variety of primary tasks and classroom routines. We will then analyze videos of K–2 students engaged in this work.

**Michael Flynn**

Mount Holyoke College, South Hadley, Massachusetts

GOLDEN GATE C1 (MARRIOTT)

**409****Music and Math: An Interdisciplinary Approach to Transformations of Functions**

10–12 Session

A math and a music teacher teamed up to create this rich project that connects music and geometric transformations. Students love using music composition tools and Noteflight to create their own melodies and then represent their melodies mathematically using data, regression and transformations of functions. No prior musical experience necessary.

**Maria L. Hernandez**

North Carolina School of Science and Mathematics, Durham

**Phillip Riggs**

North Carolina School of Science and Mathematics, Durham

2007 (MOSCONE WEST)

**410****My Journey from Worksheets to Rich Tasks**

8–10 Session

Lecture. Practice. Homework. Wash, rinse, repeat. For years I was stuck in this uninspiring cycle. I knew there was more, but I had trouble letting go of my example-centric approach. In this session I'll share what I've learned in my ongoing escape from monotony, from the big picture of "Why" to the nuts-and-bolts details of "What" and "How."

**Michael J. Fenton**

Fresno Christian Schools, California

3003 (MOSCONE WEST)



**411**



## NCTM Business Meeting

### General Interest Session

Join NCTM leadership for an overview of recent activities and strategic priorities for the coming year.

**Diane J. Briars**

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

**307 (MOSCONE SOUTH)**

**413**

## Teaching Problem Solving Using Cognitively Guided Instruction to ELL Students

### Pre-K–2 Session

CGI embeds self-regulated strategies in structured routines by enabling students to monitor, evaluate, and reflect. Participants will learn how to incorporate cognitive strategy instruction for improving the learning and performance of math problem solving and reasoning skills by facilitating information processing through visual representations.

**Angela Michelle Sencibaugh**

Valley Park School District, Missouri

**Joseph Sencibaugh**

Webster University, St. Louis, Missouri

**Jennifer Bond**

Ferguson-Florissant School District, St. Louis, Missouri

**YERBA BUENA 12/13 (MARRIOTT)**

**414**

## Teach Your Students to Think Like Mathematicians

### 6–8 Session

This session answers the question, “How can we help students develop mathematical practices?” Participants will learn how instructional routines can be used to develop habits of mathematical thinking described in the math practice standards. Participants will experience these routines and learn strategies to keep focus on the the math practices.

**Grace Kelemanik**

Boston Plan for Excellence, Massachusetts

**2022 (MOSCONE WEST)**

**415**

## The Development of Multiplicative Thinking

### 3–5 Session

Children’s progression from additive to multiplicative thinking is a critical aspect of mathematical development in the middle grades. We will explore this learning trajectory as we engage in multiplicative problem solving, reflect on videos of children solving multiplicative problems in a variety of ways, and discuss current research.

**Sarah Lord**

University of Wisconsin–Madison

**Sara R. Cutler**

SEAMS Consulting, Madison, Wisconsin

**YERBA BUENA 10/11 (MARRIOTT)**

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using the **online conference planner**  
by visiting **NCTM.org/planner**

**416** **PCPG****The Relational Work of Math Teaching: Why Good Colleagues Matter**

General Interest Session

Getting students to share their mathematical thinking requires a particular kind of classroom environment. How do we build classrooms that not just allow but also invite students' curiosity? In this talk I focus on classroom practices that support students' risk taking and how colleagues can contribute to this endeavor.

**Ilana S. Horn**

Vanderbilt University, Nashville, Tennessee

301 (MOSCONE SOUTH)

**417****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**

Downingtown Area School District, Pennsylvania

**Michael Manganello**

Downingtown Area School District, Pennsylvania

3005 (MOSCONE WEST)

**418****Twisted Math Questions: Combining Assessment and Instruction through Engaging Investigations**

General Interest Session

Save classroom time. Deeply assess student conceptual understanding by combining assessment and instruction through novel, engaging investigations that precisely locate and illuminate student misconceptions. Experience some of these Twisted Math Questions and then learn to create your own to address the concepts your students are learning.

**Michael J. Bosse**

Appalachian State University, Boone, North Carolina

**Kathleen Lynch-Davis**

Appalachian State University, Boone, North Carolina

303 (MOSCONE SOUTH)

**419****Using an Interdisciplinary Linear Functions Portfolio to Measure Student Growth**

8–10 Session

Our portfolio sequence is designed to provide formative and summative student assessment while also measuring student growth. Students are engaged in rigorous, authentic data analysis tasks as they build their understanding of linear functions through a series of interdisciplinary portfolio pieces. Handouts provided.

**Joe Scichilone**

Cape Cod Lighthouse Charter School, Harwich, Massachusetts

**Elizabeth Novak**

Cape Cod Lighthouse Charter School, Harwich, Massachusetts

**Andrew Novak**

Cape Cod Lighthouse Charter School, Harwich, Massachusetts

2005 (MOSCONE WEST)

**419.1** **ew****IXL: Changing the Way Students Learn in All Subjects, All Grades!**

General Interest Exhibitor Workshop

Come learn how IXL's immersive learning experience is changing the way students and teachers approach core subjects at all grade levels! Aligned with the Common Core State Standards, IXL engages students with adaptive, interactive skills that help build foundational fluency and critical thinking in every subject. IXL Analytics provides teachers with insight into student and classroom performance, empowering them to drive instruction and take actions to help students excel.

**IXL Learning**

San Mateo, California

120 (MOSCONE NORTH)

**419.2** **ew****Discovering Big Ideas about Fractions: Moving from Memorization to Understanding**

3–5 Exhibitor Workshop

Walk away with a wealth of practical classroom tools while discovering ways to enhance your students' understanding of fraction concepts for grades 3–5. Learn new approaches for solving problems, modeling thinking, constructing arguments, and developing rules. Explore questions to ask, tasks to select, materials to use, and connections to make.

**Houghton Mifflin Harcourt**

Boston, Massachusetts

121 (MOSCONE NORTH)



**419.3** **ew****Form and Function in Digital Learning: Designing for Coherent Trajectories, Social Engagement, and Personal Growth in Mathematics****General Interest Exhibitor Workshop**

Learn about digital innovations in mathematics curricular resources and the designs that undergird new learning technologies. Discuss how education technologies and blended learning models may or may not create new ways for students to engage with mathematics content and practices. The presenters will explore pedagogical opportunities, technological challenges, and classroom realities as they provide design insights about task construction, continuous assessment, virtual manipulatives, and the differences between designing for collaboration and personalization.

**DreamBox Learning**  
Bellevue, Washington

122 (MOSCONE NORTH)

**419.4** **ew****Teaching Math via Problem Solving—Focus on the Process and the Method****3–5 Exhibitor Workshop**

Mathematical problem solving is central to learning math effectively. In this workshop, participants will experience how to teach mathematics via problem solving through the systematic development of problem sets, and by focusing on both aspects of problem solving—the method and the process (based on Polya's framework of the problem-solving process)

**Scholastic**  
New York, New York

123 (MOSCONE NORTH)

**419.5** **ew****Using Technology to Support Observational Assessments in K–5****General Interest Exhibitor Workshop**

Observation assessments are a critical element for monitoring student progress. Learn how technology can be used to support capturing, tagging, and using observational assessments.

**Pearson**  
Boston, Massachusetts

124 (MOSCONE NORTH)

**419.6** **ew****Rate of Change . . . It's Not Rocket Science****6–8 Exhibitor Workshop**

As NASA gears up for space missions, their teams think about every aspect from launch to return. TI teamed up with NASA to create a lesson that explores slope through a real problem solved by rocket propulsion experts. Learn how this and other free resources can help engage your students in STEM.

**Texas Instruments**  
Dallas, Texas

125 (MOSCONE NORTH)

**419.7** **ew****Finally! A Coaching Framework That's Actually about the Math****Coaches / Leaders / Teacher Educators Exhibitor Workshop**

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 from Harvard University. Learn how our MQI video-based, virtual coaching helps teachers improve.

**MQI Coaching**  
Cambridge, Massachusetts

130 (MOSCONE NORTH)

1:00 P.M.–2:15 P.M.

**420****Addition and Subtraction: What's the Difference?****Pre-K–2 Workshop**

Are you finding students have strategies for addition but lack the ability to subtract? Teachers will learn to connect addition and subtraction through use of various tools and strategies to develop student understanding and fluency with subtraction.

**Shelah Feldstein**  
Tulare County Office of Education, Visalia, California

YERBA BUENA 14/15 (MARRIOTT)



**421****A Division Mission: Developing a Deep Understanding****3–5 Workshop**

Join us to explore division models with manipulatives and technology. A true understanding of division will help students understand many math topics down the road. We will start with whole numbers and learn how the division models carry into work with fractions and decimals. We will also discuss how to interpret remainders in applications.

**Barbara Boschmans**

Northern Arizona University, Flagstaff, Arizona

**Brian P. Beaudrie**

Northern Arizona University, Flagstaff, Arizona

**306 (MOSCONE SOUTH)**

**422****Base-Eight Explorations to Build Understanding of Place-Value Struggles****Pre-K–2 Workshop**

Take a journey back to learning a number system for the first time. During this session, we will learn base eight and consider effective ways to assist students as they make sense of numbers and place value in base ten. We will use several tools and explorations. Learn how to use effective strategies and provide meaningful experiences for students.

**Lisa Ann Brooks**

University of Central Florida, Orlando

**3008 (MOSCONE WEST)**

**423****Building a Conceptual Understanding: Solving Systems of Linear Equations****8–10 Workshop**

With the right approach, all students can be successful in understanding, solving, and applying systems of equations. In this session, we will build conceptual understanding of a system of equations, and we will highlight multiple representations and a variety of solving strategies that go beyond elimination and substitution.

**Sheila Yates**

Math Solutions, Sausalito, California

**Connie J. Horgan**

Math Solutions, Sausalito, California

**2003 (MOSCONE WEST)**

**424****Calculus for Social Justice****10–12 Workshop**

As research in mathematics education pushes forward, what we know about “good teaching” tends to get lost in the upper levels. Calculus often falls prey to these symptoms. Come and see how working in a unique and highly diverse urban environment, I have found ways to adapt the curriculum to engage students by teaching with and for social justice.

**Joseph Bolz**

George Washington High School and University of Denver, Colorado

**3018 (MOSCONE WEST)**

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**425****Complex Numbers in GeoGebra;  
Algebra, Geometry, and Matrices**

10–12 Workshop

Learn to concretely illustrate the geometry of complex numbers using GeoGebra, and describe the insights that complex numbers give regarding similarity, congruence, and transformations in geometry. Presenters will share premade files to illustrate these ideas in the classroom. Bring your device with GeoGebra to follow the activities.

**Roberto C Soto**

California State University Fullerton, Fullerton, California

**Armando M. Martinez-Cruz**

California State University Fullerton, Fullerton, California

2002 (MOSCONE WEST)

**426****Don't Be Negative about Negative  
Rational Numbers**

6–8 Workshop

Join us in this active workshop to play engaging online and hands-on games and riddles to enhance CCSS concepts. We will use models such as number lines, Cartesian coordinates, and cards to solve and pose various problems involving equivalence, order, and distance concepts as well as all operations with both positive and negative rational numbers.

**Linda Jensen Sheffield**

Northern Kentucky University, Highland Heights

**Katherine Gavin**

University of Connecticut, Storrs

3010 (MOSCONE WEST)

**427****Exploring Rigor and Coherence with  
Technology-Based Tasks**

6–8 Workshop

In this hands-on session, explore iPad apps, videos, and websites to create real-life math tasks to engage all students. We will provide ready-to-use math tasks, an interactive task template with differentiated questioning, intervention strategies, and a scoring rubric. Videos and data will support evidence of NCTM's eight Mathematics Teaching Practices.

**Melissa G. Haun**

Loudon County Schools, Tennessee

**Patrick Bethel**

Loudon County Schools, Tennessee

3022 (MOSCONE WEST)

**428****Lost in Translation: Getting through to  
Students**

3–5 Workshop

Do you ever feel like you're saying one thing and your students are hearing something completely different? In this session, participants will actively explore ten common areas of miscommunication including area, fractions, geometry, measurement, and traditional algorithms. Methods to bridge these common communication gaps will also be presented.

**Jason Libberton**

Idaho Regional Mathematics Center, Idaho State University, Pocatello

**Angie Godfrey**

Idaho Regional Mathematics Center, Idaho State University, Pocatello

GOLDEN GATE C2 (MARRIOTT)

**429****Mathematics + Financial Literacy =  
INVESTigations**

8–10 Workshop

We will share a set of high school activities that address both goals for mathematics (CCSSM) and financial literacy (Jump\$tart Standards). See how algebra, functions, statistics, and modeling standards can support students in building a stronger understanding of saving, investing, credit, debt, and more.

**Susan A. Peters**

University of Louisville, Kentucky

**Sherri L. Martinie**

Kansas State University, Manhattan

3011 (MOSCONE WEST)

Visit the **NCTM Bookstore**  
and **save 25%** off the list price  
of all publications and specialty items!

**430**

## Primary Students in Powerful Mathematical Discussions . . . For Real?

Pre-K–2 Workshop

Do you, or somebody you know, think that powerful mathematics discussions are only for the big kids? Setting productive dispositions towards mathematics is our job at the pre-K–2 level! Come analyze a powerful instructional model that uses student representations and discourse to drive some seriously intense conversations . . . even with our little kids.

**Jamie L. Duncan**

Lake Elsinore Unified School District, California

**Ryan Dent**

Lake Elsinore Unified School District, California

**Kristian Quiocho**

Lake Elsinore Unified School District, California

**310 (MOSCONE SOUTH)**

**431**

## Promoting Effective Math Instruction for Young Children through Counting Collections

Pre-K–2 Workshop

This workshop focuses on an instructional activity called counting collections and its application in pre-K–2 classrooms. Counting is essential for children to develop number sense. We will share strategies for engaging students in counting collections, and we will discuss young children's mathematical thinking and number sense progressions.

**Kathy Liu Sun**

Santa Clara University, California

**Kim Bambao**

San Mateo County Office of Education, Redwood City, California

**3004 (MOSCONE WEST)**

# Mathlinks

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Friday

**432****Recursion through Manipulatives and Pictures**

## 10–12 Workshop

Participants will investigate several interesting problems that can be solved with recursion. Tower of Hanoi, Zookeeper's Puzzle, Jump & Slide, and Sierpinski's Triangle are some of the problems. Graphing calculators will be used as a tool to further investigation.

**Raymond Siegrist**  
SUNY Oneonta, New York

2006 (MOSCONE WEST)

**433****Supporting Preservice Elementary Teachers to Use and Connect Representations**

## Coaches / Leaders / Teacher Educators Workshop

Participants will investigate strategies for supporting preservice teachers to use and connect representations, a key teaching practice in *Principles to Actions*. Through learning to connect representations, preservice teachers will be better prepared to help students develop a deeper understanding of concepts and engage in mathematical practices.

**Sarah Kate Selling**  
University of Michigan, Ann Arbor  
**Michaela Krug O'Neill**  
University of Michigan, Ann Arbor  
**Meghan Shaughnessy**  
University of Michigan, Ann Arbor

YERBA BUENA 3/4 (MARRIOTT)

**434****Transforming High School Geometry beyond the Traditional Classroom**

## 8–10 Workshop

What does “same size, same shape” mean? To truly make sense of congruence, according to the Common Core State Standards, we must take a closer look at transformations of the plane via rigid motions. In this session you will understand the need for change and how it connects to applications such as perpendicularity and equations of circles.

**Beau J. Bailey**  
Eureka Math, Washington, D.C.  
**Stafanie Hassan**  
Eureka Math, Washington, D.C.

2008 (MOSCONE WEST)

**435****Unpacking Division: Understanding the Structure**

## 3–5 Workshop

Participants will use a variety of manipulatives to model division, as we unpack partitive and measurement meanings of the operation with whole numbers and then extend these meanings to division of fractions. We will write and share contextual problems, and we will examine alternative algorithms and methods of representing remainders.

**Mary Pat Sjostrom**  
Winthrop University, Rock Hill, South Carolina

3006 (MOSCONE WEST)

**436****Volume Formulas . . . Are They All Right?**

## 6–8 Workshop

Discover new research-based, classroom-ready tasks designed to enhance your volume measurement instruction. We will share video of nonroutine tasks that elicit students' thinking about the volume formula of right and non-right rectangular prisms. Come work through some tasks and contribute to a discussion on the formulas  $V = lwh$  and  $V = Bh$ .

**Pamela S. Beck**  
Illinois State University, Normal  
**Theodore J. Rupnow**  
Illinois State University, Normal  
**Jeffrey E. Barrett**  
Illinois State University, Normal

2016 (MOSCONE WEST)





**437****What's Your Image? Transformations in the Coordinate Plane****6–8 Workshop**

Come and explore strategies to engage students in generalizing the pattern of sets of ordered pairs under various transformations. After exploring the image of a geometric figure, each participant will create a picture and its image under a variety of transformations. Transformations may include translations, reflections, and rotations.

**Margaret A. Bambrick**

Volusia County Schools, Orange City, Florida

**Ruth Casey**

Teachers Teaching with Technology, Frankfort, Kentucky

**2004 (MOSCONE WEST)**

**437.1****Engaging Students in Productive Struggle through “Meaty Tasks”****6–8 Workshop**

We will explore the practical applications of how to increase the cognitive rigor of math tasks and foster critical thinking. This session is specifically designed to provide a framework to create problems with varied entry points and solution strategies. Classroom examples and videos will be shared.

**Pamela Quirk**

Muskego-Norway School District, Wisconsin

**Kimberly Crosby**

Muskego-Norway School District, Wisconsin

**302 (MOSCONE SOUTH)**

**437.2****First Split into Tens and Ones: DMI for K–8 Teachers****3–5 Workshop**

An updated edition of Developing Mathematical Ideas (DMI) professional learning materials is now being published by NCTM. Learn about the first module, Building a System of Tens, by analyzing video of students' strategies for calculating with multi-digit numbers and discussing how students' approaches relate to the CCSSM Standards for Mathematical Practice.

**Deborah E. Schifter**

Education Development Center, Inc; Waltham, Massachusetts

**Susan Jo Russell**

TERC; Cambridge, Massachusetts

**Virginia Bastable**

Mount Holyoke College; South Hadley, Massachusetts

**304 (MOSCONE SOUTH)**

**438****A Brief History of Math Education: Lessons for Today****General Interest Session**

The issues and arguments concerning what and how to teach mathematics today are as old as the United States. If we are to make progress improving mathematics learning we must stop recycling the same old debates. Lessons from the past will be examined as we work to improve learning and constructively engage parents and the public today.

**Matthew Larson** 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 the Common Core. He is 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*. His two-year term as NCTM president begins at the conclusion of the NCTM Annual Meeting & Exposition in San Francisco.

**Matthew Larson**

President-Elect, National Council of Teachers of Mathematics;  
Lincoln Public Schools, Nebraska

**135 (MOSCONE NORTH)**

**439****A Race to the Finish: Linear Functions in Action****6–8 Session**

How do we take students beyond procedures and surface level understanding of linear functions? Will you be the speed walker, luger, or push-up runner in a dash to the finish? Join us for a CCSSM-aligned, classroom-ready lesson bringing linear functions to life by investigating the meaning of slope, intercepts, and equations in a real-life context.

**Janna Canzone**

University of California, Irvine

**Karajeau Hyde**

University of California, Irvine

**Sarah M. Galasso**

University of California, Irvine

**2007 (MOSCONE WEST)**



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**440 EQUITY****Attracting Girls to STEM by Integrating Social Studies and Mathematics**

General Interest / All Audiences Session

This session will share fascinating research and innovative strategies that support the integrating of social studies and mathematics to spark girls' interest in STEM fields. Participants will have the opportunity to explore the research, engage in some suggested strategies, and receive teaching resources.

**Jill M. Drake**

University of West Georgia, Carrollton

**Janet Strickland**

University of West Georgia, Carrollton

2011 (MOSCONE WEST)

**441 PtA****Building Fluency, Understanding, and Evidence of Thinking through Number Talks**

General Interest Session

How can we build conceptual understanding and fluency? We will look at the role of Number Talks as a change agent for shifting student and teacher mathematical beliefs and understandings from teaching and learning by telling to teaching and learning by using purposeful problems and intentional discourse.

**Sherry D. Parrish**

Parrish and Associates, Incorporated, Birmingham, Alabama

3016 (MOSCONE WEST)

**442 EQUITY****Building STEAM: Encouraging Grades 3–5 Girls' Interest in Mathematics and Science**

3–5 Session

This session will focus on the integration of mathematics, literacy, and arts activities that will support the development of visual spatial abilities in grades 3–5 students. These activities will be presented and organized around the contributions of women mathematicians throughout history.

**Judy A. Werner**

Slippery Rock University, Pennsylvania

**Suzanne Rose**

Slippery Rock University, Pennsylvania

GOLDEN GATE C3 (MARRIOTT)

**443****Challenges and Successes in Implementing Culturally Relevant Activities for ELLs**

General Interest Session

Culturally relevant pedagogy is centered on the view that cultural identities and experiences are the foundations for all other experiences and behaviors. We will present several examples of culturally relevant mathematical activities, and we will discuss bilingual teachers' attitudes and teaching strategies toward these new curriculum activities.

**Olga M. Kosheleva**

University of Texas at El Paso

**Julian Viera**

University of Texas at El Paso

**Ruby L. Lynch-Arroyo**

University of Texas at El Paso

307 (MOSCONE SOUTH)

**444****Challenges in Teaching and Assessing Statistics: Going beyond Computational Fluency**

10–12 Session

For many teachers, statistics is new and uncomfortable territory. The task of developing and assessing students' computational fluency in statistics is relatively easy compared with the challenge of developing and assessing their statistical reasoning. Learn four ways to go beyond the mechanics to enrich the teaching and learning of statistics.

**Stephen J. Miller**

Winchester Thurston School, Pittsburgh, Pennsylvania

2009 (MOSCONE WEST)

Explore the **Exhibit Hall**  
for the latest educational resources.





**445****Common Core Statistics and AP Statistics—Together But Not Scrambled**

10–12 Session

The statistics standards in CCSSM provide an exciting and challenging opportunity with the potential to have an impact on subsequent statistics courses. The statistical standards in CCSSM and the topics in AP Statistics courses will be explored and compared, and the impact of CCSSM on students' development of statistical thinking will be discussed.

**Luis Saldivia**

ETS, Princeton, New Jersey

**Paul Rodriguez**

Troy High School, Fullerton, California

3012 (MOSCONE WEST)

**446****Developing Mathematics Teacher Leaders: Supporting District-Wide Learning and Systemic Change**

Coaches / Leaders / Teacher Educators Session

In this session you will learn about a university school partnership focused on developing leaders who support teachers' CCSSM implementation. We will describe (a) the elements of our PD model, (b) what leaders are learning by engaging in the professional learning, and (c) what project leadership is learning by collaborating in this partnership.

**Nicole R. Rigelman**

Portland State University, Oregon

**Amy McQueen**

David Douglas School District, Portland, Oregon

**Karen Prigodich**

Centennial School District, Portland, Oregon

2024 (MOSCONE WEST)

**447****Using Technology Strategically to Build Understanding of Crucial Math Concepts**

3–5 Session

Appropriate uses of technology can help students develop conceptual understanding of ideas such as multiples, fractions, and area by generating data and examining patterns. We'll discuss what it looks like to use technology to develop conceptual understanding by presenting situations that let students "notice and wonder," sense-make, and explore.

**Annie Fetter**

The Math Forum, National Council of Teachers of Mathematics, Swarthmore, Pennsylvania

301 (MOSCONE SOUTH)

**448****Excel in Elementary Mathematics**

3–5 Session

This session focuses on using Microsoft Excel to reinforce students' basic mathematics knowledge. Participants will be guided through the creation of projects such as creating an expanded form generator, shopping spree calculator, and a net income spreadsheet.

**Andrew Bonaparte**

Let's TEACH, Arlington, Texas

GOLDEN GATE A (MARRIOTT)

**449****Flipping Out in AP Calculus and Geometry Using Technology**

10–12 Session

Why flip? How can I use technology to provide for student collaboration and formative assessments? See how "flipping" allows for more student opportunities to problem-solve, reason, and model. Create a student-centered environment where mathematical discourse, constructing viable arguments, and critiquing other students' reasoning are the norm.

**Joanne M. Ryan**

The Buckley School, Sherman Oaks, California

**Juan S. de la Cruz**

The Buckley School, Sherman Oaks, California

2005 (MOSCONE WEST)



**450****Get Function-Minded: Using Tasks to Jump Start Relationship Thinking**

8–10 Session

Help students build function understanding and employ the mathematical practices with a series of tasks that naturally introduce students to functions. Conjecture and explore a series of tasks addressing the definition of a function, understanding quadratic tables, and more while learning from each other's reasoning. Leave with adaptable tasks.

**Liem Tran**

Math for America Los Angeles, California

**Carl M. Oliver**

City As School High School, New York, New York

2001 (MOSCONE WEST)

**451****Inclusive Middle Level Math Instruction**

6–8 Session

Help empower both Special Ed. and Math Ed. teachers in an inclusive setting by modeling hands-on activities for varying ability levels, creating a culture of positive co-teaching, discussing the importance of reference models and common language, providing engaging and motivating strategies for students, and sharing best practices for programming.

**Erin K. Barry**

Hatboro-Horsham School District, Pennsylvania

**Christine Jenkins**

Hatboro-Horsham School District, Pennsylvania

3003 (MOSCONE WEST)

**452****Math Meeting: Rethinking the Warm-Up**

Pre-K–2 Session

Is your math warm-up working for you? Do you ever wonder how to continue to address previously taught standards as you move to new ones? Come and explore a variety of quick activities that will engage students in fun practice of previously instructed Common Core State Standards! We will discuss the benefits, organization, and routines of a Math Meeting.

**Jennifer L. Davis**

Wicomico County Public Schools, Salisbury, Maryland

305 (MOSCONE SOUTH)

**453****E&A****Moving Principles into Actions: Access and Equity**

Coaches / Leaders / Teacher Educators Session

In *Principles to Actions*, NCTM sets forth a vision to support the goal of ensuring the mathematical success of all students. This session introduces professional learning resources designed to support teachers and other stakeholders as they strive to achieve the vision outlined in the Access and Equity Principle.

**Robert Q. Berry**

University of Virginia, Charlottesville

**Marilyn E. Strutchens**

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

134 (MOSCONE NORTH)

**454****Seeing Is Believing: Using Video Reflection Techniques to Strengthen Instruction**

Coaches / Leaders / Teacher Educators Session

With little to no cost, a teacher can use their own actions to strengthen their teaching practices through video-based reflection. Attendees will experience the video reflection process utilizing templates designed for the math classroom that capture standard-based practices important to effective instruction.

**Norma Boakes**

Stockton University, Galloway, New Jersey

2022 (MOSCONE WEST)

**455****South Los Angeles Math (SLAM) Project: Best Practices Learned**

Research Session

SLAM's goal is to learn the best practices for decreasing the college math remediation rates of underrepresented students. In this project, high school teachers and college professors co-teach college-level math concurrent-enrollment courses to at-risk students on high school campuses during the regular school day.

**Lynn Cevallos**

College Bridge, Los Angeles, California

**Kristin Webster**

California State University, Los Angeles

**Pedro Cevallos**

College Bridge, Los Angeles, California

303 (MOSCONE SOUTH)



**456****STEM Gives Meaning to Mathematics**

3–5 Session

Engineering instruction in K–5 can translate into lasting success in mathematics. Learn how to plan and teach an integrated engineering curriculum that (a) applies measurement and data collection concepts and (b) develops students' ability to communicate, collaborate, and persevere when solving high complexity math problems.

**Lukas Hefty**

Douglas L. Jamerson, Jr. Elementary School, St. Petersburg, Florida

3009 (MOSCONE WEST)

**457****Strengthening Multiplicative Reasoning with Prime Numbers**

3–5 Session

Prime numbers can strengthen students' multiplicative reasoning by serving as the link between multiplication and division. Come explore classroom tasks that help students develop this relationship and provide a more structured way of computing with numbers. Strategies for enacting these tasks with students will also be discussed.

**Matt B. Roscoe**

University of Montana, Missoula

YERBA BUENA 12/13 (MARRIOTT)

**458****Technology and Intellectual Need**

8–10 Session

Every notation, word, and technique solved a problem for someone somewhere. In this session, we'll explore how to use technology to put students a position of "intellectual need." In doing so, we'll see how to transform some of the most frustrating and tedious tasks—e.g., memorizing mathematical vocabulary lists—into some of the most interesting.

**Eli Luberoff**

Desmos, Inc., San Francisco, California

3005 (MOSCONE WEST)

**459****The Equals Sign . . . It Is More Complicated Than We Think!**

Pre-K–2 Session

Early experiences with equations are foundational to developing algebraic thinking. Five years after the release of the Common Core, including a standard addressing the equal sign, many students have misconceptions about the equal sign. Come and see how over 800 first and second graders interpreted different relational statements involving the equal sign.

**Charity Bauduin**

Florida Center for Research in Science, Technology, Engineering, and Mathematics (FCR-STEM), Florida State University, Tallahassee

**Zachary Champagne**

Florida Center for Research in Science, Technology, Engineering, and Mathematics (FCR-STEM), Florida State University, Tallahassee

**Wendy Bray**

Florida Center for Research in Science, Technology, Engineering, and Mathematics (FCR-STEM), Florida State University, Tallahassee

YERBA BUENA 10/11 (MARRIOTT)

**460****The Tension between Productive Struggle and Telling**

3–5 Session

We know that productive struggle and effective questioning are elements of the effective teaching of mathematics, but when is it appropriate to tell? In this session we'll consider this question, look at some tips for answering it, and use transcripts of math discussions to fine tune our process of choosing when, what, why, and how we tell.

**Douglas Z. Hill**

Pinellas County Schools, Largo, Florida

NOB HILL C/D (MARRIOTT)

**461****Think outside the Plane**

10–12 Session

Come find out how a beach ball, some yarn, and a crochet hook can blow your students' minds and make them rethink their preconceived notions of Euclidean geometry. Get your students to think outside the plane by looking at spherical and hyperbolic geometries.

**Kristine K. Dahlquist**

Hawaii Preparatory Academy, Kamuela, Hawaii

3007 (MOSCONE WEST)

**462****Use a Clinical Teaching Model in a Elementary Math Method Course**

Higher Education Session

How can teacher candidates effectively learn to differentiate teaching strategies from your math method course? How can teacher candidates really implement math methods to the real elementary students in front of you during your course teaching time? Come to discuss how my teacher candidates learn math methods through a clinical teaching model.

**Hsuehi Martin Lo**

Saint Cloud State University, Minnesota

2020 (MOSCONE WEST)

**463****Using Multiple Representations to Build Conceptual Understandings of Fractions**

3–5 Session

In this interactive session we will examine the importance of understanding the meaning of the operations, effectively translating symbols using conceptual language, drawing good pictures, and connecting to symbolic representations to building fraction concepts. A formative assessment and examples for immediate classroom use will be given.

**Sandy Atkins**

Creating AHAs, St. Petersburg, Florida

YERBA BUENA 7 (MARRIOTT)

**464****Using Tape Diagrams to Foster Algebraic Thinking and Problem Solving**

Pre-K–2 Session

See how tape diagrams can be used to foster algebraic thinking to help young children solve addition and subtraction problems involving unknowns in all positions. Video footage of a lesson study cycle on teaching through problem solving and students sharing and discussing multiple solution methods will be shared.

**William Jackson**

Harlem Village Academies, New York, New York

**Makoto Yoshida**

Harlem Village Academies, New York, New York

GOLDEN GATE C1 (MARRIOTT)

**465****Using the 5 Practices in the Early Childhood Classroom**

Pre-K–2 Session

How do the 5 Practices unfold in a kindergarten classroom? How do teachers and students use the 5 practices, and how do they support the young learner? How might you use them in your setting? A video case study from an urban high-needs school will drive this discussion-based, interactive session about these issues.

**Elizabeth Hughes**

University of Northern Iowa, Cedar Falls, Iowa

**Megan E. Balong**

University of Northern Iowa, Cedar Falls, Iowa

**Michelle Vanwinkle**

Dr. Walter Cunningham School for Excellence, Waterloo, Iowa

YERBA BUENA 5/6 (MARRIOTT)

**465.1****ew****STEM Investigations for the Math Classroom**

10–12 Exhibitor Workshop

Why should students only be doing hands-on learning for STEM in their science classes? Learn how to bring inquiry-based learning into your classroom using investigations that allow students to draw upon math reasoning and skills to solve problems in STEM.

**Texas Instruments**

Dallas, Texas

120 (MOSCONE NORTH)

**465.2****ew****Practical Ideas for Breathing Life into 6 and 7 RP Standards**

6–8 Exhibitor Workshop

It can easily be argued that the grades 6 and 7 Ratios and Proportional Relationships standards are both the most important and most difficult to teach of all the CCSSM standards. This session will look at why that is, and it will present a range of classroom activities that support these critical pieces of the curriculum.

**Houghton Mifflin Harcourt**

Boston, Massachusetts

121 (MOSCONE NORTH)



2:00 P.M.–3:00 P.M.

### 465.3 **Bridges Intervention**

General Interest Exhibitor Workshop

Learn about Bridges Intervention, offering targeted, high-quality instruction matched to student needs. Tier 2 and 3 students in K–5 work with models that spur thinking and understanding—starting with manipulatives, moving to two-dimensional representations, and then to mental images. The program is organized by content, and progress monitoring is key.

**Math Learning Center**  
Salem, Oregon

122 (MOSCONE NORTH)

### 465.4 **It's Here: the NEW Investigations 3 K–5**

3–5 Exhibitor Workshop

Intrigue students by creating a learning environment of high expectations. Guide students as they actively explore mathematical ideas to develop understanding and fluency. Create a New Learning Culture. Focus on mathematical problem solving, learner-centered activities, and guided inquiry. Welcome to *Investigations 3* in Number, Data, and Space.

**Pearson**  
Boston, Massachusetts

124 (MOSCONE NORTH)

### 465.5 **Purposeful Technology: Moving beyond Buzzwords to Transform Learning**

General Interest Exhibitor Workshop

In this workshop, Dr. Christine Gouveia, Vice President, Applied Learning Sciences for McGraw-Hill Education, discusses how to move digital learning from a buzzword to an effective tool that helps each student reach his full potential. Purposeful technology helps you provide the right tool, at the right time, to maximize success for every student.

**McGraw-Hill Education**  
Columbus, Ohio

125 (MOSCONE NORTH)

### 465.6 **Financial Algebra: Real World, Real Math, Real Interest**

10–12 Exhibitor Workshop

Learn how to implement the course Advanced Algebra With Financial Applications using *Financial Algebra* (Cengage 2014). With an algebra 1 prerequisite, advanced algebra topics are taught in the contexts of investing, credit, banking, automobiles, mortgages, employment, taxes, budgets, and retirement. Copies of *Financial Algebra* will be distributed.

**National Geographic Learning | Cengage Learning**  
Bedford, New York

130 (MOSCONE NORTH)

### 465.7 **Engage Media-Savvy Students with Songs, Videos, Games, and Rewards**

General Interest Exhibitor Workshop

Teachers are turning to a new collection of musical, high-interest lessons called Math Upgrade to engage today's media-savvy students. Find out how teachers use games and rewards to bring below-proficient students in K–grade 8 up to grade level. Join us for math, music, and fun!

**Learning Upgrade**  
San Diego, California

123 (MOSCONE NORTH)

2:45 P.M.–4:00 P.M.

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

Coaches / Leaders / Teacher Educators Workshop

NCTM provides free online professional development guides for many of its print resources. In this session, participants will explore the PD guide for NCTM's landmark publication *Principles to Actions: Ensuring Mathematical Success for All*. Presenters will model ways to use PD guides to support professional learning in your school.

**Chonda L. Long**  
National Council of Teachers of Mathematics, Reston, Virginia

3022 (MOSCONE WEST)



**467** **TECH****Coding to Enrich All Math Courses****8–10 Workshop**

Devices captivate students—too often, math does not. In any course, coding can reach hard-to-reach students, enrich math content, and empower all students to apply new learning with purpose. Coding is the future—let coding bring relevance to students' mathematical experiences in the present. Bring a graphing calculator; no experience needed.

**Jason Slowbe**

Temecula Valley Unified School District, California

**3006 (MOSCONE WEST)**

**468****Create New Packaging with Proportionality: Teaching and Extending Dilations****6–8 Workshop**

Your help is needed to solve the packaging problems for several companies! Hands-on activities will range from maximizing soda can packaging to shrinking cereal boxes using proportional thinking, algebraic reasoning, and numerical analysis. Take four rich problem-solving activities, as described in *Principles to Actions*, back to your classroom.

**Rachelle Rogers**

Baylor University, Waco, Texas

**John Choins**

Midway Independent School District, Waco, Texas

**3008 (MOSCONE WEST)**

**469****Engaging Students in Mathematics through Forced Perspective Photography****8–10 Workshop**

Everyone loves pictures that create a forced perspective, but have you ever considered the mathematics involved in creating these images? Join us for this hands-on session where you will learn various ways to challenge your students with real math related to forced perspective photography.

**Stephanie M. Haga**

Fulton County Schools, Atlanta, Georgia

**Susan G. Baker**

Fulton County Schools, Atlanta, Georgia

**3018 (MOSCONE WEST)**

**470****Experiencing the Engineering Design Process through a Math Lens****10–12 Workshop**

The emphasis on turning your math classroom into a STEM one can seem daunting. How can we bring in engineering authentically? Experience the engineering design process through a math lens and learn how to transform meaningful tasks, such as Barbie Bungee and Catapult Launchers, into challenges worthy of an engineering design team.

**Heather Kohn**

Marlborough Public Schools, Massachusetts

**2008 (MOSCONE WEST)**

**471****Explore Variability and Inference with Student-Generated Data****6–8 Workshop**

Let your students become the data with engaging activities for generating class-wide data sets. We'll look at effective prompts teachers can use to help students understand variability and introduce inference through sampling activities. go "Globe Trotting," analyze student "Signatures," and experience the "Mystery Ticket Bag."

**Robert Lochel**

Hatboro-Horsham School District, Pennsylvania

**2002 (MOSCONE WEST)**

**472****It's All about That Base: Creatively Connecting Fractions and Decimals****3–5 Workshop**

Go beyond base-ten blocks to make deep connections between fractions and decimals using stories, pictures, and even dancing. Learn how to sequence these activities to highlight the key role that the powers of 10 play in fraction-decimal equivalence. Activities will focus on deepening participants' understanding and may be adapted for classroom use.

**Christy Pettis**

University of Minnesota, Twin Cities, Minnesota

**Pamela J. Richards**

Leadership and Learning Center, Denver, Colorado

**Bethann Wiley**

University of Minnesota, St. Paul

**3004 (MOSCONE WEST)**



**473****Let's Clarify Math Modeling in PK–2**

Pre-K–2 Workshop

What is math modeling (as noted in mathematical practice MP.4), and how is that different from modeling mathematics? Participants will engage in classroom-ready tasks, including designing a playground, to contrast the two. Throughout, participants will be introduced to the modeling process and how rich modeling tasks can address PK–2 content along with other mathematical practices.

**Mike Long**

Howard Community College, Columbia, Maryland

3010 (MOSCONE WEST)

**474****Making Sense of Essential Statistics for the Next Generation**

10–12 Workshop

Participants will engage in meaningful statistics activities using the software Core Math Tools. Participants will collect, graph, and analyze data using a best fit lines and sum of squared errors. We will also explore accessible ways to determine whether differences between groups may be considered statistically significant.

**Karen L. Fonkert**

Charleston Southern University, South Carolina

3011 (MOSCONE WEST)

**475****Moving From Geometric Transformations to Escher Tessellations**

6–8 Workshop

Participants will review the transformations: translation, reflection, and rotation. You will learn four particular forms of these transformations that M. C. Escher used in his tessellations through hands-on activities. These four forms of transformations will be used to make an irregular shape that tessellates to create your “Escher” art!

**Betty B. Long**

Appalachian State University, Boone, North Carolina

**Deborah A. Crocker**

Appalachian State University, Boone, North Carolina

2006 (MOSCONE WEST)

**476 NT****Playful Mathematics and Teacher Direction: Promoting Equitable Learning in Pre-K–2**

Pre-K–2 Workshop

How do children learn about counting and number in pre-K–2? How can teachers support that learning in equitable ways? See and examine how learning develops through play coupled with teacher-directed activities/interactions to support their thinking through a selection of classroom videos and hands-on materials.

**Anita A. Wager**

University of Wisconsin - Madison, Madison, Wisconsin

**Mary Q. Foote**

Queens College–CUNY, New York, New York

302 (MOSCONE SOUTH)

**477****Powerful Math Models to Develop Conceptual Understanding and Procedural Fluency**

3–5 Workshop

Together we will explore two powerful math models (number lines and arrays) that can be used across a wide range of grades supporting students' mathematical development in number sense, operations, and algebraic reasoning. Participants will analyze how these models might be used for representing student thinking and/or developing student thinking.

**Ruth Teszeri**

Halton District School Board, Burlington, Canada

**Terri Blackwell**

Halton District School Board, Burlington, Canada

310 (MOSCONE SOUTH)

**478****Quid Pro CODE: I Tell You Things, You Tell Kids**

Coaches / Leaders / Teacher Educators Workshop

You hear a lot about programming and coding, but you don't know anything about it. Let's fix that! Participants will start coding in Python right away in this workshop to learn the basics of *any* language. Throughout, we'll talk about how your new knowledge can connect with cool mathematical activities at *any* grade level. (Gobs of resources, too!)

**Josh D. Fisher**

Think Through Math, Pittsburgh, Pennsylvania

GOLDEN GATE C2 (MARRIOTT)



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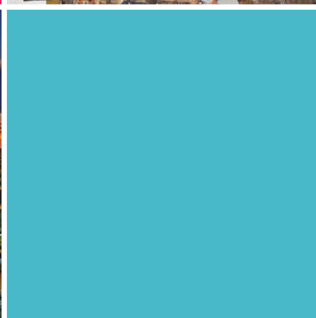


## Nurture a Strong Sense of Number in Younger Students

Now more than ever, students need to establish a solid foundation for success in mathematics, and it starts in the early grades. Focus on understanding number, representations, relationships, and number systems; the meanings of operations and relationships among those operations; and reasonable estimation and fluent computation during this interactive and hands-on event.

Sessions are geared toward specific grade levels, providing a tailored experience and the opportunity to take home tools and strategies to help your students—

- understand place-value structure;
- develop understanding of fractions;
- gain number sense through an understanding of addition, subtraction, multiplication, and division; and
- develop fluency with basic number combinations for addition, subtraction, multiplication, and division.



Learn more at [nctm.org/institutes](http://nctm.org/institutes) and follow us on      #NCTMinstitutes

**479****Simple and Rich STEM Activities Using Painless Video Analysis**

8–10 Workshop

For STEM initiatives to be successful, we need to be teaching more science in our math classrooms, and more math in our science classrooms. Come and participate in rich hands-on experiments that use the camera in your pocket and free software to perform powerful mathematical video analysis.

**Raphael C. Carlson**

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

**Mike J. Reiners**

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

2004 (MOSCONE WEST)

**480****#SlowMath: Looking for Meaning before the Procedure**

10–12 Workshop

How might we leverage technology to build procedural fluency from conceptual understanding while teaching our students to ask better questions? What if we encourage sketch noting to show connections? Come experience right triangle trig and equations of circles through the lens of the Slow Math Movement.

**Jennifer C. Wilson**

Northwest Rankin High School, Flowood, Mississippi

**Jill L. Gough**

Trinity School, Atlanta, Georgia

2003 (MOSCONE WEST)

**481****Spatial Reasoning with Attribute Blocks**

Pre-K–2 Workshop

During this session, teachers will engage in a set of geometry activities that will support students' development of spatial reasoning skills. These activities are sequenced through Van Hiele's phases of learning, which support students as they progress through the Van Hiele levels of geometric thought.

**Tashana D. Howse**

Daytona State College, Daytona Beach, Florida

**Mark E. Howse**

Florida A&amp;M University, Tallahassee, Florida

2016 (MOSCONE WEST)

**482****VENNturing into Math and ELA to Deepen Understanding**

Pre-K–2 Workshop

Venn diagrams are often used in ELA to compare and contrast and in math to sort, creating a potential for confusion. Participants will engage in math activities for K–2 using Venn diagrams. Examples in ELA and other subject areas will be highlighted. Participants will learn ways to craft activities in both subjects to avoid potential confusion.

**Dovie Kimmins**

Middle Tennessee State University, Murfreesboro

**Jeremy J. Winters**

Middle Tennessee State University, Murfreesboro

**Cindy Cliche**

McFadden School of Excellence, Murfreesboro, Tennessee

YERBA BUENA 3/4 (MARRIOTT)

**483****Well Played: Unleashing the Power of Games and Puzzles**

3–5 Workshop

Would you like to increase students' conceptual understanding, fluency, and perseverance, while they have fun and develop productive dispositions about mathematics? As we explore games and puzzles, experience how question, assessment, and management strategies can transform the use of games and puzzles in your classroom. Come play and solve!

**Linda Dacey**

Lesley University, Cambridge, Massachusetts

**Jayne Lynch**

Cambridge Public Schools, Massachusetts

GOLDEN GATE B (MARRIOTT)



2:45 P.M.—4:00 P.M.

**484**

## **What's in Your Tool Kit? Numeracy Tools You Can't Live Without!**

Pre-K–2 Workshop

“What the heck is a Rekenrek?” “What’s the fame of a five- or ten-frame? “What’s the math with a number path?” This session will revisit WHAT the five best math tools are, HOW they impact young brains through problem solving, MODEL moves to increase math talk, and PROVIDE purposeful ways to plan with tools so they can make a good lesson GREAT!

**Toni Osterbuhr**

Wichita Public Schools, Kansas

**Debbie M. Thompson**

Wichita Public Schools, Kansas

306 (MOSCONE SOUTH)

3:30 P.M.—4:30 P.M.

**485**

## **All Included in Math: Discourse Strategies for Teachers**

Pre-K–2 Session

How can you get your students to have meaningful math discussions? What does that mean and how can you make it work in your classroom? Project AIM (all included in math) has modified literacy strategies to benefit the mathematics classroom. Experience these strategies and then take them back to your own classroom to see the benefits!

**Sidney Fox**

North Carolina State University, Raleigh

GOLDEN GATE C1 (MARRIOTT)

**486**

## **Assessing the Core: Tools for Clarity**

General Interest Session

How well did a student critique another’s reasoning? How precise do students need to be? How do we know? This session will focus on how to clearly define expectations for the quality and rigor of students’ mathematical practices, and how to apply them in tools and strategies for assessment and feedback on mathematical discourse and written work.

**Kyle Moyer**

Summit Public Schools, Redwood City, California

YERBA BUENA 7 (MARRIOTT)

**487**

## **Building a Classroom Culture around the Mathematical Practices**

3–5 Session

How can you build a classroom culture that supports children’s learning of the Common Core’s Standards for Mathematical Practice? What should the practice standards look like in fourth grade? Or in kindergarten? How can students (and teachers) make sense of them? We will provide practical ideas for engaging your students with the mathematical practices.

**Andy Isaacs**

University of Chicago, Illinois

**Rebecca Maxcy**

University of Chicago, Illinois

GOLDEN GATE C3 (MARRIOTT)

**488**

## **Challenging the Eager Achievers in Untracked Classes**

8–10 Session

Are we sufficiently challenging the students who learn quickly and are anxious to move on? This session will focus on strategies for extending the engagement of this group of students with strategies for creating extension questions to engage them in delving deeper and with ideas for alternative approaches to assignments.

**Judith M. Kysh**

San Francisco State University, California

2009 (MOSCONE WEST)

Pick up a copy of the *Daily News* for up-to-date conference information.



**489****Community College Mathematics Acceleration: Pathways and Practices for Success**

Higher Education Session

This session describes community colleges' accelerated pathways through developmental mathematics that attend to students' opportunities to learn significant mathematics and develop productive dispositions. Program successes (e.g., increased access and reduced achievement gaps), curriculum development, and teaching innovations will be discussed.

**Mara Landers**

Los Medanos College, Pittsburg, California

**Ann Edwards**

Carnegie Foundation for the Advancement of Teaching, Stanford, California

**Julie Von Bergen**

Los Medanos College, Pittsburg, California

2022 (MOSCONE WEST)

**490****Developing Problems That Evoke (and Assess) the SMPs**

8–10 Session

Not all mathematics problems are the same. Some are built to really stretch students' (and teachers') minds. What makes these different from others? In this session, we will look at examples of problems that are truly built to elicit use of the Standards for Mathematical Practice (SMPs) and explore the characteristics that make them so.

**Matt McLeod**

Education Development Center (EDC), Chicago, Illinois

**Mary Wedow**

Education Development Center (EDC), Chicago, Illinois

2011 (MOSCONE WEST)

**491****Dynamic Geometry: A Mathematical Playground**

10–12 Session

Find out about using dynamic geometry to get your students building virtual machines. See student-engineered trains, oil derricks, and Rube Goldberg machines. Leave with concrete building blocks to get started. Before they know it, they'll be writing parametric equations, using circular trig and modeling motion. They might even discover calculus.

**Margaret C. Patterson**

American International School of Johannesburg, South Africa

2001 (MOSCONE WEST)

**492****Even Fractions Are Better with Chocolate!**

6–8 Session

Touch the chocolate, draw the chocolate, think the chocolate—and eat it too? This is the research-based CRA approach to teaching, one that has proven to be very successful with struggling learners. Experience lessons that use manipulatives, like chocolate bars, and the CRA approach to develop student understanding of fraction concepts in CCSSM.

**Amy L. Johnson**

Math Teachers Press, Inc., Minneapolis, Minnesota

**Caryl K. Pierson**

Math Teachers Press, Inc., Minneapolis, Minnesota

3016 (MOSCONE WEST)

**493****PtA****Giving Students Voice: Eliciting and Using Evidence of Student Thinking**

General Interest Session

Eliciting and using evidence of student thinking means giving students reason and voice. In the conscious act of listening to student thinking, we create space for students to make conjectures, form and critique arguments, and make mathematical connections. Even better, we promote a classroom culture of student reasoning and mathematical autonomy.

**Dana C. Cox**

Miami University, Oxford, Ohio

**Judith Meichenheimer**

Talawanda School District, Oxford, Ohio

**Danette Hickey**

Talawanda School District, Oxford, Ohio

YERBA BUENA 12/13 (MARRIOTT)



Building Capacity: Personal and Collective Professional Growth



Instruction and Policies that Promote Equity and Access



Equity



Exhibitor Workshop



Hot Topics



NCTM Committee

**494**

## How Deep Is Deep Enough in a Coach-Teacher Conversation?

Coaches / Leaders / Teacher Educators Session

Coach-teacher planning conversations that are deep and specific with respect to a discussion of content, pedagogy, and student thinking increase the likelihood that a teacher will engage students in discussion of mathematical reasoning. A video case will be analyzed, data shared, and characteristics named.

**Victoria Lynn Bill**

Learning Research and Development Center, University of Pittsburgh, Pennsylvania

2020 (MOSCONE WEST)

**495**

## Incorporating Whole Class Discussions in the Honors Algebra II/Precalculus Classroom

10–12 Session

Participants will explore whole class discussions (WCD) to foster perseverance in problem solving. Presenters will provide video examples and lesson templates used in honors algebra II and precalc. In WCD, students must construct arguments, communicate, and critique reasoning. During the session, attendees will participate as students in a WCD.

**Brenda M. Colwell**

Blue Valley North High School, Overland Park, Kansas

**Jean E. Reynolds**

Blue Valley North High School, Overland Park, Kansas

3003 (MOSCONE WEST)

**496 EQUITY**

## Inspiring Every Child

General Interest Session

Join me as I share an inspirational talk about my experience with my students 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 L. Dillard**

Borenson and Associates, Allentown, Pennsylvania

2007 (MOSCONE WEST)

**497**

## Integrated STEM and Model-Eliciting Activities: Making Math More Engaging

6–8 Session

This presentation will provide participants with a general description of how Model-Eliciting Activities (MEA) can be used to implement modeling in the classroom and connect to the other STEM disciplines. Participants will take part in a MEA and see firsthand how MEAs can be used in the classroom to motivate and engage students to learn math.

**Cathrine Maiorca**

University of Nevada, Las Vegas

**Micah Stohlmann**

University of Nevada, Las Vegas

2005 (MOSCONE WEST)

**498**

## It Makes Sense: Using Number Lines in K–2

Pre-K–2 Session

Students use tools to justify their answers. Students learn about decomposition and parts of the whole. More, less, the same, how many more, and how many less are all ideas that can be developed within the student's brain using this visual tool.

**Ann Carlyle**

University of California, Santa Barbara, Santa Barbara, California

NOB HILL C/D (MARRIOTT)



**499****Preparing Students for Their Futures: What Technology Leaders Value in Prospective Employees**

General Interest / All Audiences Session

A panel of technology industry leaders will discuss the skills and dispositions employers value most when hiring. The technology industry moves rapidly, skills once highly valued can be obsolete just months later. Leaders in the field will participate in a panel discussion and answer your questions regarding how today's students can thrive in this quickly evolving industry.

**Jim Ryan**

STEM Executive Director San Francisco Unified School District

**Doris Tong**

Global Head of Campus Recruiting

**Gloria Kimbwalu**

Campus Program Specialist

**Mark Petrovic**

Sr MTS, Architect Xoom, A Paypal Company

**Nikki Lasley**

Senior Program Manager Salesforce.org

2024 (MOSCONE WEST)

**500****Making Multiplication Facts Meaningful and Their Practice Interesting**

3–5 Session

Participants will work in groups to find and then describe patterns in the multiplication table. They will work to explain why the patterns occur. Other activities will require challenging thinking but give practice with facts. These activities are appropriate for diverse student populations.

**Diane Resek**

San Francisco State University, California

YERBA BUENA 10/11 (MARRIOTT)

**501****Making Sense of Mathematics for Teaching: Learning through Content**

3–5 Session

Teachers are asked to create environments where students engage in understanding mathematics with depth. Explore ways to plan and implement high cognitive demand tasks using fraction multiplication. The structure of studying the content offered can be applied to all learning progressions. Supports for coaching will also be included.

**Edward C. Nolan**

Montgomery County Public Schools, Rockville, Maryland

**Juli K. Dixon**

University of Central Florida, Orlando

**Thomaseia Lott Adams**

University of Florida, Gainesville

YERBA BUENA 5/6 (MARRIOTT)

**503****New Resources for Supporting the Effective Teaching Practices: High School**

Coaches / Leaders / Teacher Educators Session

The session will present resources available in the Principles to Actions: Teaching and Learning Toolkit at the high school level, created to support implementation of the Effective Mathematics Teaching Practices. Participants in the session will engage in activities highlighting different Effective Mathematics Teaching Practices.

**Melissa D. Boston**

Duquesne University, Pittsburgh, Pennsylvania

**Stephen W. Miller**

University of Pittsburgh, Pennsylvania

**Fred Dillon**

Ideastream, Cleveland, Ohio

135 (MOSCONE NORTH)



**504**

## New Resources for Supporting the Effective Teaching Practices: Middle School

Coaches / Leaders / Teacher Educators Session

The session will present resources available in the Principles to Actions: Teaching and Learning Toolkit at the middle school level, created to support implementation of the Effective Mathematics Teaching Practices. Participants in the session will engage in activities highlighting different Effective Mathematics Teaching Practices.

**Margaret Smith**

University of Pittsburgh, Pennsylvania

**Michael D. Steele**

University of Wisconsin–Milwaukee

134 (MOSCONE NORTH)

**506**

PPD

## Productive Struggle: The Difference Between Experienced and Inexperienced Problem Solvers

General Interest Session

Our classrooms are full of problem solvers—some experienced and some inexperienced. This session will look at relevant research about productive struggle, discuss the role of productive struggle in becoming an experienced problem solver, and explore some practical ideas for fostering and promoting productive struggle in problem solving.

**Cynthia (Cindy) G. Bryant**

LearnBop, New York, NY,

301 (MOSCONE SOUTH)

**507**

## Reflect on Your Practice: National Board Certification in Mathematics

Coaches / Leaders / Teacher Educators Session

Learn about the process of National Board Certification, and join us in a lively discussion about the ways you personally make the National Board Math Standards come alive in your classroom. Come discuss questions like, “What does it look like when teachers are committed to students and their learning?” and get practical tips on certification.

**S. Leigh Nataro**

Moravian Academy, Bethlehem, Pennsylvania

307 (MOSCONE SOUTH)

**508**

## Teaching Middle School Math through Real-World Applications

6–8 Session

Do people with small feet pay too much for shoes? Are parking tickets fair? In this presentation, we’ll explore lessons in which students apply mathematics to think critically about the world. Math is a powerful tool, and math class can be a place for the most interesting and important conversations.

**Karim Ani**

Mathalicious, Austin, Texas

3007 (MOSCONE WEST)



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**509****The Power of the Cartesian Plane to Solve Proportions**

6–8 Session

This session will examine models that link graphing ratios to solving linear systems of equalities and inequalities. We will examine how to solve direct variation problems using the Cartesian coordinate graph and complement that model with bar models.

**Anne M. Collins**

Lesley University, Cambridge, Massachusetts

3005 (MOSCONE WEST)

**510 EQUITY****Working with English Language Learners in the Mathematics Classroom**

General Interest Session

We will look at myths about ELLs, participate in discussion about their needs, and become familiar with resources for ELLs in mathematics. The focus will be on math-specific ways to help ELLs, including discourse in the mathematics classroom to help develop mathematical thinking and, at the same time, develop proficiency in English

**Linda A. Arnold**

Monmouth University, West Long Branch, New Jersey

305 (MOSCONE SOUTH)

**511****Working with Linear Equations: A Different Approach**

8–10 Session

What do you do when your students cannot solve routine problems using the standard algorithms or formulas? These students may need alternative methods for completing these types of problems. The participants will be led through some processes for working with linear equations that do not rely on the standard formulas or solution processes.

**Clifton Wingard**

Delta State University, Cleveland, Mississippi

**Micah Hickman**

Mandeville High School, Mandeville, Louisiana

3009 (MOSCONE WEST)

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

6–8 Exhibitor Workshop

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

**Mathspace**

New York, New York

122 (MOSCONE NORTH)

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

General Interest Exhibitor Workshop

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

**Dinah.com**

San Antonio, Texas

123 (MOSCONE NORTH)

**511.3 ew****Implementing Blended Learning: Best Practices for the K–8 Math Classroom**

General Interest Exhibitor Workshop

This workshop focuses on best-practice strategies to support the implementation of personalized instruction. In this interactive session, attendees will discuss tools, systems, and curriculum used to support a blended learning classroom. Participants are encouraged to draw on their experiences, both challenges and successes, to frame the conversation.

**Curriculum Associates**

North Billerica, Massachusetts

125 (MOSCONE NORTH)

3:30 P.M.–4:30 P.M.

**511.4** **ew**

**Using Japanese Problem-Based Teaching Methods to Develop Conceptual Understanding**

General Interest Exhibitor Workshop

The Japanese approach of teaching through problem solving promotes deep conceptual understanding of mathematics, especially in conjunction with lesson study. Japanese textbooks are designed to enhance this type of teaching. See how Sansu Math™, based on Japanese materials, can help teachers and students learn math in powerful ways.

**Koyo Publishing**  
Tualatin, Oregon

120 (MOSCONE NORTH)

**511.5** **ew**

**Creating an Environment for Student-Centered Instruction**

10–12 Exhibitor Workshop

When students are the center of instruction, they are active, engaged, and noisy. Passionate discussion replaces passive absorption. Time passes quickly, and though students will be mentally fatigued, they will want to keep exploring and won't want to leave. Sound too good to be true? Come experience an inquiry-based classroom, and see examples of teacher moves and classroom activities that will make your students the center of attention.

**Discovery Education**  
Silver Spring, Maryland

121 (MOSCONE NORTH)

4:15 P.M.–5:00 P.M.

**511.6** **NT**

**New Teacher Celebration**

General Interest / All Audiences Session

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. Win wonderful prizes. We'll have refreshments, too. Come when you can and join in!

**David Barnes**  
National Council of Teachers of Mathematics, Reston, Virginia  
**GOLDEN GATE B (MARRIOTT)**

5:00 P.M.–6:30 P.M.

**511.7** **HOT**

**ShadowCon 2016**

General Interest / All Audiences Session

While the impact of many conference sessions ends when a participant leaves the room, ShadowCon aims for a more enduring conference experience. The live event will span six speakers, including Gail Burrill, Brian Bushart, Graham Fletcher, Rochelle Gutierrez, Robert Kaplinsky, and Kaneka Turner. We will connect the event to the global community of math educators by way of a live tweeter (#shadowcon16), and each talk will include a provocative call to action and be posted online following the live event. The event is organized and hosted by Dan Meyer, Mike Flynn, and Zachary Champagne.

**YERBA BUENA 7 (MARRIOTT)**



Don't miss the **Closing Keynote**  
on Saturday afternoon with featured speaker  
**Hill Harper**, Actor, Author, and Philanthropist.



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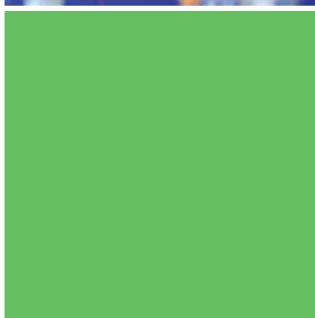
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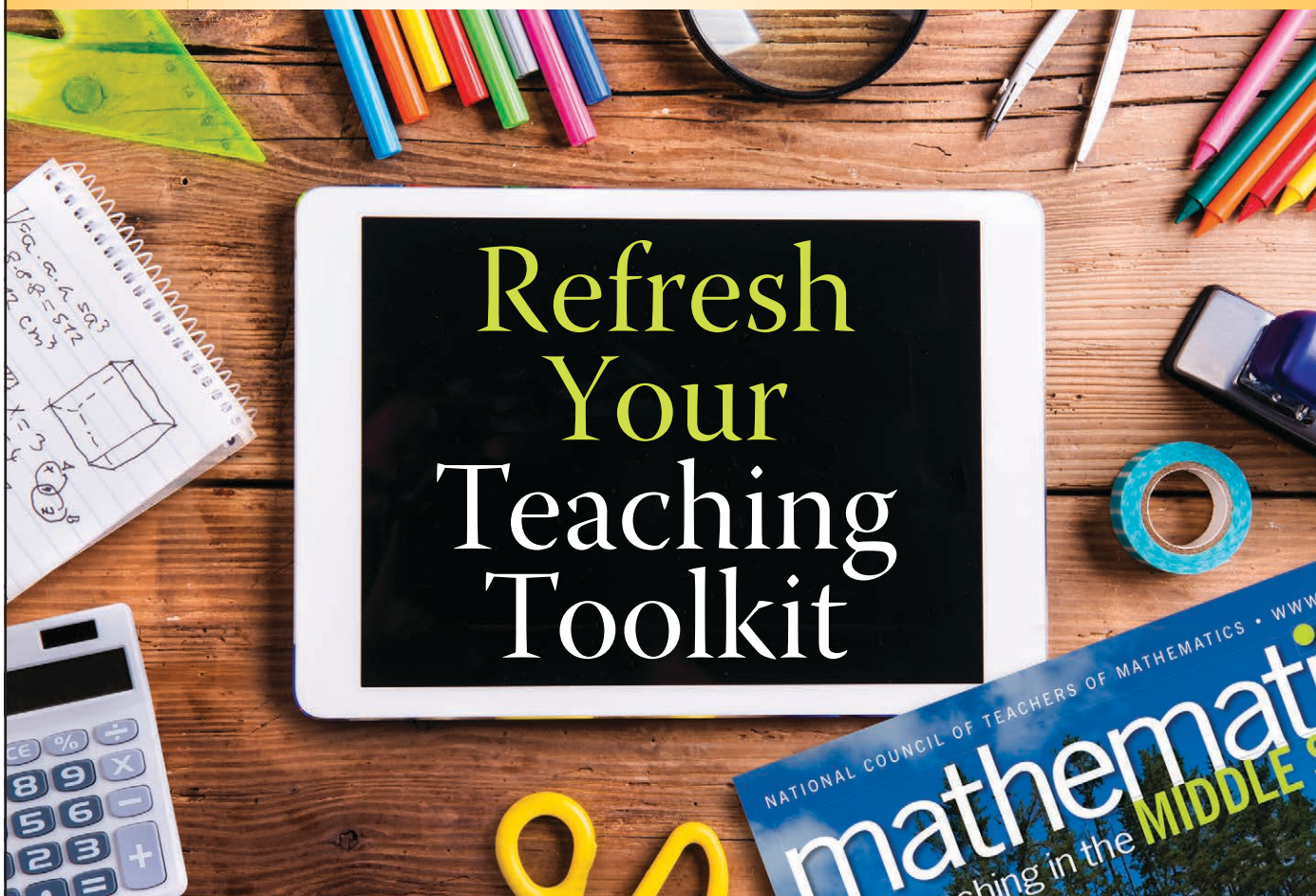
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Saturday



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## Highlights

Closing Keynote (Presentation 601)



SAN FRANCISCO TRAVEL ASSOCIATION PHOTO

## Strands

## Presentation Numbers

<b>PCPG</b>	Building Capacity: Personal and Collective Professional Growth	515, 518
<b>EQUITY</b>	Equity	516, 524, 532, 537, 546, 549, 572, 578, 593
<b>HOT</b>	Hot Topics	548
<b>PtA</b>	Principles to Actions: Mathematics and Teaching Practices and Research	560, 583, 590
<b>PPD</b>	Promoting Productive Dispositions about Mathematics	520, 522

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## Registration Hours

7:00 a.m.–10:00 a.m.

## Exhibit Hours

8:00 a.m.–Noon

## NCTM Central Hours

8:00 a.m.–Noon

## Fire Codes

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



**512**

## 3–5 Students as Problem Solvers

3–5 Session

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

**Jennifer Kosiak**

University of Wisconsin-La Crosse

**Kim A. Markworth**

Western Washington University, Bellingham

**Jenni K. McCool**

University of Wisconsin-La Crosse

305 (MOSCONE SOUTH)

**513**

## 10 Classroom Ideas That Use Writing to Promote Deeper Understanding

Higher Education Session

We use writing activities with our students to develop new knowledge, to diagnose misunderstandings, to foster higher-order thinking, and to prompt self-reflection. Examples of our tasks and our students' work will provide ideas you can use in your classroom.

**Susan Gay**

University of Kansas, Lawrence

**Ingrid Peterson**

University of Kansas, Lawrence

2022 (MOSCONE WEST)

**514**

## From Blueprints to Reality: Building Curriculum for the Common Core

6–8 Session

The Illustrative Mathematics blueprints project aims to describe a high-level curricular structure for K–grade 12. We are beginning to flesh that out into lesson plans and assessments, which will be freely available as open education resources. In this talk we will describe progress on the middle school curriculum, and we will discuss the challenges and promise of open education resource curriculum.

**William McCallum**

University of Arizona/Illustrative Mathematics; Tucson, Arizona

2007 (MOSCONE WEST)

**515**

**PCPG**

## Building Communities of Mathematicians

General Interest Session

How do you build a community of mathematicians in a classroom? How do you do this throughout a school? This session explores how elementary teachers and coaches use problem solving, number-sense routines, and play to help build communities in which everyone identifies as a mathematician and engages in mathematics as a joyful and purposeful practice.

**Kassia J. Omohundro Wedekind**

Fairfax County Public Schools, Falls Church, Virginia

301 (MOSCONE SOUTH)

**516**

**EQUITY**

## Conceptual Mathematics: Engaging the ELL Student

6–8 Session

All students need opportunities to build language skills as they develop conceptual understanding. In this session, we will share a data analysis lesson that combines conceptual learning of measures of center (mean, median, mode, range) with multiple strategies for supporting language development and creating equitable learning environments.

**Jen L. Hendrickson**

Marana Unified School District, Marana, Arizona

**Deborah Parslow**

Tucson Unified School District, Arizona

**Paul Seidler**

Tucson Unified School District, Arizona

2009 (MOSCONE WEST)



**517****Designing Assessment Structures That Work**

Coaches / Leaders / Teacher Educators Session

Many assessments focus on data collection, not sense making to inform instruction. Our project, *Accessing Algebra Through Inquiry*, marries innovative technology with high-quality, useful visualizations; teachers collect data on students' performance that immediately supports planning. Our tools make summative assessments as informative as possible.

**Erik Laby**

New Visions for Public Schools, New York, New York

**David C. Wees**

New Visions for Public Schools, New York, New York

3005 (MOSCONE WEST)

**518****PCPG****Forget What You Know; Listen to What They Know**

General Interest Session

Students know a lot more than the average textbook gives them credit for knowing. We'll look at several activities designed from the perspective that students can notice significant features of mathematical objects. Examples span the K–12 curriculum.

**Christopher Danielson**

Normandale Community College, Bloomington, Minnesota

3016 (MOSCONE WEST)

**519****Higher DOK Tasks That Will Get Your Students Talking**

8–10 Session

Participants will be challenged with higher level Depth of Knowledge (DOK) problems that will require them to construct viable arguments and critique the reasoning of others (SMP.3). These nontraditional problems will require students to demonstrate their conceptual understanding. Learn how to find and make these types of challenging tasks.

**Nanette Johnson**

Downey Unified School District, California

2005 (MOSCONE WEST)

**520****PPD****How Do They Relate? Teaching Students to Make Mathematical Connections**

General Interest Session

Many students see math content as a series of discrete topics, rather than a landscape of interconnected concepts. We'll analyze transcripts, problems, and student work from different classes to develop powerful strategies to teach relational thinking. Attendees who stay for part II will contextualize and apply ideas further in grade-level bands.

**Tracy Johnston Zager**

Stenhouse Publishers, Portland, Maine

3003 (MOSCONE WEST)

**521****Mathematics Teaching Practices: A Framework for Working with Future Teachers**

Coaches / Leaders / Teacher Educators Session

The eight Mathematics Teaching Practices outlined in *Principles to Actions* provide a potential framework for working with preservice teachers. A framework and rubrics (developed based on current research) used in mathematics methods courses and in the supervision of student teachers at the middle and secondary levels will be examined and shared.

**Mary Lou Metz**

Indiana University of Pennsylvania

**Nina Girard**

University of Pittsburgh at Johnstown, Pennsylvania

2020 (MOSCONE WEST)

**522****PPD****Promote Productive Mathematical Dispositions: Play the Believing Game**

General Interest Session

Students are motivated when their teachers play the believing game. Their understanding is honored and respected, and they develop positive dispositions towards mathematics. Join me as I model and show video of how to play. We will also discuss and role-play methods that enhance opportunities to play the believing game.

**Shelly Harkness**

University of Cincinnati, Ohio

3001 (MOSCONE WEST)

Saturday

**NT**

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**PtA**

Principles to Actions: Mathematics and Teaching Practices and Research

**PPD**

Promoting Productive Dispositions about Mathematics

**TECH**

Technology

**523****Re-Discovering Geometry**

10–12 Session

As geometry teachers, we may find it easy to reveal the magic and wonder to our students without giving them a chance to investigate and truly own the material. Today, I will walk you through a process I used to break down known conceptions and misconceptions, and used those to re-discover Geometry, creating a course all students felt they owned.

**Joseph Bolz**

George Washington High School and University of Denver,  
Colorado

2011 (MOSCONE WEST)

**524 EQUITY****Supporting ELLs to Have Success with the CMP**

6–8 Session

Supporting students to engage in the Connected Mathematics Program (CMP) and experience success demands much of teachers. In this session, I share my work as a sixth-grade teacher to engage low-income students and ELLs through mathematical discourse to learn challenging mathematical content. Videos of students doing mathematics will be shared.

**Richard S. Kitchen**

University of Denver, Colorado

134/135 (MOSCONE NORTH)

**525****The All-New Mathematics of Game Shows**

10–12 Session

How are game shows built? How can games be designed to be compelling, fun to play, and fun to watch? Game shows lead to interesting problems in probability and statistics but also in modeling. We'll look at problems contestants face, but we'll focus on problems designers face when building games. Stop in for some math, some fun, and invaluable prizes!

**Bowen Kerins**

Education Development Center, Inc., Waltham, Massachusetts

**David Hammett**

Oakwood School, North Hollywood, California

2024 (MOSCONE WEST)

**526****Using Data to Flexibly Group Students**

Pre-K–2 Session

This session shares strategies to flexibly group students into and out of support and enrichment based on data. Data-based decisions that inform dynamic groups allow for all students' needs to be met during mathematics instruction. Examples of assessments, activities, and other resources will be provided along with data on student performance.

**Elizabeth Jacobbe**

P.K. Yonge Developmental Research School, Gainesville, Florida

**Tim Jacobbe**

University of Florida, Gainesville

303 (MOSCONE SOUTH)

**527****Viewing Fractions Flexibly to Develop Strategies for Operating on Fractions**

3–5 Session

Explore ways to help students view fractions as quantities themselves, as iterations of unit fractions, and in other equivalent ways. Learn how using these representations in word problems aids students in developing strategies for adding and subtracting fractions. Research results that have been put into practice will guide our explorations.

**Nancy K. Mack**

Grand Valley State University, Allendale, Michigan

307 (MOSCONE SOUTH)

**528****Why Isn't "Same Shape, Different Size" Good Enough?**

6–8 Session

"Same shape, different size" provided students an easy way to identify shapes as similar or not, but it's insufficient. Who knew that four simple words could mislead students and derail them from achieving true understanding of the concept of similarity? Let's examine similarity for what it really is and leave those four words in the past!

**Stafanie Hassan**

Eureka Math, Washington, D.C.

**Beau J. Bailey**

Eureka Math, Washington, D.C.

2001 (MOSCONE WEST)

**529****Algebra 1: From Perspiration to Perseverance**

8–10 Workshop

Don't sweat teaching Reasoning with Equations/Inequalities or Interpreting Functions. This workshop will share engaging algebra 1 hands-on strategies and tools instrumental to increasing your students' depth of understanding and perseverance. Upon completion, participants will be able to move students from "Don't Get It" to "Done Got It."

**Dee Ann Wilson**

Lake County Schools, Tavares, Florida

2008 (MOSCONE WEST)

**530****Conceptual Understanding vs. Procedural Fluency: A Balancing Act**

3–5 Workshop

Conceptual understanding and procedural fluency are both critical to students' mathematical success. In this session, participants will explore methods for developing conceptual understanding along with ideas for encouraging procedural fluency. Some methods to be discussed include Number Talks, 3-Act tasks, problem solving, and fluency stations.

**Leandra Cleveland**

Bentonville Public Schools, Bentonville, Arkansas

3006 (MOSCONE WEST)

**531****Demonstrating the Relevance of Mathematics through Modeling Using Technology**

10–12 Workshop

Engage and empower students while demonstrating the relevance of mathematics through tasks that involve concepts covered in algebra and precalculus. Take part in an interactive workshop where technology-enhanced modeling tasks and multiple approaches will be explored. Pique the interest of your students while delving deeper in meaningful mathematics.

**Farshid Safi**

The College of New Jersey, Ewing

**George J. Roy**

University of South Carolina, Columbia

3010 (MOSCONE WEST)

**532 EQUITY****Equity and Access: Growing Math Identities of English Learners through Discourse**

Pre-K–2 Workshop

Dual-language kindergarten and first-grade classrooms used GoPro head cameras to capture students' discourse, interactions, and engagement in learning math. In this session, we will explore strategic uses of math tasks, questioning, and math practices and the ways that students are accountable to themselves and each other to support math language learning in their community.

**Cathy Kinzer**

New Mexico State University, Las Cruces

**Kathryn Million**

Las Cruces Public Schools, New Mexico

**Kathryn B. Chval**

University of Missouri, Columbia

302 (MOSCONE SOUTH)

**533****Fostering Algebraic Reasoning through Problem Solving and Discussion**

3–5 Workshop

Young children can do sophisticated math, even algebra, given the right tools and supports. In this session, grades 3–5 teachers use manipulatives and discussion to explore tasks that promote algebraic reasoning. We discuss students' typical approaches, common misconceptions, and teaching strategies that address Common Core mathematical practices.

**Allyson Hallman-Thrasher**

Ohio University, Athens

**Derek J. Sturgill**

Ohio University, Athens

306 (MOSCONE SOUTH)



**534****How Research Can Impact Curricular Decisions in a K–12 Classroom**

Coaches / Leaders / Teacher Educators Workshop

“... one sees what one is ready to see”—Ernst von Glasersfeld. Making curricular decisions based on what you notice in a child’s approach is only effective if you know what you are looking for. Research findings can help a teacher know *what* to notice. Using video, we will discuss how even a minimum of reading can help us hone our skills of noticing.

**Lori M. Hamada**

AIMS Center for Math and Science Education, Fresno Pacific University, California

**Elizabeth Gamino**

AIMS Center for Math and Science Education, Fresno Pacific University, California

3022 (MOSCONE WEST)

**535****Interactive Transformations: Sense Making with Visual Tools**

8–10 Workshop

Transformations are more than a “before and after” image. There’s lots to learn in the middle. Get quick tips on how to effectively use common classroom tools, including those that don’t have batteries. Get students to play and make connections with concepts at a deeper level. Explore area with rigid congruence, circles with similarity, and more.

**Jedidiah W. Butler**

Paloma Valley High, Perris Union High School District, Menifee, California

3018 (MOSCONE WEST)

**536****Measurement Activities for CCSSM**

3–5 Workshop

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

**Craig J. Cullen**

Illinois State University, Normal

**Jeffrey E. Barrett**

Illinois State University, Normal

**David B. Klanderman**

Trinity Christian College, Palos Heights, Illinois

310 (MOSCONE SOUTH)

**537 EQUITY****Old to New, How Diverse Are You?**

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**

Little Rock School District, Arkansas

**Karen Rivers**

University of Arkansas at Little Rock

308 (MOSCONE SOUTH)

**538****Once upon a Time**

6–8 Workshop

Discover how to use literature as a springboard for the study of mathematical concepts. Join us for hands-on exploration motivated and enhanced through literature. See how to use books, poems, and excerpts to introduce, teach, and extend concepts such as the mean, outliers, probability, functions, polyhedron, and much more.

**Janet M. Shiver**

Central Washington University, Ellensburg

**Teri Willard**

Central Washington University, Ellensburg

3008 (MOSCONE WEST)





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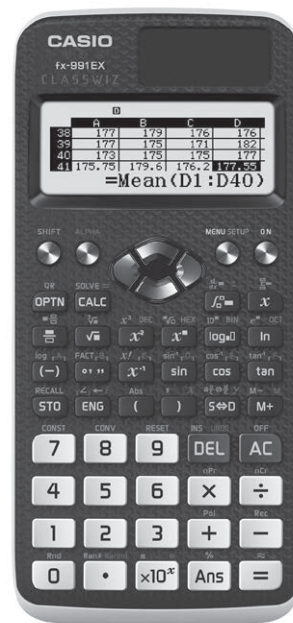


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**539****PLC Roundtable:  
Implementing *Principles to  
Actions* in Your PLC**

Coaches / Leaders / Teacher Educators Workshop

Participants will engage in a live professional learning community. This community will collaboratively discuss ways to incorporate principles and practices from *Principles to Actions*. The PLC process, ideas, and activities will connect directly with classroom practices. Colleagues/teams are encouraged to come to this session together.

**Delise Andrews**

Lincoln Public Schools, Nebraska

**Beth McCord Kobett**

Stevenson University, Baltimore, Maryland

3004 (MOSCONE WEST)

**540****Pythagoras in Asia, at Home, and on  
the Move!**

6–8 Workshop

The Pythagorean theorem is so fundamental to mathematics at all levels, yet its richness can be overlooked as just a simple formula. It serves as a major entry point to area and transformations in the Common Core middle grades as compelling hands-on origami proofs, extensions, and applications will be covered using inexpensive classroom materials.

**David K. Masunaga**

Iolani School, Honolulu, Hawaii

2002 (MOSCONE WEST)

**541****Reasoning with Radians**

10–12 Workshop

The days of memorizing formulas and positions on the unit circle are over. Through this session, participants will be engaged in the conceptualization of what radians are and their relationship to the unit circle. Participants will create unit circles by reasoning about the relationship between the circumference and common fractions.

**Efia I. Mentuhotep**

University of Mississippi, Oxford

2004 (MOSCONE WEST)

**542****Ten-Frame Cards Develop Fluency for  
Addition and Subtraction in K–2**

Pre-K–2 Workshop

Participants learn how the five- and ten-based structure of ten-frames is used to deepen students' understanding and fluency with addition and subtraction. This hands-on interactive session will draw from classroom and student examples to illustrate a methodical process of formative assessment, strategic instruction, and student practice.

**Makoto Yoshida**

Harlem Village Academies, New York, New York

**William Jackson**

Harlem Village Academies, New York, New York

**Mary N. Leer**

VERA: Leer Educational Consulting, LLC, Lancaster, Pennsylvania

304 (MOSCONE SOUTH)

**543****The Art of Creating Problems**

8–10 Workshop

Problem solving should be at the heart of the mathematics we teach. Math teachers at all levels should often use high-level, challenging problems in their teaching, but where do these problems come from? This session will give you some time-tested strategies for creating your own math problems, and change your view on the “typical” math problem!

**Brian P. Beaudrie**

Northern Arizona University, Flagstaff

**Barbara Boschmans**

Northern Arizona University, Flagstaff

2003 (MOSCONE WEST)

**544****The Power of the Number Line:  
Understanding Fractions as Numbers**

3–5 Workshop

Why do we have students place fractional values on the number line? What do they gain from this? With well-developed prior understandings, students can use the number line as a bridge between whole and rational numbers. Participants will explore a progression of classroom tasks that build connections between linear measurement and numbers.

**Ryan Casey**

Orchard Gardens K–8 Pilot School, Boston Public Schools, Massachusetts

3011 (MOSCONE WEST)

8:00 A.M.–9:15 A.M.

**545**

## **The Quest for \$1,000,000: Sequences and the Mathematics of Finance**

10–12 Workshop

Are you looking for modeling applications to meet the Common Core State Standards? Participate in activities that lead students to understand and use the geometric series formula to develop financial formulas to model household finances. Work within a budget to buy a car, pay off debt, buy a house, and save \$1,000,000 in assets by age 40.

**Chris Black**

Lead Writer Algebra II Eureka Math; Central Washington University, Ellensburg

**Scott Baldridge**

Lead Writer and Lead Mathematician Eureka Math; Louisiana State University, Baton Rouge, Louisiana

2016 (MOSCONE WEST)

9:30 A.M.–10:30 A.M.

**546 EQUITY**

## **A Discourse Framework That Promote Equity and Access in Mathematics**

General Interest / All Audiences Session

This presentation forwards a framework for how to foster empowering mathematical discourse that promotes minority and female students' engagement in mathematics. The author draws on experiential and critical learning theories to inform discourse strategies that create viable learning environments that promote access and equity for all.

**Roni Ellington**

Morgan State University, Baltimore, Maryland

2001 (MOSCONE WEST)



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MET provides funds to support classroom teachers in the areas of improving classroom practices and increasing mathematical knowledge; offers funding opportunities for prospective teachers and NCTM's Affiliates; and recognizes the lifetime achievement of leaders in mathematics education.

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*The Mathematics Education Trust was established in 1976 by the National Council of Teachers of Mathematics (NCTM).*



Saturday

**NT** New Teacher

**NGM** Next Generation Mathematics for ALL

**PtA** Principles to Actions: Mathematics and Teaching Practices and Research

**PPD** Promoting Productive Dispositions about Mathematics

**TECH** Technology

**547****A Standard Framework for Tablet Applications in Mathematics Education**

Higher Education Session

Due to the large number of tablet and smartphone applications, choosing appropriate apps for teaching a certain concept may be frustrating. A framework for choosing pedagogical mathematical apps will be introduced, and a list of apps for teaching college algebra will be named.

**Razieh Shahriari**

University of Arkansas, Fayetteville

**Ryan V. Thomas**

University of Arkansas, Fayetteville

2011 (MOSCONE WEST)

**548****HOT****Beyond Relevance & Real World: Stronger Strategies for Student Engagement**

General Interest Session

Highlighting relevance and making connections to the real world are

often seen as the most effective strategies for engaging students in difficult mathematics, but both strategies are limited and can fail in crucial ways. We'll add strategies to our repertoire, looking at research-based methods for "developing a question" instead.

**Dan Meyer** taught high school math to students who didn't like high school math. He has advocated for better math instruction on CNN, *Good Morning America*, *Everyday With Rachael Ray*, and TED.com. He earned his doctorate from Stanford University in math education and is the Chief Academic Officer at Desmos where he explores the future of math textbooks. He speaks internationally and was named one of Tech & Learning's 30 Leaders of the Future.

**Dan Meyer**

Desmos, San Francisco, California

134/135 (MOSCONE NORTH)

**549 EQUITY****Bringing Back Student Engagement with FAME! (Fun, Authentic, Motivating, Engaging)**

8–10 Session

Are your students disengaged in your math classrooms? If so, you will want to attend our FAME (Fun, Authentic, Motivating, and Engaging) session. Participants will experience activities that have been proven to engage algebra 1 and/or algebra 2 students and can easily be implemented in the classroom.

**Aminah R. Eddings**

Little Rock School District, Arkansas

**Tonjuna Iverson**

Little Rock School District, Arkansas

305 (MOSCONE SOUTH)

**550****Fluency in CCSSM: Connecting Instruction and Assessment**

Pre-K–2 Session

Engage in productive discussion of CCSSM fluencies, tasks, instructional moves, and assessments to support student learning. Explore the work of Smarter Balanced Assessment Consortium (SBAC) and Illustrative Mathematics and learn about resources available in the SBAC digital library.

**Jody Guarino**

Orange County Department of Education, Costa Mesa, California

**Cathery Yeh**

University of California, Irvine

3009 (MOSCONE WEST)

**551****Google Docs and Desmos in the Secondary Math Class**

8–10 Session

This session will highlight a set of activities implemented using Google Docs in secondary math classes. We will incorporate Desmos to support student understanding, and we will demonstrate how to embed hyperlinks, screenshots, and other images in a Google Doc math activity. Methods for distributing and collecting student work will also be presented.

**Shelley Carranza**

Mountain View Los Altos School District, California

**Noirin Foy**

Los Altos School District, Los Altos, California

2007 (MOSCONE WEST)



**552****How New Textbooks Are Aligned to CCSSM Geometry Concepts through Transformations**

6–8 Session

In this session, we share results of our work that examined how new middle grades textbooks are organizing and presenting transformational geometry concepts aligned to CCSSM. We explore what happens when there is a mismatch and how to identify a mismatch between the mathematical content presented in the books and what CCSSM teachers are held accountable to teach.

**Lisa A. Kasmer**

Grand Valley State University, Allendale, Michigan

**Dawn Teuscher**

Brigham Young University, Provo, Utah

**Shannon Dingman**

University of Arkansas, Fayetteville

2020 (MOSCONE WEST)

**553****In Pursuit of Representing the Reasoning and Modeling Practices**

10–12 Session

The reasoning and modeling practices are highlighted targets of the assessments developed for CCSSM. In this presentation, we will discuss advances in the development of computer-based machine-scored and human-scored tasks with a focus on the improvement of the representation of the skills and abilities associated with these practices.

**Michelle Worthington**

ETS, Princeton, New Jersey

**Luis Saldivia**

ETS, Princeton, New Jersey

3016 (MOSCONE WEST)

**554****Interpreting the NCTM Communication Process Standard: Promoting Deep Mathematics Learning**

3–5 Session

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

**Matthew D. Reames**

University of Virginia, Charlottesville

303 (MOSCONE SOUTH)

**555****Learning to Teach: A Novice Teachers Study as TEDS-M Follow-Up**

General Interest Session

This session presents an international research study that explores the challenges novice teachers of mathematics encounter in their first five years of teaching in the current high stakes environments, and it discusses challenges in developing valid methods to evaluate novice teachers’ work and to produce evidence-based professional development.

**Maria Teresa Tatto**

Michigan State University, East Lansing

**Kiril Bankov**

University of Sofia, Bulgaria

**Michael Rodriguez**

University of Minnesota, Minneapolis

**Wendy M. Smith**

University of Nebraska–Lincoln

**Mark Reckase**

Michigan State University, East Lansing

2022 (MOSCONE WEST)

Relax and mingle with other attendees, and take advantage of **free Wi-Fi** in the **Networking Lounge**, located inside NCTM Central in the Exhibit Hall.



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## Mathematics Education Trust

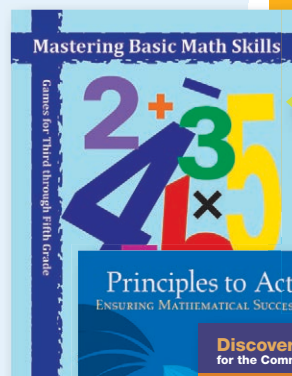
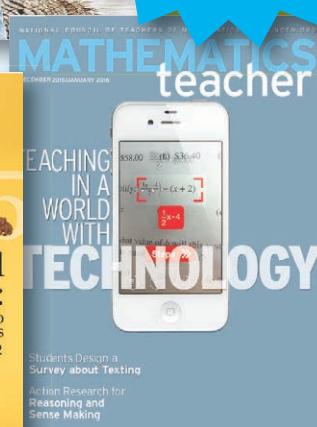
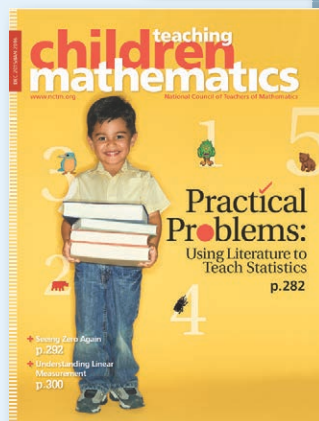
- Learn about **grants and awards** for mathematics educators and students

## Networking Lounge

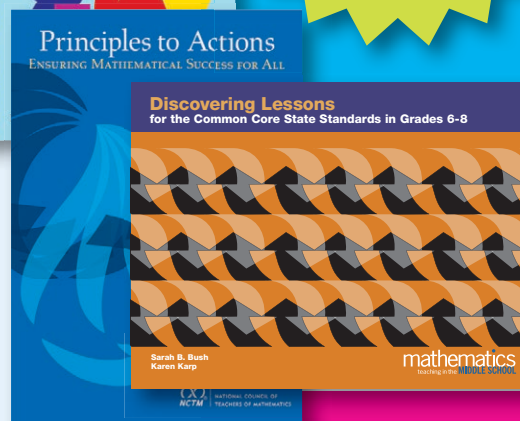
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**556****Impacting Outcomes for Struggling Students with Research-Based Practices**

General Interest / All Audiences Session

National Title I Distinguished Schools in Washington State have experienced tremendous success in implementing research-based best practices for struggling students. The presenters will share the schools' strategies to impact student outcomes and the supporting research published in the state's Menu of Best Practices and Strategies for Mathematics.

**Amy Vaughn**

National Title I Association (NASTID); State of Washington Office of Superintendent of Public Instruction, Olympia, Washington

**Anne Gayman**

Evergreen Heights Elementary, Auburn, Washington

**Gayle Pauley**

State of Washington Office of Superintendent of Public Instruction, Olympia, Washington

3007 (MOSCONE WEST)

**557****SOCS Makes Sense with Technology**

8–10 Session

This CCSSM-aligned presentation will provide engaging lessons through technology-integrated statistical activities. Various technologies from TI-Nspire, Tuva Labs, and relevant apps will be implemented in the lessons. The technology activities will support the development of statistical concepts by collecting, analyzing, and interpreting data.

**Dawn Lockett**

Clark County School District, University of Nevada, Las Vegas

**Amy Adkins**

University of Nevada, Las Vegas

3005 (MOSCONE WEST)

**558****The Life-Changing Magic of Tidying the Math Curriculum**

General Interest Session

Is “setting up a proportion” really a topic? Phil Daro argues that a proportion is really just an equation—and we already teach students to set up and solve equations. In this presentation, I will continue Daro's theme and provide additional examples of clutter that we can do without.

**Jason Zimba**

Student Achievement Partners, New York, New York

2024 (MOSCONE WEST)

**559****To Model or Not to Model**

Pre-K–2 Session

What is the role of models during Number Talks? How do we know when and which models to use? We will examine four stages of using models as tools for thinking that will help increase the effectiveness of Number Talks and support students in developing number relationships and structure of numbers.

**Sue Dolphin**

Math Perspectives, Bellingham, Washington

3001 (MOSCONE WEST)

**560****PtA****Why and How to Let Students Struggle? Thoughts from Research**

General Interest Session

*Principles to Actions* endorses “supporting productive struggle in learning mathematics.” With a common societal belief that student struggle indicates poor teaching, allowing and supporting student struggle seem foreign. We will discuss research on the benefits of this practice and some suggestions to effectively support student productive struggle.

**Blake E. Peterson**

Brigham Young University, Provo, Utah

2005 (MOSCONE WEST)

**561****Write in the Middle . . . of Literacy, Math, and Technology!**

6–8 Session

Come join us in integrating reading and writing seamlessly into your instruction to facilitate deeper understanding, productive struggle, mathematical reasoning, multicultural education and real-world application! Come away with specific activities, aligned to the Common Core reading and writing standards, and ideas for incorporating free online resources.

**Kelley E. Gould**

Hyde Park Central School District, New York

**John F. McAdam**

Marist College, Poughkeepsie, New York

3012 (MOSCONE WEST)

Saturday

**562**

## Comparing Your Way through Mathematics

Pre-K–2 Workshop

Same? Different? Is the same as? More than? Less than? Come and explore geometry, number, measurement, algebraic reasoning, and data-analysis tasks that explore these questions through comparison actions.

**Kay A. Wohlhuter**

University of Minnesota Duluth

**3004 (MOSCONE WEST)**

**563**

## Counting Collections with Young Children: New Evidence from Research

Pre-K–2 Workshop

Young children show remarkable understandings of counting principles as they work to count collections of objects. This session will present new evidence from research and practice, engaging participants in the world of young children's mathematical thinking through videos, student work, and hands-on experiences in counting collections.

**Nick Johnson**

University of California, Los Angeles

**Angela Chan Turrou**

University of California, Los Angeles

**306 (MOSCONE SOUTH)**

**564**

## E = M3: Engagement = Meaningful and Motivating Mathematics

Pre-K–2 Workshop

Attend this workshop to experience hands-on, standards-based activities that facilitate early mathematics concepts; learn strategies to encourage student engagement; and motivate students. Participants will engage in interactive standards-based activities that explore geometry, measurement, and operations and algebraic thinking.

**Latrenda Knighten**

East Baton Rouge Parish School System, Baton Rouge, Louisiana

**304 (MOSCONE SOUTH)**

**565**

## Fermi Estimation Problems: Valuing Strategies over "The Answer"

6–8 Workshop

How many bathtubs of water will you drink in your lifetime? How long would it take to count to 1 million out loud? Solve Fermi problems like these and discuss their value, their connection to the CCSSM Standards for Mathematical Practice, and strategies for implementation. Expect to work collaboratively and have fun solving problems!

**Tyler P. Auer**

Fay School, Southborough, Massachusetts

**3006 (MOSCONE WEST)**

**566**

## Know When to Fold: Geometry and Paper Folding

6–8 Workshop

Participants will make several items by paper folding. The speakers will discuss and demonstrate ways to use paper folding to introduce, review, enhance, or facilitate geometric topics. The topics include geometric shapes, parallel and perpendicular lines, volume, area, and perimeter. Handouts will be provided.

**Deborah A. Crocker**

Appalachian State University, Boone, North Carolina

**Betty B. Long**

Appalachian State University, Boone, North Carolina

**302 (MOSCONE SOUTH)**

**567**

## Linear vs. Exponential Functions: Engaging Investigations to Develop Conceptual Understanding.

8–10 Workshop

Learn hands-on, conceptual lessons to help students understand, compare, and contrast linear and exponential growth. Activities, such as Drop and Catch, Counting Candy, and Drop and Watch, will engage even the most reluctant of learners. These classroom-ready activities include focus on math practices and academic language support.

**Karajean Hyde**

University of California, Irvine

**Janna Canzone**

University of California, Irvine

**Sarah M. Galasso**

University of California, Irvine

**2006 (MOSCONE WEST)**



**568****Mathematical Practices at Play**

Pre-K–2 Workshop

Children love to play games. In this workshop, participants will explore how to use games to address the Common Core State Standards for Mathematics for early elementary grades. The focus will be on the Standards for Mathematical Practice and the content domain of Number and Operations in Base Ten, including number sense, computation, and estimation.

**Kathryn Coffey**

Grand Valley State University, Allendale, Michigan

**David Coffey**

Grand Valley State University, Allendale, Michigan

**308 (MOSCONE SOUTH)****569****Math, Making, and Designing Purpose**

6–8 Workshop

Work with a Maker Educator/ 21st-Century Shop Teacher and Math Teacher whose collaborations encourage creativity, persistence, and craftsmanship through the languages of design and math in relevant, interdisciplinary, standards-based projects that engage students in complex issues about themselves and their world.

**Corrina Hui**

East Bay School for Boys, Berkeley, California

**Kyle Metzner**

East Bay School for Boys, Berkeley, California

**2004 (MOSCONE WEST)****570****M. C. Escher's Inspirations—Italy, Spain, Morocco, and Turkey**

10–12 Workshop

Learn how the artist, M. C. Escher, transformed geometric tessellations into unique prints. Photos of architectural tilings throughout Europe and Asia will be used to explain the transformational geometry underlying his art. Learn how to construct triangular and square grids, true stellations (stars), and Escher-like designs. Lots of handouts!

**Carol D. Desoe**

Scarsdale High School, New York

**3018 (MOSCONE WEST)****571****My Students Won't Stop Talking . . . About FRACTIONS!**

3–5 Workshop

Student discourse, as a means of promoting conceptual understanding and ongoing formative assessment, is a critical component of mathematics instruction. This presentation will focus on utilizing open-ended tasks, mathematical tools and models, and high-level questioning to promote meaningful student discourse about and understanding of fractions.

**Terri Parker**

Durham Public Schools, North Carolina

**310 (MOSCONE SOUTH)****572 EQUITY****PD for Developing ELLs' Understanding of Both Mathematics and Language**

Coaches / Leaders / Teacher Educators Workshop

This workshop includes activities from a yearlong professional development for elementary classroom and ESOL teachers aimed at developing both mathematical discourse and the language of mathematics. Teacher leaders will gain instructional tools to support teachers working with English language learners, emphasizing the WIDA language standards.

**Rodrigo J. Gutierrez**

University of Maryland, College Park

**Galina Jmourko**

Prince George's County Public Schools, Adelphi, Maryland

**2003 (MOSCONE WEST)****573****Restoring Order to Permutations and Combinations**

10–12 Workshop

Students struggle with finding sample spaces and knowing when it is appropriate to use permutations, combinations, or other strategies. Yet without mature counting techniques, it is impossible to do probability. Participants will engage in solving a counting problem, exploring the mathematics within, and discussing implications for teaching.

**Patrick M. Kimani**

Glendale Community College, Arizona

**3010 (MOSCONE WEST)**

**574**

## Seeing the Golden Ratio in a Five-Pointed Star

8–10 Workshop

Students will be amazed by the geometric relationships they can discover in a five-pointed star inscribed in a regular pentagon. The design abounds with congruent and similar triangles. Hands-on activities will lead us to a proportion for deriving the golden ratio. Talk about transformations!

**Shana Frank**

Pathways to Mathematics, Putney, Vermont

**Lew Douglas**

University of California, Berkeley

**575**

## STEM Integration: Statistics Is the Connection

6–8 Workshop

In this workshop, participants will engage in two inquiry-based activities designed to challenge them to engineer solutions to problems in thermometry and aerodynamics using data collection, technology, and statistical reasoning. STEM lesson design incorporating mathematical, science, and engineering practice standards will also be discussed.

**Karen Togliatti**

Illinois Mathematics and Science Academy, Aurora

**Lindsey Herlehy**

Illinois Mathematics and Science Academy, Aurora

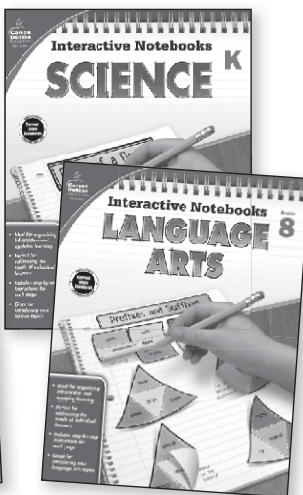
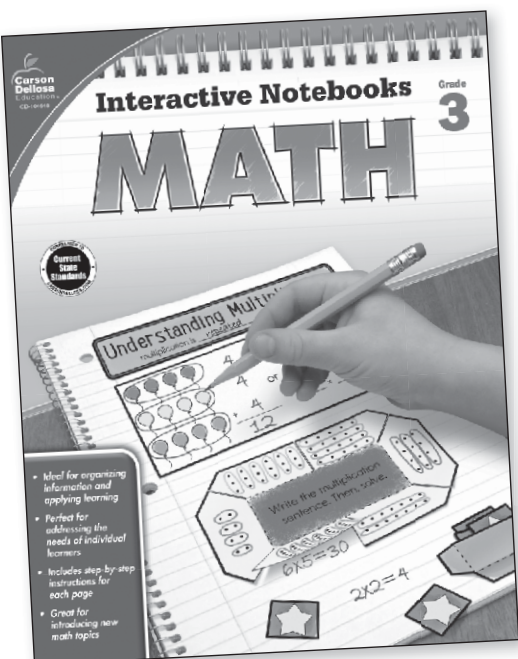
3011 (MOSCONE WEST)

2016 (MOSCONE WEST)

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**576****Teaching Algebraic Thinking and Problem Solving without the “X’s”**

Pre-K–2 Workshop

Strategies to develop algebraic thinking, including use of the equal sign, other representations, patterns, and solving for unknowns will be the focus for this hands-on session. Attendees will be actively engaged with manipulatives, effective questioning strategies, and the exploration of real-life problems that promote algebraic thinking.

**Donna L. Knoell**

Educational Consultant, Shawnee Mission, Kansas

**3022 (MOSCONE WEST)****577****Assessing Understanding through Student Problem Writing**

3–5 Session

Student created word problems provide an useful assessment tool to examine the depth of student understanding. This session will focus on how to craft prompts for students on a chosen math topic, how to categorize the problems created, and how to use this information to determine understanding. Sample prompts and student problems will be included.

**Marguerite M. Mason**

College of William and Mary, Williamsburg, Virginia

**Eric Shippee**

College of William and Mary, Williamsburg, Virginia

**305 (MOSCONE SOUTH)****578****EQUITY****Becoming an Equity Change Agent: Confronting/Conquering in Any Role**

General Interest Session

President’s Series presentation

Equity is an important principle. Schools and classrooms may not reflect the equity we desire. How can we become equity change agents? Participants will analyze their teaching/leading practices for equity, gain strategies that promote equity, develop an equity vision statement, and consider action steps for moving from vision to reality.

**Melissa Hosten**

University of Arizona Center for Recruitment and Retention of Mathematics Teachers, Tucson

**2007 (MOSCONE WEST)****579****Beyond Classroom Walls: “Doing Mathematics” on a Nature Trail**

General Interest Session

Beyond the classroom walls, there is a real world full of mathematical opportunities. This session will highlight an e-STEM project that infused a nature trail with mathematics tasks. This project clearly took mathematical principles and put them into action through faculty professional development, task writing, and the creation of a math trail.

**Stefanie D. Livers**

University of Alabama, Tuscaloosa

**Diana Marchant**

Woodland Forrest Elementary, Tuscaloosa City Schools, Alabama

**Sandra Langdon**

Woodland Forrest Elementary, Tuscaloosa City Schools, Alabama

**3005 (MOSCONE WEST)****580****Conferring in the Elementary Mathematics Classroom: Making Interactions Powerful**

3–5 Session

Teachers often confer with readers and writers to provide responsive, differentiated instruction. But what does it look like to confer in mathematics? How can three-minute interactions make a difference in student thinking, engagement in math practices, and collaboration? Find out what math conferences look like and what it takes to make them work.

**Jen Munson**

Stanford University, California

**3009 (MOSCONE WEST)****581****Cultural Resources for Effective Integration of Ethnomathematics into Mathematics Curriculum**

10–12 Session

Mathematics teachers have knowledge of some cultural specifics that exists in students’ culture but do not have knowledge of the mathematics concepts that can be taught using identified cultural specifics. This research expose mathematics concepts that teachers can use in teaching identified cultural specifics.

**Gladys Ibibo Charles-Ogan**

University of Port Harcourt, Nigeria

**Nchelem Rosemary George**

Ignatius Ajuru University of Education, Port Harcourt, Nigeria

**2024 (MOSCONE WEST)**

**582****Developing Numerical Understanding and Skills: Lessons Learned from Classroom Teaching**

3–5 Session

Students often see the goal of math assignments to “do the page” instead of to “do the math.” This session presents pedagogical suggestions that build numerical proficiency, embrace the mathematical practices, and help students become effective learners and doers of mathematics. Suggestions are illustrated by specific classroom examples.

**Marilyn Burns**

Math Solutions, Sausalito, California

134/135 (MOSCONE NORTH)

**583****PtA****Facilitating Meaningful Mathematical Discourse**

General Interest Session

A teacher’s facilitation of meaningful mathematical discourse is a powerful tool to make mathematics reasonable to students, move their thinking forward, and help reach other classroom goals. This presentation provides resources for teachers trying to build a discourse community and addresses challenges faced when facilitating classroom discourse.

**Megan Staples**

University of Connecticut, Storrs

**Sherryl King**

Ellington Public Schools, Connecticut

3007 (MOSCONE WEST)

**584****Fostering Class Culture with the Silicon Math Initiative**

General Interest Session

Research shows the importance of students being owners of their learning, with a positive disposition to math, and engaging in high-cognitive discourse. We’ll examine how to foster class culture to enable students to develop agency, identity, and authority. Videos of elementary and secondary classroom will be analyzed and resources shared.

**David W. Foster**

Silicon Valley Mathematics Initiative, Morgan Hill, California

3016 (MOSCONE WEST)

**585****Inching Our Way to Mathematics Equity**

General Interest Session

President’s Series presentation

Inequities in the classroom take many forms. In this session, a discussion of problems and practices in today’s diverse classrooms will be based on these inequities.

**Jack Price**Past President, National Council of Teachers of Mathematics;  
Professor Emeritus, Cal Poly Pomona, California**Barbara Price**

Orange Coast College, Costa Mesa, California

2005 (MOSCONE WEST)

**586****Inquiry and Collaborative Learning through Authentic Mathematical Experiences**

10–12 Session

Frustrated by students’ fear of mistakes, attachment to rote memorization, and a lack of grit, we re-envisioned our geometry and statistics classrooms to prioritize the activities of mathematical discovery. Through this environment, we have facilitated both student ownership and deeper understanding of the course content.

**Robin Neschke**

Miss Porter’s School, Farmington, Connecticut

**Eileen B. Mooney**

Miss Porter’s School, Farmington, Connecticut

3003 (MOSCONE WEST)

**587****“Interpretation Is Hard Work!”: Teaching the Interpretation of Student Thinking**

Coaches / Leaders / Teacher Educators Session

The Mathematics Teaching Practices in *Principles to Actions* call for teachers to interpret student thinking, but as our students have said, “Interpretation is hard work!” Learn how tablets were used in a methods course to help students interpret and use student thinking in teaching. Specific applications and field-based assignments will be modeled.

**Tiffany Hill**

Emporia State University, Kansas

**Nancy L. Smith**

Emporia State University, Kansas

**Mari Wheeler Flake**

Emporia State University, Kansas

3001 (MOSCONE WEST)

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PREMIER MATH EDUCATION EVENTS

# 2016 NCTM Regional Conferences & Expositions

Phoenix • October 26-28

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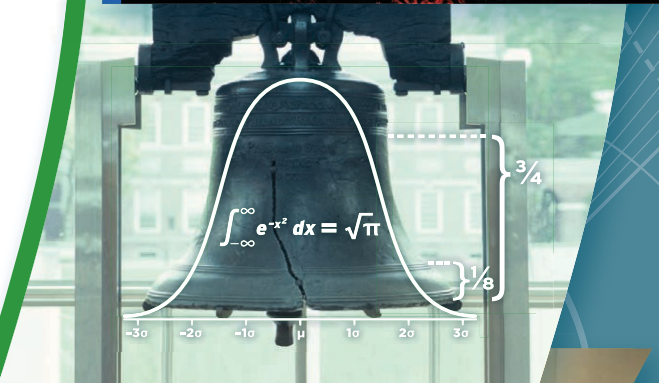
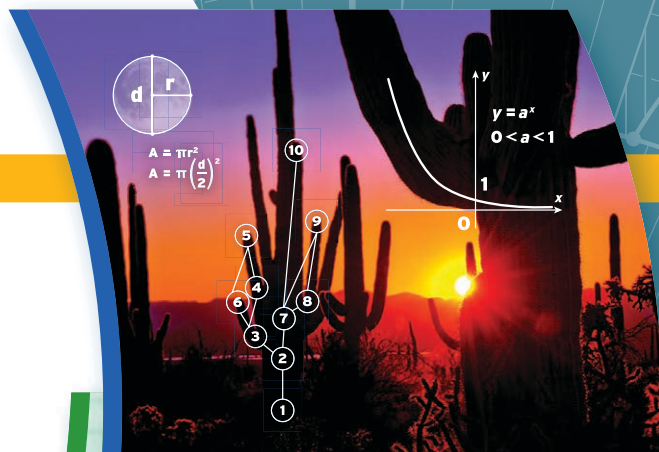
### What you'll get:

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- Updates on classroom best practices from recognized innovators.
- In-depth discussion into the latest education resources.
- Knowledge-sharing with like-minded peers.
- Interaction with the latest tools and products in the robust exhibit hall.

### Who should attend?

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- Math coaches
- Administrators
- Math teacher educator
- Preservice teachers
- Math specialists

Join NCTM in either Phoenix or Philadelphia and discover the tools that will help you promote the mathematical habits of mind that will lead your students to college and career success.



Learn more at [nctm.org/regionals](http://nctm.org/regionals) and follow us on



#NCTMregionals

**588**

## Making Inferences and Justifying Conclusions

10–12 Session

CCSSM includes standards related to making inferences and justifying conclusions from sample surveys, experiments, and observational studies. This session explores classroom activities that address the related topics of the role of random assignment and random selection in study design, margin of error, and the meaning of statistical significance.

**Roxy Peck**

California Polytechnic State University, San Luis Obispo

2009 (MOSCONE WEST)

**589**

## Math Talk: Teaching Concepts and Skills through Stories and Illustrations

Pre-K–2 Session

A young child's understanding of the world is enlightened and expanded through stories and illustrations, so it makes sense to use these resources when learning mathematics. Participants will learn how to use "math talk" as a powerful way to provide consolidation and purposeful practice of essential skills and concepts.

**Char Forsten**

Staff Development for Educators, Peterborough, New Hampshire

303 (MOSCONE SOUTH)

# Research-Based Teaching Strategies to Strengthen Student Learning

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

With more than 30,000 copies in print, the landmark publication *Principles to Actions: Ensuring Mathematical Success for All* is a vital tool for teachers, mathematics coaches, administrators, parents, and policymakers.

Make *Principles to Actions* your go-to source and enhance your teaching expertise with—

- research-based descriptions of eight essential Mathematics Teaching Practices;
- a review of the conditions, structures, and policies that must support the Teaching Practices;
- an understanding of obstacles, unproductive and productive beliefs, and key actions that must be acknowledged and addressed by all stakeholders; and
- tools to engage students in mathematical thinking, reasoning, and sense making to significantly strengthen teaching and learning.



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Equity



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**590 PtA****Productive Discourse in Mathematics Classrooms—Research into Practice****Research Session**

Our work in Making Mathematics Reasoning Explicit (MMRE) emphasizes generalizing and justifying using mathematical reasoning by focusing on the rich implementation of tasks. We present results from our research, and we provide examples of rich implementation. In addition, we explore successful strategies for teachers, with an emphasis on norm setting, productive questioning, and discourse.

**Libby Knott**

Washington State University, Pullman

**Peter Klosterman**

Washington State University, Pullman

**Joni Stevens**

Pullman School District, Washington

307 (MOSCONE SOUTH)

**591****Explore Counting Strategies with NCTM's Activities with Rigor & Coherence****Pre-K–2 Session**

Be a part of NCTM's effort to restructure Classroom Resource content available on [nctm.org](http://nctm.org) so that it best meets your needs. This workshop introduces the first component—newly developed Activities with Rigor and Coherence (ARCs). Participants will work through the mathematics in an exemplar ARC, led by a member of the ARC writing team. The ARCs are works in progress, so participants will be asked for feedback.

**Jennifer Bay-Williams**

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

301 (MOSCONE SOUTH)

**592****Some Famous Algebraic Identities****10–12 Session**

Some algebraic identities are things of beauty. They express symmetry and structure, and they have interpretations that inform geometry, probability, statistics, optimization, algebra, and other scientific disciplines. We will look at some famous identities, each of which has a rich history and multiple applications. Bring your favorite identity.

**Al Cuoco**

Education Development Center, Inc., Waltham, Massachusetts

**Bowen Kerins**

Education Development Center, Inc., Waltham, Massachusetts

2001 (MOSCONE WEST)

**593 EQUITY****Wealth Distribution as a Context for Mathematics for Social Justice****General Interest Session**

Wealth distribution activities developed and classroom tested by the presenter will be discussed as a context for “teaching mathematics for social justice” (TMfSJ). This discussion will include students’ responses, challenges, concerns, and possible adaptations for different grade levels and CCSSM.

**Enrique Ortiz**

University of Central Florida, Orlando

2011 (MOSCONE WEST)

**594****What Are You Looking For? Mathematical Practices and Teaching Practices****Coaches / Leaders / Teacher Educators Session****President's Series presentation**

Participants will be engaged in exploring “Look For” tools designed to assist in co-planning and co-teaching. The tools link to the Standards for Mathematical Practice and the Mathematics Teaching Practices and focus on student and teacher roles in instruction. Specific activities will involve a mathematical focus on place value and fractions.

**Francis (Skip) Fennell**

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

**Beth McCord Kobett**

Stevenson University, Baltimore, Maryland

**Jon Wray**

Howard County Public School System, Ellicott City, Maryland

2020 (MOSCONE WEST)

596

## Addressing Students' Misconceptions about Algebraic Concepts through Effective Teaching Practices

6–8 Burst

Students' potential misconceptions about variables, expressions, and equations on nonroutine tasks will be discussed. Instructional strategies to promote conceptual understanding will be provided. Strategies will include using recent developments in technology, multiple representations effectively, and *Principles to Actions* teaching practices.

**Ruveyda Karaman**

University of Missouri, Columbia

**William W. Deleeuw**

University of Missouri, Columbia

3022 (MOSCONE WEST)

597

## Framework for Effective Teaching—Integrate Common Core Math Practices!

General Interest / All Audiences Burst

Learn how to use your class time efficiently to maximize impact on student learning by integrating the Standards for Mathematical Practice. This research-based framework involves revisiting the process of planning and teaching and the interactions between them. Teachers who have used this framework have got results in student achievement!

**Teruni Lamberg**

University of Nevada, Reno

2002 (MOSCONE WEST)

# A VITAL NEW RESOURCE: Help Parents Effectively Participate in Their Children's Math Education

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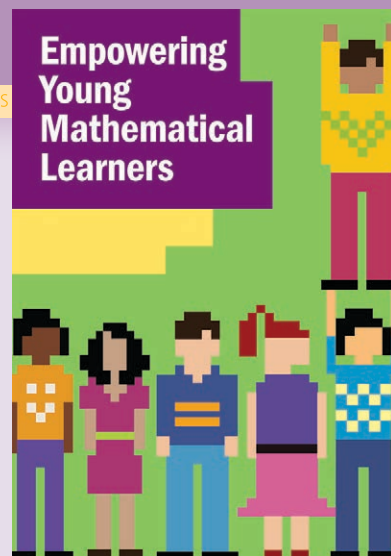
## NEW | It's Elementary: A Parent's Guide to K–5 Mathematics

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

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

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**598****Math Club: A University-School Partnership to Promote Learning for All**

Higher Education Burst

Learn how to incorporate a service learning partnership into a methods course. Math Club is a university-school partnership focused on improving struggling students' mathematical abilities through a data-driven after-school program facilitated by preservice teachers (PSTs). Professors, teachers, and PSTs collaborate to create data-driven games.

**Sararose D. Lynch**

Westminster College, New Wilmington, Pennsylvania

**Jeremy M. Lynch**

Slippery Rock University, Pennsylvania

2008 (MOSCONE WEST)

**599****Measuring Up: Teaching Linear Measurement Concepts in Early Childhood**

Pre-K–2 Burst

In this burst, attendees will learn how to use children's literature to teach measurement concepts in the early childhood classroom. Specifically, the presenters will share how they used popular children's books to develop a true conceptual understanding of linear measurement concepts in real-world measurements.

**Karen Capraro**

Rhode Island College, Providence

**Michelle M. Nonis**

Henry Barnard School, Providence, Rhode Island

310 (MOSCONE SOUTH)

**600****Teach Mathematical Practices through Non-Routine Problems**

8–10 Burst

Nothing inspires growth like a genuinely challenging problem. Inspire this feeling in your students by utilizing non-routine problems that align with your content. Participants will learn that good problems are easy to find (and make), that ALL students can have success, and how to teach mathematical habits without destroying your pacing guide.

**Carl M. Oliver**

City-As-School High School, New York, New York

3006 (MOSCONE WEST)

12:30 P.M.–1:30 P.M.

**601****Closing Keynote  
The Future: The Energized Educator**

General Interest Session

Hill Harper is an award-winning actor, best-selling author, and philanthropist. Harper starred on the CBS TV drama *CSI: NY* from 2004 to 2013 followed by two seasons on USA's *Covert Affairs*. Harper returned to CBS in the fall of 2015 as Agent Boyle in the new fast-paced drama *Limitless*. He is the author of four *New York Times* best sellers and is founder of the Manifest Your Destiny Foundation, dedicated to empowering underserved youth through mentorship, scholarship, and grant programs.

**Hill Harper**

Actor &amp; Advocate

134/135 (MOSCONE NORTH)

Saturday

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**April 15, Friday 2 pm, Convention Center Room 123**

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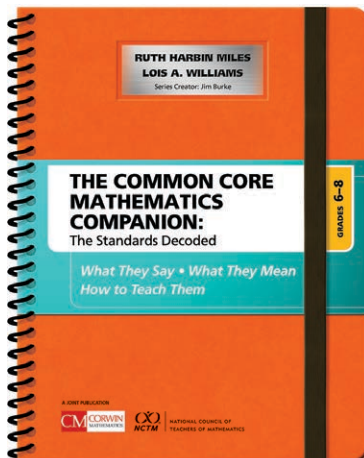
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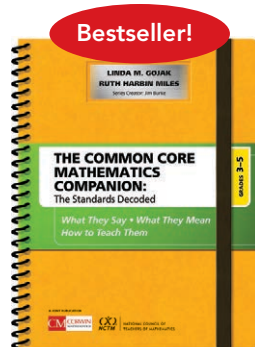
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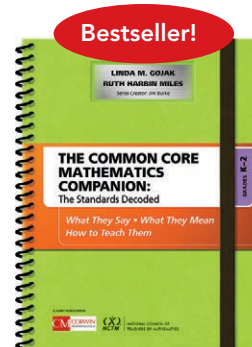


**Grades 3-5:**

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List Price: \$33.95,

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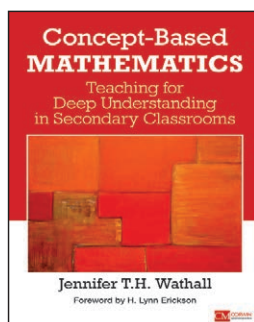
**Grades K-2:**

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List Price: \$33.95,

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Give math students the connections between what they learn and how they do math—and suddenly math makes sense.



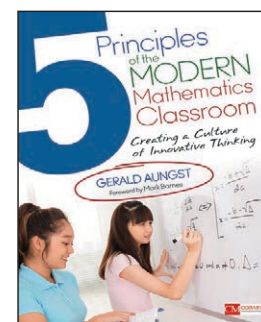
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Students pursue problems they're curious about, not problems they're told to solve.



**Grades K-12:**

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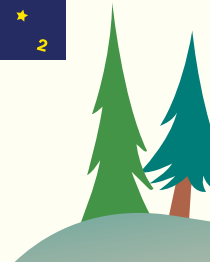
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## Tips for a Rewarding Annual Meeting & Exposition

- **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 [annual.nctm.org](http://annual.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](http://www.nctm.org/confapp).
- Access speaker handouts and build your schedule at [www.nctm.org/planner](http://www.nctm.org/planner).
- **New this year!** Highlighted and invited speakers will be assigned coves on the second and third floors of the Moscone West building to continue the conversation from their sessions in an informal setting. You must be present at their sessions to receive information about the reflection times and locations for these speakers. Board members, Affiliate Services Committee members, as well as the President and President-Elect will also spend time in the **Reflection Coves** discussing topics of interest with attendees—or you can just stop by to say hello or for a photo op. There will also be two Math Teachers' Circle coves, one dedicated to K–8 mathematics and another for 9–16 mathematics.
- Become familiar with the layout of the Moscone Convention Center and the Marriott Marquis by reviewing the **floor plans** on pages 170–177.
- Visit us in **NCTM Central** at the exhibit hall entryway. Join the community exploring the many NCTM resources 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 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 like Zome tools, 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.
- Attend the **Mathematics Education Trust Wine Tasting** on Wednesday evening after the Opening Keynote to taste some wonderful wines, toast the 2016 NCTM Lifetime Achievement Award recipients, and mingle with mentors, colleagues, and friends (tickets can be purchased through registration; limited supply).

- Stop by the **San Francisco City Information Desk** in the lobby of the North or West Buildings of Moscone for information on the Bay area.
- If you are attending the conference with colleagues, attend different presentations and share your learned knowledge after the conference.
- Stay connected with other Annual Meeting attendees by using **#NCTMannual** on Twitter, Facebook, and Instagram.
- Visit the **Exhibit Hall**, where more than 200 exhibitors will share the latest educational products.
- Silence cell phones during presentations.
- The more you participate in the presentations, the more you will benefit from the conference.
- Tell us about your conference experience by responding to the post-conference online survey.
- Be safe! Remove your name badge when you leave the conference facilities at the end of the day.

## Technology at Your Fingertips

### Wi-Fi Access

The Moscone Convention Center offers complimentary wireless throughout the convention center, except in the Exhibit Hall.

### 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 hashtag #NCTMannual); rate presentations; and connect with other attendees. Visit [www.nctm.org/confapp](http://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](http://www.nctm.org/planner).



# General Information

## Registration and Access to Presentations

Registration will be located in the lobby of the Moscone North Building. You must wear your badge to enter all presentations and the NCTM Exhibit Hall. NCTM will charge a \$10 fee for replacement badges.

By registering for the NCTM 2016 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.

## 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 11–13, at the Moscone Convention Center West Building. The Research Conference Registration Area and Sessions will be located on the third floor of the Moscone West Building. Separate registration is required to attend Monday and Tuesday of the Research Conference. More information is available at [www.nctm.org/researchconference](http://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 including 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.

## Bookstore

**Save 25% off** the list price on all purchases made at the on-site NCTM Bookstore, located in Exhibit Hall D at the Moscone Convention Center North Building. 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](http://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 California 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, and cash in conjunction with tax exemption certificates.

The NCTM Bookstore is not equipped to handle shipping from the meeting site. A business center located in the Moscone North Building is ready to assist you with your shipping needs.

## NCTM Central

Make your meeting experience complete with a visit to NCTM Central in Exhibit Hall D of the Moscone North Building during exhibit hours.

Learn how NCTM supports you and 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 the Problems of the Week, Ask Dr. Math®, T2T®, Powerful Problem Solving and more.
- View and play online math strategy games while learning about **Classroom Resources**.
- Connect with peers, social media, speakers, NCTM journal editors and more in the **Networking Lounge**. A presentation schedule is available on the conference app.
- New to NCTM Central this year, The Math Forum and NCTM host the **Math Corner**, a place to spend some 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!

## 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 Moscone Convention Center North Building. Hotels that are within walking distance of the convention center will not have shuttle service. Note: There will be shuttle service from the Marriott Marquis on Wednesday, April 13, to accommodate attendees of the Mathematics Education Trust Wine Tasting. Routes and schedules will be posted in your hotel lobby and can be found online at [www.nctm.org/sanfranhousing](http://www.nctm.org/sanfranhousing). The schedule will be followed as closely as possible. If you have questions, please visit the shuttle desk located at the entrance to the North Building of Moscone.

## Information Booth

There will be two NCTM Information Booths at the Moscone Convention Center. One will be located outside of the NCTM Exhibit Hall D in the North Building and the other will be located in the lobby of the West Building. Convention staff will be available to answer your questions.

## Lost-and-Found

You may retrieve or turn in lost-and-found items at either of the NCTM Information Booths in the North or West Buildings of Moscone. At the end of the conference, all lost-and-found items will be turned over to Convention Center Security.

## Restaurant Reservations

Explore the fabulous restaurants of San Francisco. Stop by the San Francisco City Information Desk located in the North and West building lobbies at the Moscone 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 lower level of the North Building at Moscone 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 Moscone Convention Center North Building by the NCTM Exhibit Hall D during the conference. If you need medical services while in San Francisco, 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 2016 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 at the Moscone Convention Center North Building.

## NCTM Clear Air Act

In accordance with a resolution of the 1978 Delegate Assembly, smoking is permitted only in designated areas.

## Your Opinion Counts

Thank you for attending the NCTM 2016 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.

## 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 12:00 p.m. Check out the list of exhibitors and a floorplan of the Exhibit Hall on pages 176–177.

### Exhibitor Workshops

Do you want more in-depth and personal interaction with exhibitors? Plan to attend the Exhibitor Workshops. Held on Thursday and Friday these workshops offer a wide variety of topics. See the program for Exhibitor Workshop offerings, indicated by **ew** after the presentation number.



# Sponsors

*We thank our sponsors for generously supporting NCTM by offering products and services to enhance your conference experience. Please stop by to thank the following sponsors when you are in the Exhibit Hall.*



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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 Affiliate for the NCTM 2016 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 Web site at [www.nctm.org](http://www.nctm.org).

## Affiliate Information

### California Mathematics Council

Gretchen Muller, [executive@cmc-math.org](mailto:executive@cmc-math.org)

## Affiliates-at-Large

### Adult Numeracy Network

Pam Meader, [mdr151@aol.com](mailto:mdr151@aol.com)

### Association of Mathematics Teacher Educators

Timothy Hendrix, [hendrixt@meredith.edu](mailto:hendrixt@meredith.edu)

### Association of State Supervisors of Mathematics

Charles Watson, [chaswatson@sbcglobal.net](mailto:chaswatson@sbcglobal.net)

### Benjamin Banneker Association, Inc.

Mylah Deliford, [mdeliford@outlook.com](mailto:mdeliford@outlook.com)

### Council for Technology in Mathematics Education

Stephanie Cooperman, [scooperman@chatham-nj.org](mailto:scooperman@chatham-nj.org)

### Council of Presidential Awardees in Mathematics

Donald Scheuer, [mathguy1@verizon.net](mailto:mathguy1@verizon.net)

### National Council of Supervisors of Mathematics

Sharon Rendon, [rendosha@gmail.com](mailto:rendosha@gmail.com)

### North American Study Group on Ethnomathematics

Janiece Edgington, [janiece\\_edgington@yahoo.com](mailto:janiece_edgington@yahoo.com)

### Society of Elementary Presidential Awardees

Martha Short, [mshort@ltd.net](mailto:mshort@ltd.net)

### TODOS: Mathematics for ALL

Bob McDonald, [mac@todos-math.org](mailto:mac@todos-math.org)

### Women and Mathematics Education

Andria Disney, [andriadisney@live.com](mailto:andriadisney@live.com)

## About the Host Affiliate



The **California Mathematics Council (CMC)** believes that all students have the capacity to become mathematically competent and confident when provided a rigorous and challenging mathematical program supported by high expectations.

We are 6,000+ volunteer teachers, administrators, parents and teacher-educators from California, 45 other states, Canada, Australia, and seven other countries who are committed to improving mathematics teaching and learning in public and private classrooms throughout California, North America, and the world!

Join our vibrant work in support of mathematical equity for educators, students and families!

Contact us at: [www.cmc-math.org](http://www.cmc-math.org)

1-888-CMC-MATH

[www.facebook.com/CAMathCouncil](https://www.facebook.com/CAMathCouncil)

Tweet to: @CAMathCouncil

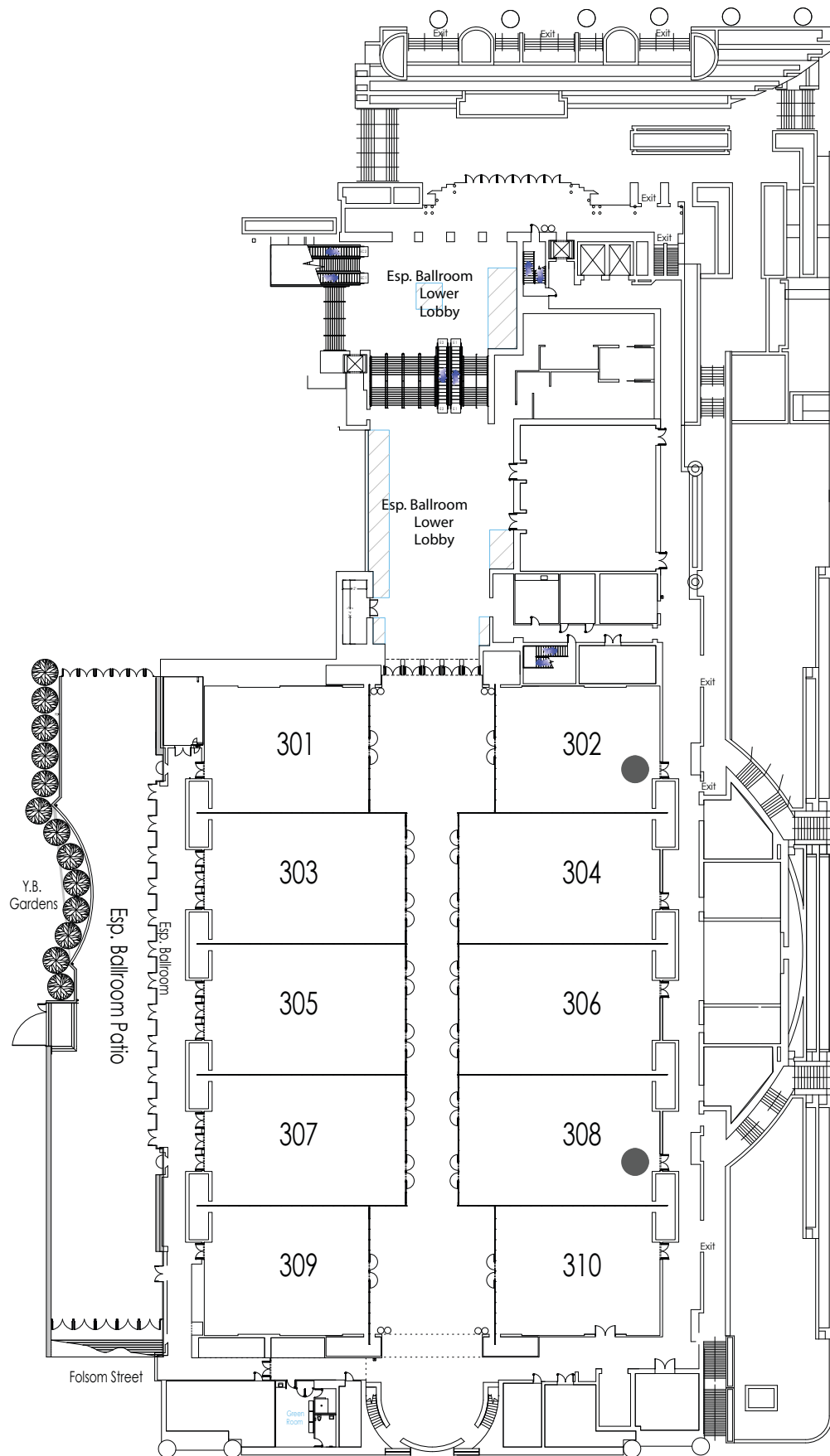


SAN FRANCISCO TRAVEL ASSOCIATION PHOTO

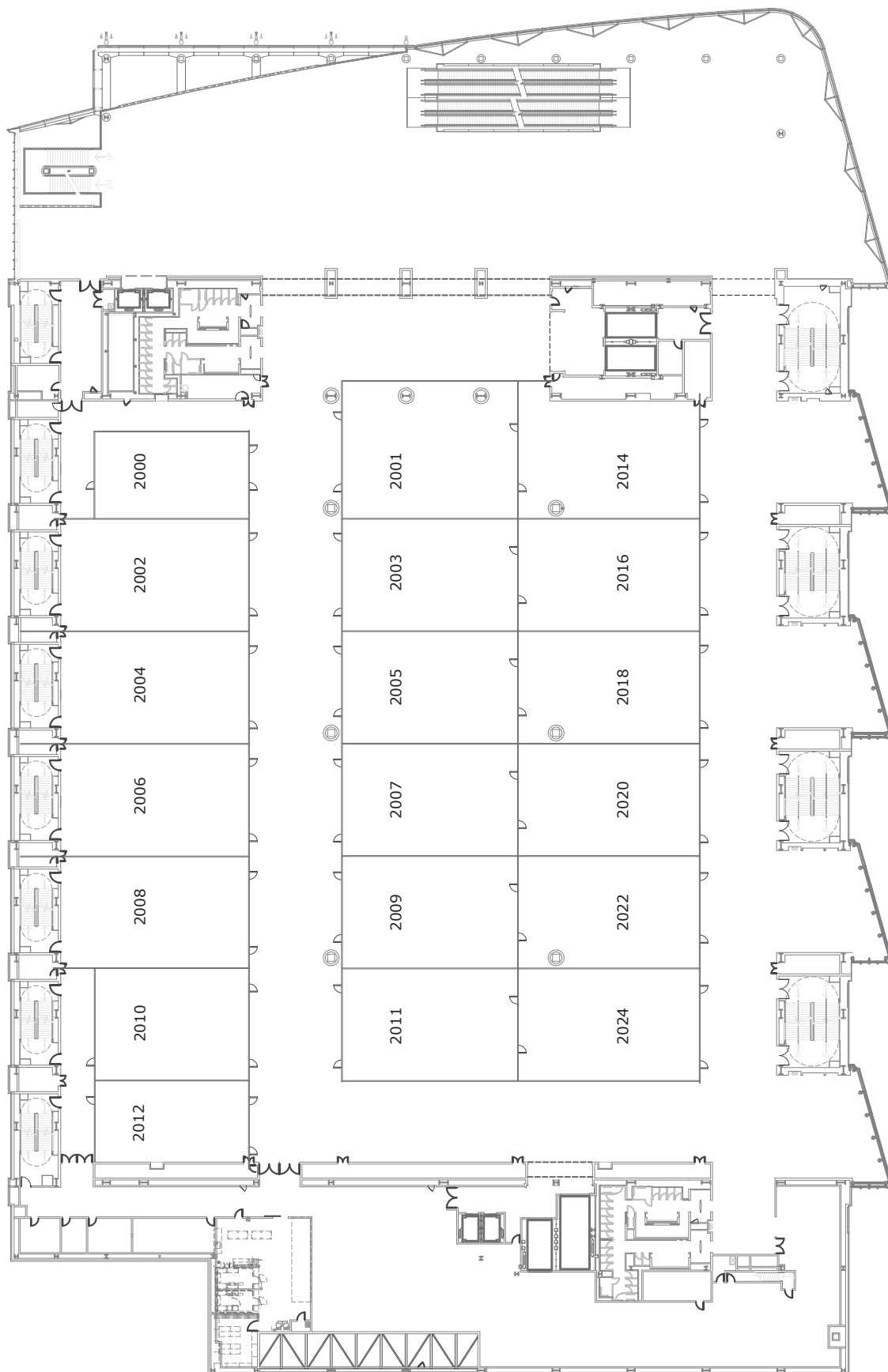
# Moscone North Floor Plans



# Moscone South Floor Plans



# Moscone West Floor Plans

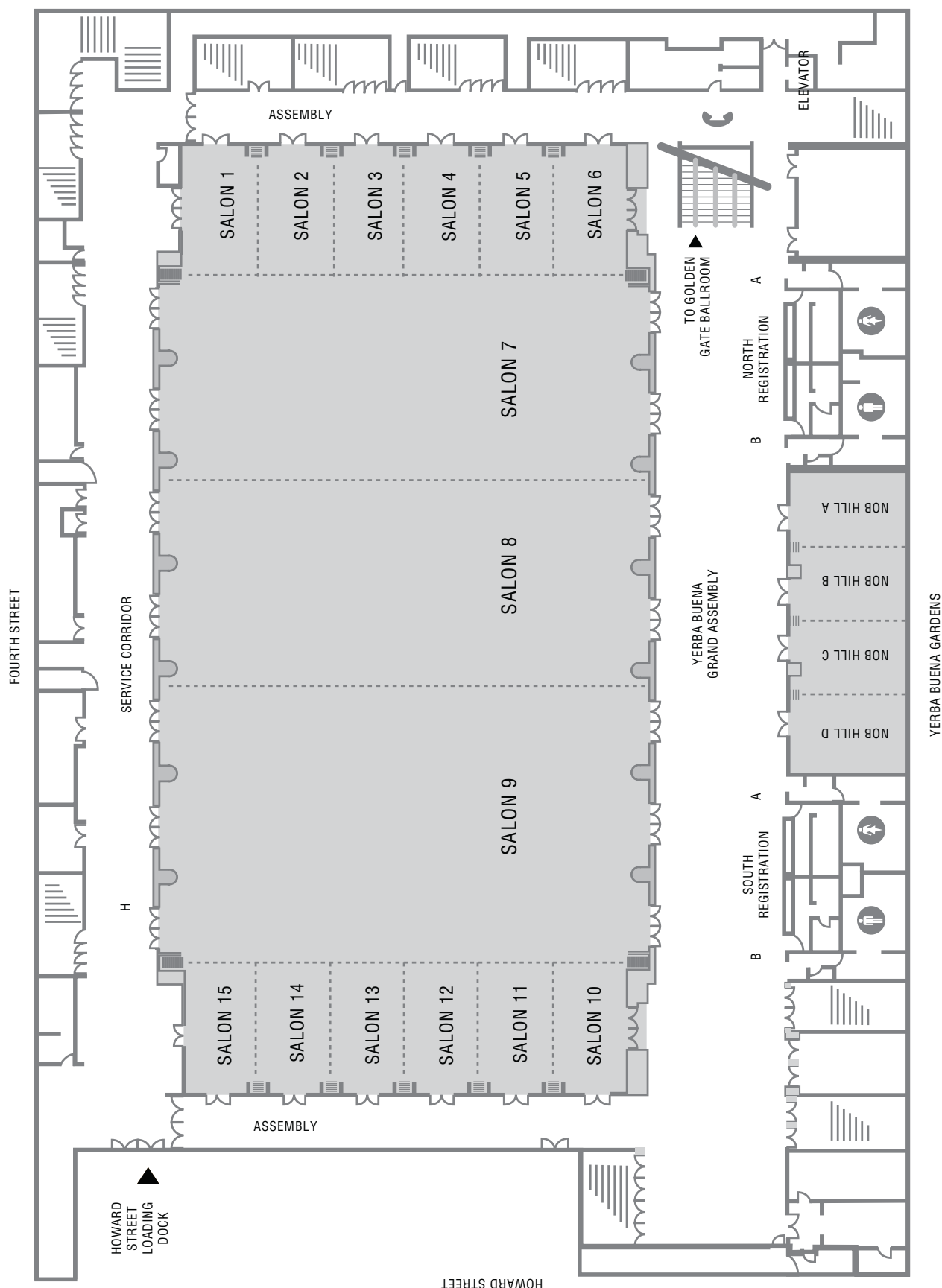




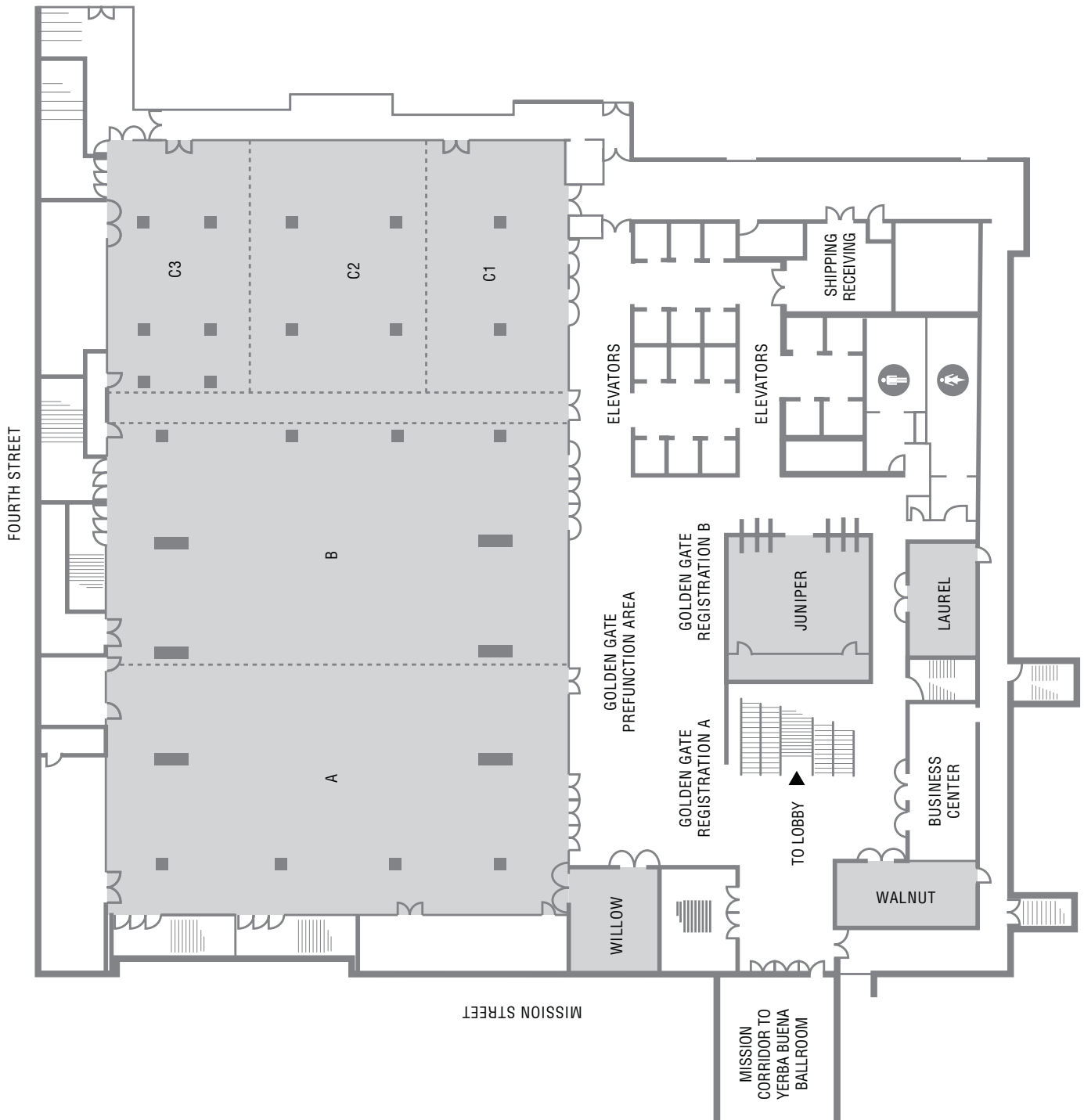
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# Marriott Marquis Floor Plans

## Yerba Buena Salons & Nob Hill Rooms

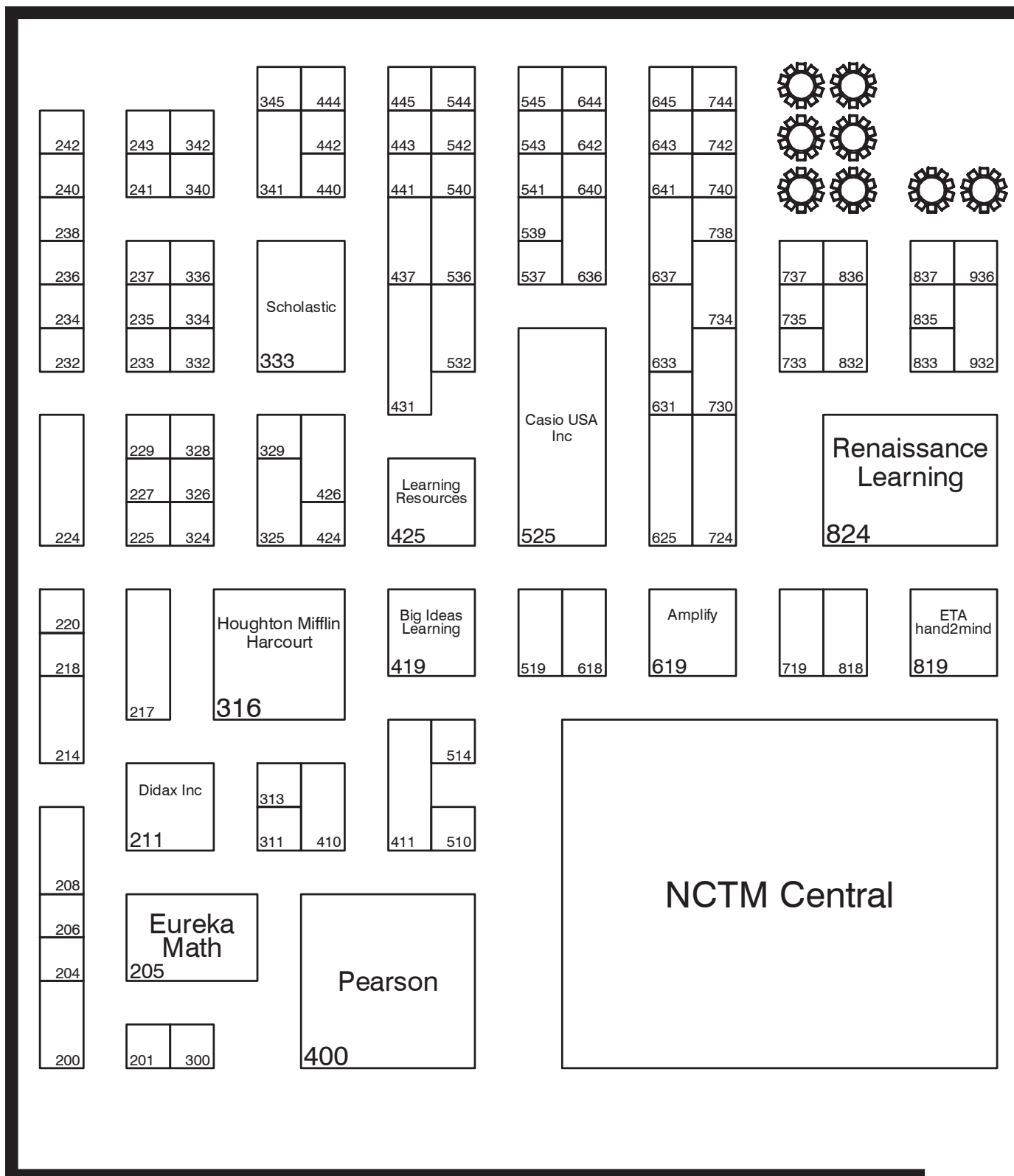


## Golden Gate Rooms



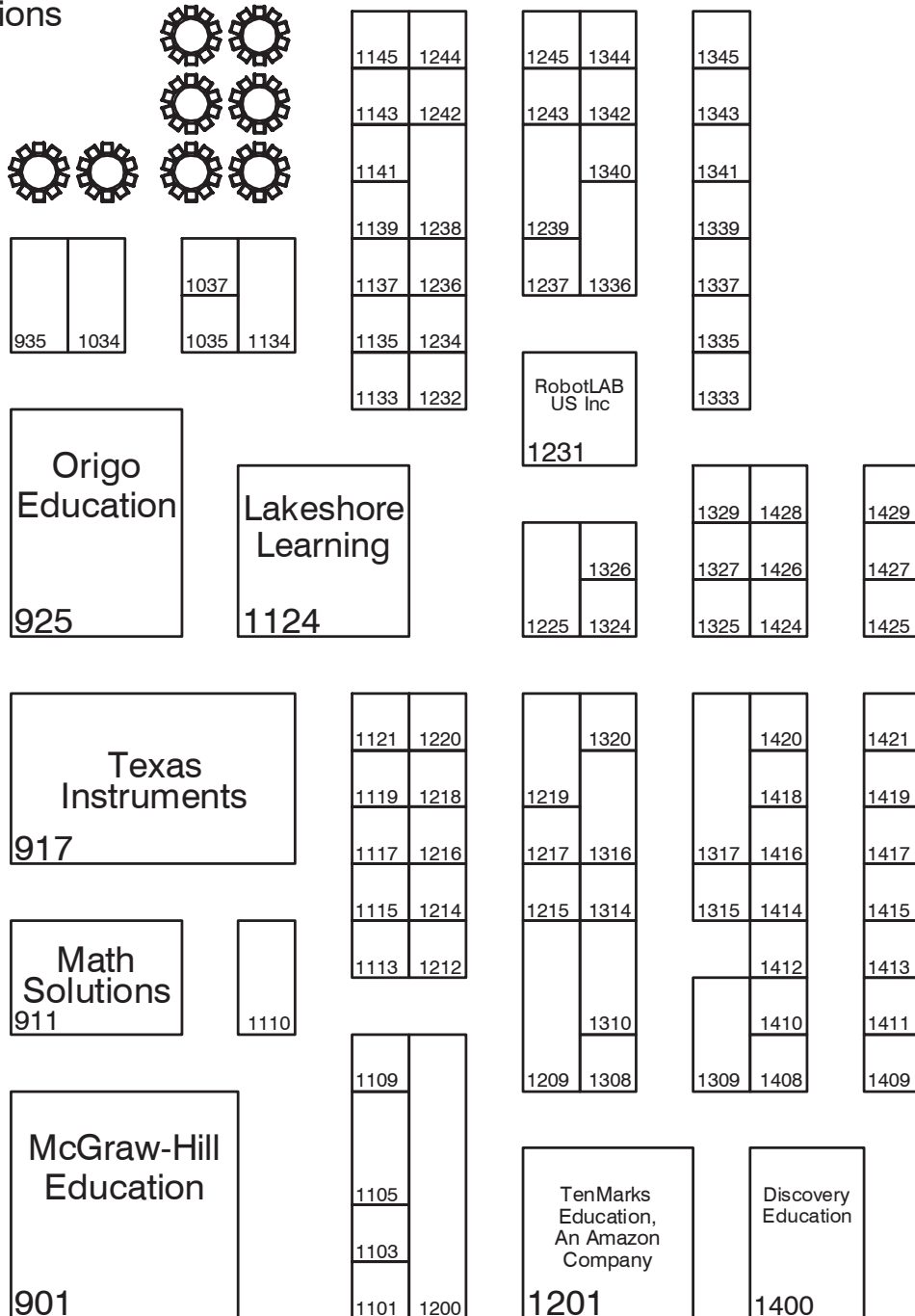
# Exhibit Hall Floor Plan

**Moscone Center, North Hall D**  
(as of February 2, 2016)





## Concessions



↑  
ENTRANCE

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## Host Affiliate Liaison

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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.

To learn more about NCTM products or services, including membership benefits and opportunities, visit [www.nctm.org](http://www.nctm.org), e-mail [nctm@nctm.org](mailto:nctm@nctm.org), or call (800) 235-7566.



NATIONAL COUNCIL OF  
TEACHERS OF MATHEMATICS

*This certificate is presented to*

---

*in recognition of attendance and participation at the  
NCTM 2016 Annual Meeting & Exposition*

*San Francisco, California • April 13–16, 2016*

A handwritten signature in blue ink, reading "Diane J. Briars", written over a horizontal blue line.

Diane J. Briars  
President, NCTM

**Name of Provider:** National Council of Teachers of Mathematics

**Educator's Name:** \_\_\_\_\_

**Description of Professional Development Activity:** This is a four-day annual meeting sponsored by the National Council of Teachers of Mathematics. Over 500 presentations are offered for teachers of prekindergarten through college. Topics range from administration to geometry, precalculus to statistics.

*Note: PD time earned should be the time actually spent in sessions and/or workshops.*

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

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

Robert M. Doucette  
Executive Director, NCTM

Diane J. Briars  
President, NCTM

*Please check with your state education agency and local administration to determine whether these conference hours can be used for professional development credits.*





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Visit [www.nctm.org/membership](http://www.nctm.org/membership) to learn more and join!

## 1 Contact Information All fields are required for processing.

First Name \_\_\_\_\_ Last Name \_\_\_\_\_

School \_\_\_\_\_

Address (check one): ☐ School Address ☐ Home Address

City \_\_\_\_\_ State/Prov \_\_\_\_\_ ZIP/PC \_\_\_\_\_

Country \_\_\_\_\_ Phone \_\_\_\_\_

Primary E-mail \_\_\_\_\_

Your grade level interest (check all that apply): ☐ PreK-2 ☐ 3-5 ☐ 6-8 ☐ 9-12 ☐ Higher Education

## 2 Select Individual Membership Type and Journal

**Full Individual Membership** Includes a print subscription to one NCTM journal (print version includes online access to the same journal).

Select **ONE** journal below:

**Teaching Children Mathematics (TCM)** (Pre-K-6)

**Mathematics Teaching in the Middle School (MTMS)** (5-9)

**Mathematics Teacher (MT)** (8-14)

**Journal for Research in Mathematics Education (JRME)**

**Mathematics Teacher Educator** (an NCTM/AMTE online journal)

**Full Member**

☐ \$90

☐ \$90

☐ \$90

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N/A

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**Teaching Children Mathematics (TCM)** (Pre-K-6)

**Mathematics Teaching in the Middle School (MTMS)** (5-9)

**Mathematics Teacher (MT)** (8-14)

**Journal for Research in Mathematics Education (JRME)**

**Mathematics Teacher Educator** (an NCTM/AMTE online journal)

**e-Member**

☐ \$78

☐ \$78

☐ \$78

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N/A

## 3 Buy Additional

**Print Journals**

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## 4 Payment Summary

Membership Dues ..... \$ \_\_\_\_\_

Additional Journals (Including Digital Journals) ..... \$ \_\_\_\_\_

**SUBTOTAL: Membership and Additional Journals** ..... \$ \_\_\_\_\_

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Visit [www.nctm.org/autorenew](http://www.nctm.org/autorenew) for details (credit card orders only). ..... \$ \_\_\_\_\_

**Foreign Postage** (if applicable): For mailings outside the U.S., add \$18 for the first print journal subscription and \$4 for each additional print journal subscription per year ..... \$ \_\_\_\_\_

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## 5 Method of Payment

☐ Check ☐ Money Order ☐ P.O.# \_\_\_\_\_  
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☐ I was referred by an NCTM Member: \_\_\_\_\_ Member ID: \_\_\_\_\_

☐ Check here to remove your name from rental lists (companies renting lists must obtain approval from NCTM before using lists).

☐ **Annual Perspectives in Mathematics Education (APME)** Standing Order Plan: Check this box to receive each NCTM APME as it becomes available. The APME may be returned in resalable condition within 30 days, and you may cancel your plan at any time.



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# NCTM PreK–8 School Membership

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## 1 Contact Information

Please print. All fields marked with \* are required for processing.

*District offices, high schools, universities, etc. are not eligible for PreK–8 membership. Please sign up for an Institutional Subscription.*

Primary Contact First Name\* \_\_\_\_\_ Last Name\* \_\_\_\_\_

School\* \_\_\_\_\_

School Address\* \_\_\_\_\_

City\* \_\_\_\_\_ State/Prov\* \_\_\_\_\_ ZIP/PC\* \_\_\_\_\_

Country\* \_\_\_\_\_ Phone\* \_\_\_\_\_

FAX \_\_\_\_\_ E-mail \_\_\_\_\_

## 2 Select One Journal

Membership includes a print subscription to one NCTM journal.  
Select **ONE** journal below:

\$155 ☐ *Teaching Children Mathematics (TCM)* (Pre–K–6)

☐ *Mathematics Teaching in the Middle School (MTMS)* (5–9)

\_\_\_\_\_ \$39 *Teaching Children Mathematics (TCM)* (Pre–K–6)

\_\_\_\_\_ \$39 *Mathematics Teaching in the Middle School (MTMS)* (5–9)

**NOTE:** Membership pricing valid through May 31, 2016. Visit [www.nctm.org/membership](http://www.nctm.org/membership) for up-to-date pricing.

## 4 Enter E-Memberships

**To activate the 5 free e-memberships** provided with your PreK–8 School Membership, please list the full name, e-mail address, and online journal choice here. Individuals will receive a membership confirmation (including login credentials) along with an ID card and instructions to access members-only benefits online. Individuals below must be educational professionals at the named school.

1. Name _____	E-mail _____	<input type="checkbox"/> <i>TCM</i> or <input type="checkbox"/> <i>MTMS</i>
2. Name _____	E-mail _____	<input type="checkbox"/> <i>TCM</i> or <input type="checkbox"/> <i>MTMS</i>
3. Name _____	E-mail _____	<input type="checkbox"/> <i>TCM</i> or <input type="checkbox"/> <i>MTMS</i>
4. Name _____	E-mail _____	<input type="checkbox"/> <i>TCM</i> or <input type="checkbox"/> <i>MTMS</i>
5. Name _____	E-mail _____	<input type="checkbox"/> <i>TCM</i> or <input type="checkbox"/> <i>MTMS</i>

To include additional individuals as e-members, attach a separate sheet of paper with name, e-mail address, and journal selection for each person. Include \$10 for each individual with your payment. **Note:** E-memberships may be changed or removed only at the time of renewal. Only individuals not currently affiliated with NCTM may be included as new e-members under the PreK–8 membership for your school. All e-members will be listed under the mailing address of the school provided on this application/renewal.

## 5 Payment Summary

Membership Dues (includes 5 free e-memberships) ..... \$ 155.00

Additional e-Memberships ..... \$10 X \_\_\_\_\_ = \$ \_\_\_\_\_

Additional Journals ..... \$39 X \_\_\_\_\_ = \$ \_\_\_\_\_

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**Mathematics Educational Trust (MET) Support** (Your contribution is tax deductible) ..... \$ \_\_\_\_\_

**TOTAL:** Payment to NCTM in U.S. Dollars ..... \$ \_\_\_\_\_

## 6 Method of Payment

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**Required for Credit Card Processing:** ☐ Personal Credit Card **OR** ☐ School/Company Credit Card **And Choose:** ☐ AMEX ☐ MC ☐ Visa

CREDIT CARD NUMBER

EXP. DATE

SECURITY CODE

SIGNATURE (required for credit card payments)

PRINT NAME

## 0–9

### 3P Learning

#### Booth 437

New York, NY  
866-387-9139

[www.3plearning.com](http://www.3plearning.com)

Mathletics is a K–12 online resource for teachers and students designed to motivate, inspire and help students learn new math concepts. Mathletics is accessible at home, in school, on iPads, and tablets. Schools select TEKS or Common Core Courses as needed. Teachers use videos, interactives and animated support within the adaptive activities to teach and enhance learning. Live Mathletics strengthens computational fluency as students love to engage in real time global or class challenges!

### 7 Generation Games

#### Booth 334

Santa Monica, CA  
310-804-9553

[www.7generationgames.com](http://www.7generationgames.com)

What if you could take all that makes a video game cool and use it to teach math and social studies? At 7 Generation Games combines cutting-edge graphics, game design, research and analytics to create games that engage and educate. Aimed at late elementary and middle school, our games teach practical applications of math, aligned with Common Core standards. Wrong answers route students to instructional learning modules. We provide data for teachers. Most importantly, our games produce results.

## A

### Alameda Contra Costa County Mathematics Educators (AC3ME)

#### Booth 540

Oakland, CA

### American Statistical Association

#### Booth 345

Alexandria, VA  
703-684-1221

[www.amstat.org/education](http://www.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 619

Brooklyn, NY  
502-614-0183

[www.amplify.com](http://www.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.

### Annenberg Learner

#### Booth 635

Washington, DC  
202-783-0333

[learner.org](http://learner.org)

### Ascend Education

#### Booth 1217

Shreveport, LA  
318-865-8232

[www.ascendmath.com](http://www.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; 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 1119

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Founded in 1973, The Bach Company has over 40 years of experience in serving the education community and is one of the largest educational dealers in the United States. Our pricing and service can not be beat! Product lines include Texas Instruments, Casio, HP, Sharp, Stokes Publishing, Top Rhino, Vernier, Duracell, Energizer, Sony, Kryptonite and MasterLock. Send us your Requests for Bid Pricing. We will not be undersold!

### Barron's Educational Series Inc.

#### Booth 1315

Hauppauge, NY  
631-434-3311

[www.barronseduc.com](http://www.barronseduc.com)

Publisher of children's books, grades K–8 Common Core Curriculum books for Math, math reference works, and test prep books and flashcards for AP Calculus, AP Statistics, SAT Subject Tests in Math I and Math II, and SAT and ACT review books.

### Be An Actuary

#### Booth 227

Schaumburg, IL  
847-273-8817

[BeAnActuary.org](http://BeAnActuary.org)

"When am I ever going to use this in the real world?" "I don't want to be an accountant, teacher or engineer. What other careers can I do with math?" "What kind of career offers high salaries, job security and endless opportunities?" Sound familiar? Visit the Be An Actuary booth to pick up information that will make it easy to talk to your students and their parents about a career as an actuary. You can even request for an actuary to come talk to your students or take part in your career day.

### Bedford, Freeman & Worth (BFW) Publishers & W.H. Freeman & Company

#### Booth 1310

New York, NY  
212-375-7154

[www.bfwpub.com/highschool](http://www.bfwpub.com/highschool)

### Bedtime Math Foundation

#### Booth 1109

Summit, NJ  
908-444-4522

[www.bedtimemath.org](http://www.bedtimemath.org)

Bedtime Math is a nonprofit organization dedicated to helping kids love numbers so they can handle the math in real life. For families, we offer a wacky nightly math problem on our website, our free app, and our daily email. For schools, we offer Crazy 8s, a hands-on after-school math club designed to get kids in grades K–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!



# Exhibitor Directory

## **Benjamin Banneker Association, Inc.**

### **Booth 542**

Little Rock, AR  
501-447-3376

[www.bannekermath.org](http://www.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 419**

Erie, PA  
814-651-0147

[bigideaslearning.com](http://bigideaslearning.com)

Big Ideas Math is a complete and continuous solution built for student success, with a variety of programs available from middle school to high school. The Dynamic Assessment System provides teachers and students an intuitive and state-of-the-art tool to help students effectively learn mathematics. The Dynamic Assessment System allows teachers to track and evaluate their students' advancement through the curriculum. Visit us at booth #419 to learn more!

## **Borenson and Associates, Inc.**

### **Booth 719**

Allentown, PA  
610-398-6908

[www.borenson.com](http://www.borenson.com)

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

## **Box Cars & One-Eyed Jacks Inc**

### **Booth 510**

Edmonton, AB  
780-440-6284

[boxcarsandoneeyedjacks.com](http://boxcarsandoneeyedjacks.com)

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

## **C**

## **CanFigureIt LLC**

### **Booth 1037**

New York, NY  
212-574-6087

[www.canfigureit.com](http://www.canfigureit.com)

Rediscover geometry with CanFigureIt™. Our web-based resource enables high school students to work through proof problems independently and interactively by offering continuous feedback and relevant hints. CanFigureIt Geometry facilitates problem-solving by breaking down complex problems into manageable chunks, and fosters forward and backward reasoning. To support teachers, we've designed a dashboard to inform data-driven pedagogical decision-making at the individual student and class level.

## **Carnegie Learning**

### **Booth 214**

Pittsburgh, PA  
412-690-2442

[www.carnegielearning.com](http://www.carnegielearning.com)

Carnegie Learning offers print, digital, and professional development solutions for grades 6–12 that are proven effective at raising student achievement in math. Born from cognitive science research at Carnegie Mellon University, we are focused exclusively on helping students be successful in math to be prepared for college and careers in the 21st century.

## **Carson Dellosa Publishing**

### **Booth 1238**

Greensboro, NC  
336-632-0084

[www.carsondellosa.com](http://www.carsondellosa.com)

Carson-Dellosa™ Publishing Group is the leading provider of supplemental educational products for educators and parents. The company's teacher-developed products and resources are thoughtfully designed to align to current state standards and meet children's diverse learning needs. Carson-Dellosa's award-winning brands include Carson-Dellosa Education™, Spectrum®, Summer Bridge™, Thinking Kids™, and Brighter Child™. Carson-Dellosa is also the exclusive distributor for Mark Twain Media.

## **Casio America, Inc.**

### **Booth 525**

Dover, NJ  
973-361-5400

[www.casioeducation.com](http://www.casioeducation.com)

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

## **Catherine Fosnot & Associates: New Perspectives**

### **Booth 204**

New London, CT  
860-444-8765

[www.NewPerspectivesOnLearning.com](http://www.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.







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TEACHERS OF MATHEMATICS

PREMIER MATH EDUCATION EVENTS

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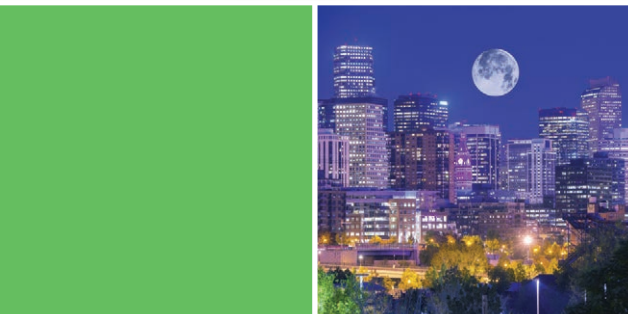


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Learn more at [nctm.org/institutes](http://nctm.org/institutes) and follow us on      #NCTMinstitutes

# Exhibitor Directory

## Center for Mathematics and Teaching, Inc.

### Booth 636

Sherman Oaks, CA  
310-310-4948

[www.mathandteaching.org](http://www.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.

## Cignition, Inc.

### Booth 744

Portola Valley, CA  
650-714-1069

[cignition.com](http://cignition.com)

With a focus on transforming K–12 mathematics learning, Cignition is the result of a deep collaboration between neuroscientists, teachers, and gameplay designers. We develop immersive online games which intrinsically integrate mathematical structure. With an emphasis on deep conceptual understanding, our games provide continuous assessment and adaptation to optimize student learning. Our profiles of conceptual understanding and procedural fluency provide teachers with actionable information.

## CK-12 Foundation

### Booth 224

Palo Alto, CA  
650-494-1302

[www.ck12.org](http://www.ck12.org)

CK-12 Foundation is a leading non-profit organization dedicated to improving student learning by increasing access to educational materials through the FlexBook® platform and concept-based modalities. CK-12 offers free, high-quality, standards-aligned, open content through an integrated set of tools for learning, including digital textbooks, concept-based learning resources, simulations, interactive practice, and more. All content is created and curated by subject-matter experts and teachers.

## Claire Lynn Designs

### Booth 237

Midlothian, TX  
972-723-2251

[www.clairelynn.com](http://www.clairelynn.com)

## Common Sense Education

### Booth 445

San Francisco, CA  
415-863-0600

[www.graphite.org](http://www.graphite.org)

Common Sense Graphite has 2,500+ apps, games, and websites rated and reviewed by teachers and experts for learning potential. Educators can search by subject, grade, and standard. Graphite also has ready-made lesson plans and a community of expert educators from across the country to help you transform your classroom.

## ConsumerMath.org

### Booth 1137

Bakersfield, CA  
661-865-8518

[www.ConsumerMath.org](http://www.ConsumerMath.org)

Our goal is to help students move from the classroom to real life through a virtual learning environment that allows students get a job, pay bills, manage their bank accounts, and stay out of debt, all from the safety of the classroom. They gain the math skills they need to survive in the real world as they learn personal and business topics including: Calculating Wages, Budgeting, Interest, House Buying and Remodeling, Menu Conversions, Profit Margins, Taxes, Probability, and much more!

## Corwin

### Booth 336

Thousand Oaks, CA  
805-410-7201

[www.corwin.com](http://www.corwin.com)

At Corwin, we have one objective and one objective only: to help educators do their important work better. We offer a host of independent and integrated professional learning options that conform with your budget, your timeline, and your objectives: books and resources, institutes, author consulting, Visible Learningplus, eLibraries, and eCourses. To learn more about our resources and services on language development, literacy, equity, leadership, math, science, and STEM, visit [www.corwin.com](http://www.corwin.com).

## CPM Educational Program

### Booth 1134

Elk Grove, CA  
209-745-2055

[www.cpm.org](http://www.cpm.org)

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

## CueThink

### Booth 1333

North Reading, MA  
781-640-0526

[www.cuethink.com](http://www.cuethink.com)

CueThink is an iPad application for grades 4–12 that empowers learners to see problem solving challenges as opportunities. It scaffolds Polya's 4 phases of Understand, Plan, Solve and Review and then layers in peer annotations for intelligent feedback. CueThink's unique approach captures both individual and collective thinking and ensures that students are fully engaged in the CCSS Mathematical Practices. With CueThink, you can #makemathsocial.

## Curriculum Associates

### Booth 935

North Billerica, MA  
800-225-0248

[www.CurriculumAssociates.com](http://www.CurriculumAssociates.com)

Curriculum Associates is a rapidly growing education company committed to making classrooms better places for teachers and students. We serve millions of students with our i-Ready®, Ready®, BRIGANCE® and other programs because of our laser focus on educators' needs over our own bottom line, and a belief that thoughtful and continuous innovation leads to a positive impact on classrooms and measureable growth for students. Learn more at [www.curriculumassociates.com](http://www.curriculumassociates.com).

## D

## D & H Distributing Company

### Booth 1135

Harrisburg, PA  
800-340-1006

[www.buycalcs.com](http://www.buycalcs.com)

D & H is the Nation's # 1 Distributor of Calculators to Schools.

## Desmos, Inc.

### Booth 1035

San Francisco, CA  
415-484-5342  
[www.desmos.com](http://www.desmos.com)

Explore math with Desmos. Graph functions, plot tables of data, evaluate equations, explore transformations, and much more—for free! Available online at [desmos.com](http://desmos.com) and in the iPad app store.

## Didax Inc

### Booth 211

Rowley, MA  
800-458-0024  
[www.didax.com](http://www.didax.com)

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

## Digi-Block

### Booth 342

Cambridge, MA  
508-591-3268  
[www.digi-block.com](http://www.digi-block.com)

Digi-Block is a research-based system that allows students to discover number-sense for themselves. Before addressing the abstract and technical aspects of arithmetic operations (symbols, language, regrouping, etc.), students discover for themselves the meaning of numbers and digits through the blocks and "smart box" system. Once students discover and internalize how numbers work, they naturally pair their hands-on understanding with the conventional, abstract understanding of arithmetic.

## Dinah.com

### Booth 1133

San Antonio, TX  
210-698-0123  
[www.dinah.com](http://www.dinah.com)

Dinah.com is the new name for the educational publishing and consulting company owned by author/speaker Dinah Zike. The name change reflects a shift toward digital products. Dinah is known for her 3-D interactive graphic organizers, featured in all her publications. Materials are available from grades PK–12 in all subjects. She offers professional development for educators at the Dinah Zike Academy, a unique trainer of trainers facility in Comfort, Texas.

## Discovery Education

### Booth 1400

Silver Spring, MD  
301-272-2564  
[www.discoveryeducation.com](http://www.discoveryeducation.com)

Discovery Education empowers school systems worldwide to create dynamic digital learning environments that improve student achievement. With proven expertise in developing and delivering standards-based digital content and professional development, Discovery Education builds lasting partnerships across the globe that transform teaching and learning. Discovery Education's services are in half of U.S. classrooms, over 40 percent of all primary schools in the U.K., and more than 50 countries.

## DreamBox Learning

### Booth 426

Bellevue, WA  
425-637-8900  
[www.dreambox.com](http://www.dreambox.com)

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

## Drexel University, School of Education

### Booth 218

Philadelphia, PA  
215-595-6770  
[drexel.edu/soe](http://drexel.edu/soe)

Drexel University School of Education offers online MS degree and Certificate Programs in Mathematics, Teaching and Learning. Courses are offered asynchronously online.

## E

## EAI Education

### Booth 1200

Oakland, NJ  
800-770-8010  
[www.eaieducation.com](http://www.eaieducation.com)

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

## Enovative Technologies

### Booth 329

Ocean City, MD  
443-731-9123  
[www.magicmassagetherapy.com](http://www.magicmassagetherapy.com)

Since 2007 we have specialized in the marketing and sales of high quality Magic Massagers. These revolutionary products use Tens (Unit) technology and are based on the same electronic stimulation technology that Chiropractors and Physical therapists use every day. The difference between these devices and regular tens units are the fact that tens units are made simply to treat pain versus our Magic Massagers.

## ETA hand2mind

### Booth 819

Vernon Hills, IL  
847-968-5204  
[www.hand2mind.com](http://www.hand2mind.com)

We believe students learn best by doing. We offer over 8,000 educational and supplemental materials for math, science, reading/language arts, and STEM, including popular brands such as Hands-On Standards, VersaTiles, and Cuisenaire Rods. Our instructional content, custom-kit options for content providers, manipulatives, interactive digital applications, and teacher coaching and development empower teachers and engage students.

## Eureka Math

### Booth 205

Washington, DC  
202-223-1854  
[www.eureka-math.org](http://www.eureka-math.org)

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





# Exhibitor Directory

## Exemplars

### Booth 1336

Underhill, VT  
802-899-4409  
[www.exemplars.com](http://www.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 3 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. Material supports and is aligned to the Standards for Mathematical Content and Practice.

## ExpII, Inc.

### Booth 1237

Pittsburgh, PA  
844-314-1593  
[www.expII.com](http://www.expII.com)

The Interactive Wikipedia is here. ExpII makes it easy for you to create and rate interactive lessons which simulate one-on-one tutor experiences (<http://expII.com/e/1521>). Think rapid-fire Q&A, video, and more. We're crowd-sourcing a one-stop destination for the Internet's most lively educational content, which we then distribute to the world for free.

## ExploreLearning

### Booth 625

Charlottesville, VA  
866-882-4141  
[www.explorelearning.com](http://www.explorelearning.com)

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

## F

## FACEing MATH

### Booth 1220

Hemet, CA  
951-492-8341  
[www.FACEingMATH.com](http://www.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 1st grade through high school Algebra 2.

## Family Math Night by Math Unity

### Booth 206

Rocklin, CA  
916-772-2788  
[familymathnight.com](http://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!

## FluidMath / Fluidity Software, Inc.

### Booth 837

Somerville, MA  
617-666-4442  
[www.fluiditysoftware.com](http://www.fluiditysoftware.com)

FluidMath brings handwritten math to life! Simply hand-write math expressions on the screen of an iPad, Tablet PC, or Interactive Whiteboard to easily create, solve and graph math problems! Math teachers and students handwrite math every day. Fluidity Software, Inc. is the leader in transforming static handwritten math into interactive graphs, computations, self-grading worksheets, and more! From Arithmetic to Algebra to Calculus, FluidMath is the write way to teach and learn math!

## Frog Publications

### Booth 735

San Antonio, FL  
800-777-3764  
[www.frog.com](http://www.frog.com)

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

## Front Row Education

### Booth 641

San Francisco, CA  
415-969-2929  
[www.frontrowed.com](http://www.frontrowed.com)

Looking for an effective and easy-to-use way to ensure all students receive quality education? Come learn how Front Row allows you to be even more effective in your classroom. Front Row provides a standards-aligned, personalized Math and ELA programs for grades K–8, including innovative, real-world Inquiry Based Lessons, Math Fact Practice, and more. We offer both free teacher accounts and paid school features. To find out more, email us anytime at [team@frontrowed.com](mailto:team@frontrowed.com).

## G

## Geyer Instructional Products

### Booth 1113

Cincinnati, OH  
513-527-2462  
[www.geyerinstructional.com](http://www.geyerinstructional.com)

We offer a complete line of math aids, math supplies, and math equipment for the middle and high school classroom. Many of our products are exclusively produced by Geyer! We specialize in graph paper, graphing and measurement tools, dry erase products, and posters. We also carry books, games, and general school supplies. Use code SANFRAN by May 26th and receive 15% Off Your Order! Purchase Orders Accepted. Check Us out online at [www.geyerinstructional.com](http://www.geyerinstructional.com).

## GradeCam

### Booth 537

Livermore, CA  
866-472-3339  
[www.gradecam.com](http://www.gradecam.com)

Grade assignments instantly with virtually any webcam or mobile device. #GradeFast #GradeSmart @Gradecam Find out more at [www.gradecam.com](http://www.gradecam.com).

## GraphLock

### Booth 1245

Coolidge, AZ  
520-705-0143  
[www.graphlock.com](http://www.graphlock.com)



## H

### Heinemann

#### Booth 316

Portsmouth, NH  
800-225-5800

[www.heinemann.com](http://www.heinemann.com)

Heinemann is a leading publisher of professional resources and provider of educational services for K–12 educators. We strive to give voice to those who share our respect for the professionalism, creativity, and compassion of teachers. Our mathematics-focused professional books and curricular resources are practical and child-centered, developed by master educators who care deeply about teaching and learning. Discover more at [Heinemann.com/Math](http://Heinemann.com/Math).

### Hooda Math

#### Booth 1325

Saint Louis Park, MN  
612-437-9977

[www.hoodamath.com](http://www.hoodamath.com)

Hooda Math has over 20 free math apps for iPhone, iPad, Android, and Kindle. Visit their booth to try them out. For over 5 years they have been providing free online math games and tools at [www.hoodamath.com](http://www.hoodamath.com). New this year, Hooda Math is proud to introduce [www.hoodamath.com](http://www.hoodamath.com) Mobile that works on all mobile browsers (including iPad), no downloading required.

### Houghton Mifflin Harcourt

#### Booth 316

Boston, MA  
800-225-5425

[www.hmhco.com](http://www.hmhco.com)

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

### HowTheMarketWorks.com

#### Booth 631

Washington, DC  
514-871-2222

[www.HowTheMarketWorks.com](http://www.HowTheMarketWorks.com)

HowTheMarketWorks.com is the #1 FREE stock market game website that allows teachers to create a custom stock market trading contest for their classes. Teachers choose the trading dates, initial cash balance, and other trading parameters and then students manage a virtual portfolio of stocks and mutual funds in a real-time, streaming virtual environment. This website is used by over 10,000 teachers each year in their personal finance, math, social studies and economics classes.

### HP Inc.

#### Booth 410

San Diego, CA  
619-942-2099

[www.hp.com/hpprime](http://www.hp.com/hpprime)

HP education technologies revolutionize the classroom with multi-representational 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 410 to learn more about the HP Prime Full Color Touch Graphing Calculator with its new Wireless Connectivity Kit!

### Illustrative Mathematics

#### Booth 1214

Tucson, AZ  
847-421-7073

[www.illustrativemathematics.org](http://www.illustrativemathematics.org)

Illustrative Mathematics is a discerning community of educators dedicated to the coherent learning of mathematics. We collaborate at [illustrativemathematics.org](http://illustrativemathematics.org), sharing carefully vetted resources for teachers and teacher leaders to give our children an understanding of mathematics and skill in using it. We provide expert guidance to states, districts, curriculum writers, and assessment writers working to improve mathematics education.

### Imathgination LLC

#### Booth 1216

San Diego, CA  
619-952-9969

[imathgination.com](http://imathgination.com)

Geometiles by Imathgination LLC is a versatile set of interlocking tiles that can be used for math exploration and as a supplement to any math curriculum from grade 1 upwards. Geometiles come with online access to many lesson plans and problems. For those interested in unstructured exploration and play, Geometiles offer limitless possibilities. Visit our booth to get a chance to build and play with Geometiles, and be a part of the discovery!

### Infinite Trading Inc

#### Booth 645

Las Vegas, NV  
888-415-9964

### It's About Time

#### Booth 1101

Mount Kisco, NY  
914-273-2233

[www.iat.com](http://www.iat.com)

It's About Time believes that students learn math and science the way that practicing scientists and mathematicians do. They learn when something grabs their attention . . . when the content is relevant to their lives. They learn when we allow them, in fact encourage them, to talk to one another and question each others' results. They learn when we permit them to get their hands on the subject matter. In short, when we allow students to use all of their senses, they make sense of math and science.

### IXL Learning

#### Booth 618

San Mateo, CA  
855-255-8800

[www.IXL.com](http://www.IXL.com)

IXL provides a standards-aligned immersive learning experience for all subjects, 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.

# Exhibitor Directory

## J

### Johns Hopkins Center for Talented Youth

#### Booth 1314

Baltimore, MD  
410-735-6133

[www.cty.jhu.edu](http://www.cty.jhu.edu)

The Johns Hopkins Center for Talented Youth identifies and develops the talents of the most advanced K–12 learners worldwide. As part of Johns Hopkins University, CTY helps fulfill the university's mission of preparing students to make significant contributions to our world. Since 1979 CTY has identified young people of great academic promise, then nurtured their intellects and personal growth through our academic Summer Programs, CTYOnline courses, and other services and resources.

### Jump Math

#### Booth 740

Toronto, ON  
510-677-0001

[jumpmath.org](http://jumpmath.org)

JUMP Math is a non-profit organization dedicated to closing the math achievement gap in children grades 1 to 8. Through its classroom curriculum (which has been carefully rewritten to adhere to the common core standards), JUMP helps teachers guide discovery in their students which leads to deeper problem solving skills.

## K

### Kagan Publishing & Professional Development

#### Booth 1309

San Clemente, CA  
949-545-6320

[www.kaganonline.com](http://www.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.

### Kendall Hunt Publishing Company

#### Booth 1317

Dubuque, IA  
563-589-1075  
[kendallhunt.com/prek12](http://kendallhunt.com/prek12)

Kendall Hunt provides educators with a complete, Common Core-aligned pre-K–12 mathematics solution. Our curriculum emphasizes mathematical practice standards, builds student's critical thinking and procedural skills, and promotes conceptual understanding. Available in digital and print formats, our programs are supported with ongoing professional development to ensure effective implementation and elevate classroom achievement.

### KnowRe

#### Booth 1225

New York, NY  
310-617-8890

[www.knowre.com](http://www.knowre.com)

KnowRe is an innovative adaptive learning solution for mathematics. KnowRe assesses an individual's strengths and weaknesses, personalizes a curriculum for each student's focus areas and engages students through gamified features, attractive graphics and social learning. KnowRe believes in the importance of a good education, the need for personalization in our educational system and that technology is the most effective tool to help bring about these goals.

### Koyo Publishing

#### Booth 1117

Tualatin, OR  
503-557-8100

[www.koyopublishing.com](http://www.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. Learn more at our NCTM workshop: "Using Japanese Problem Based Teaching Methods to Develop Conceptual Understanding," Friday, April 15th at 3:30 p.m.

## L

### Lakeshore Learning Materials

#### Booth 1124

Carson, CA  
310-537-8600  
[www.lakeshorelearning.com](http://www.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 help educators make math relevant to students.

### LearnBop

#### Booth 200

New York, NY  
917-231-1329  
[www.learnbop.com](http://www.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 Resources

#### Booth 425

Vernon Hills, IL  
847-996-5375  
[www.learningresources.com](http://www.learningresources.com)

Learning Resources® is a leading global manufacturer of innovative, hands-on educational products trusted by teachers and parents and loved by children. The Company's 1100+ high-quality products are sold in more than 80 countries, serving children and their families, preschool, kindergarten, primary, and middle-school markets. For more information visit [www.LearningResources.com](http://www.LearningResources.com) or call 1-800-333-8281.

### Learning Upgrade LLC

#### Booth 1121

San Diego, CA  
800-998-8864  
[www.learningupgrade.com](http://www.learningupgrade.com)

Learning Upgrade publishes the Algebra Upgrade and Math Upgrade online courses featuring songs, video and games. Transform your classes with interactive lectures using projectors and interactive whiteboards. Bring the whole school up to proficiency with high interest online student courses.

## LearnZillion

### Booth 1115

Washington, DC  
415-497-9886  
[learnzillion.com](http://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.

## LEGO Education

### Booth 220

Pittsburg, KS  
620-231-0000  
[www.legoeducation.us](http://www.legoeducation.us)

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

## Lone Star Learning

### Booth 514

Lubbock, TX  
806-281-1424  
[lonestarlearning.com](http://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 3 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!

## LoveMath™ by GPA Learn

### Booth 633

Atlanta, GA  
404-507-2571  
[www.gpalearn.com](http://www.gpalearn.com)

Our GPALOVEMATH™ application is designed to create time efficiency for teachers while providing real-time, actionable data on their K-5 students. Detailed dashboards, full instructional materials, practice problems, and quizzes give teachers and administrators an easy view of the individual path and progress of each student. Teachers can easily provide the students with individualized learning facilitated by the application.

## M

## Mangahigh.com

### Booth 424

London, UK  
877-626-4244  
[www.mangahigh.com](http://www.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: [www.mangahigh.com](http://www.mangahigh.com)

## Marshall Cavendish Education

### Booth 724

Tarrytown, NY  
914-332-8888  
[www.mceducation.us](http://www.mceducation.us)

With more than 40 years of experience in educational publishing, Marshall Cavendish Education is a leader in providing well-researched and world class holistic education solutions in curriculum, technology and professional development to meet the needs of teachers and students in the 21st century. Since 1995, we contribute to the outstanding performance of Singapore students in international studies such as TIMSS and PISA. Our materials were adopted in more than 50 countries and 11 languages.

## Math For America

### Booth 536

New York, NY  
646-437-0904  
[www.MathForAmerica.org](http://www.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](http://MathForAmerica.org).

## Math Solutions

### Booth 911

Sausalito, CA  
415-339-4846  
[mathsolutions.com](http://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 1141

San Jose, CA  
408-350-2088  
[www.mathteacherscircle.org](http://www.mathteacherscircle.org)

Math Teachers' Circles are professional communities of K-12 mathematics teachers and mathematicians. Groups meet regularly to work on rich 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](http://www.aimath.org)) in San Jose, California.

## Math Teachers Press

### Booth 1110

Minneapolis, MN  
800-852-2435  
[www.movingwithmath.com](http://www.movingwithmath.com)

Provides pre-K-12 formative assessment and conceptual instruction using concrete manipulatives with research based strategies and proven results. Includes the 4 essential elements of RTI: screening, decision making, explicit instruction, progress monitoring. Instruction integrates the Concrete-Representational-Abstract (CRA) pedagogy with scripted lesson plans providing embedded PD. Objectives are correlated to state & national standards. Proven achievement gains. Optional Web-Based Technologies.



# Exhibitor Directory

## Mathalicious

### Booth 519

Austin, TX  
530-420-5474  
[www.mathalicious.com](http://www.mathalicious.com)

61% 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 & projects aligned to Common Core Standards for middle and high school. Lessons promote the CC Standards for Mathematical Practice by providing opportunities for students to think critically and creatively, develop arguments, and critique the reasoning of others.

## MathChat

### Booth 738

San Carlos, CA  
415-843-1418  
[www.math.chat](http://www.math.chat)

MathChat enables students to collaborate on math problems from their smartphones or tablets. Using the free MathChat app, students take a picture of their math problem and work together with other students in the community. To collaborate, students message and work together on a shared whiteboard that instantly updates. Enable your students to gain collaboration skills and help others with math from anywhere. Download the free MathChat app for iPads and iPhones on the App Store.

## MATHCOUNTS Foundation

### Booth 539

Alexandria, VA  
703-299-9006  
[www.mathcounts.org](http://www.mathcounts.org)

MATHCOUNTS provides fun and challenging programs for sixth-, seventh-, and eighth-grade students. Through 3 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.

## MathLine at Howbrite Solutions

### Booth 833

Cokato, MN  
320-286-2597  
[www.howbrite.com](http://www.howbrite.com)

MathLine is a blended learning strategy offering a multi-sensory 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! iMathLine 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.

## MathOdes Company

### Booth 1236

Festus, MO  
314-717-8577  
[www.mathodes.com](http://www.mathodes.com)

MathOdes Company designs fun and creative math teaching and study aids for middle and high school! A rhyming format helps students remember math concepts and formulas in the form of poetry, music, and color illustrations. Each "ode" details a particular math concept such as surface area, polynomials, and matrices. Algebra 1, Algebra 2, and Geometry products are currently available.

## Mathseeds

### Booth 1308

New York, NY  
917-338-4190  
[mathseeds.com](http://mathseeds.com)

From the creators of Reading Eggs, Mathseeds teaches students in grades 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 US and 15,000 schools globally.

## Mathspace

### Booth 300

New York, NY  
718-510-2582  
[www.mathspace.co](http://www.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!

## Mathsticks LLC

### Booth 1145

Virginia Beach, VA  
737-401-3524  
[mathsticksedu.com](http://mathsticksedu.com)

MathSticks is the premier math manipulative. It can present all phases of elementary math and more! MathSticks are models of numbers. The student can learn the number value of each stick by its relative length by placing it next to the number line provided. A full set is composed of the various unit combinations from one to twelve. Set may be combined as needed. Please stop by booth 1145 for a brief demonstration of "Math Made Visual". Made entirely in the USA.

## Matific

### Booth 313

New York, NY  
646-259-3229  
[www.matific.com](http://www.matific.com)

Matific takes a unique approach to teaching K–6 math using hands-on, interactive mini-games called episodes. These immersive bite-sized apps for tablets and personal computers, based on a modular and progressive spiral learning system. Our portfolio of hundreds of activities and worksheets are entirely curriculum-driven. The activities and worksheets were developed to facilitate easy mapping to standard math curricula.





## McGraw-Hill Education

### Booth 901

Columbus, OH  
614-430-4482  
[www.mheonline.com](http://www.mheonline.com)

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

## Michigan State University

### Booth 1215

East Lansing, MI  
517-432-5472  
[prime.natsci.msu.edu](http://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 1316

Irvine, CA  
888-751-5443  
[www.mindresearch.org](http://www.mindresearch.org)

MIND Research Institute is a neuroscience and education non-profit 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](http://www.mindresearch.org).

## Minitab Inc.

### Booth 1324

State College, PA  
800-448-3555  
[www.minitab.com](http://www.minitab.com)

Minitab® 17 is the leading software for statistics education worldwide, and 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/](http://www.minitab.com/) academic.

## MOEMS

### Booth 1234

Bellmore, NY  
516-781-2400  
[moems.org](http://moems.org)

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

## Motion Math

### Booth 733

San Francisco, CA  
631-374-0667  
[motionmathgames.com](http://motionmathgames.com)

Motion Math creates delightful games for the most challenging elementary math concepts, plus a teacher dashboard to measure progress based on gameplay. Visit our booth to start your free iPad trial. "Helps develop understanding of important mathematics, visually." —Jo Boaler, Professor of Mathematics Education, Stanford Graduate School of Education, Motion Math advisor. "Great gameplay and great learning. Highly recommended." —Dan Meyer, math teacher, blogger.

## MQI Coaching

### Booth 1327

Cambridge, MA  
781-373-7068  
[mqicoaching.org](http://mqicoaching.org)

We offer MQI Coaching, an individualized professional development opportunity that helps teachers improve their practice. The Mathematical Quality of Instruction (MQI) instrument is a Common Core-aligned, math-specific rubric from Harvard University that provides teachers with a framework for analyzing math instruction. Teachers work with MQI expert coaches in video-based, virtual coaching cycles that help teachers to reflect on their practice and look closely at the work of their students.

## MTBoS/Math Twitter Blogosphere

### Booth 1335

Salem, MA  
978-528-4673  
[mathtwitterblogosphere.com](http://mathtwitterblogosphere.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 a book. 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!

## Mu Alpha Theta

### Booth 1139

Norman, OK  
405-325-4489  
[www.mualphatheta.org](http://www.mualphatheta.org)

Mu Alpha Theta, the National High School and Two-Year College Mathematics Honor Society served over 2200 high schools and over 108,000 student members last year. Chi Alpha Mu is our Middle School math club organization. We provide recognition for talented math students, scholarships, grants, awards, and free math contests students compete in right at your school. We have money to give you to support your math club. Come see us at booth 1139 to find out how we can finance your chapter.

# Exhibitor Directory

## N

### Nasco

#### Booth 1209

Fort Atkinson, WI  
920-563-2446  
[eNasco.com](http://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 the standards and target STEM initiatives that engage 21st Century Learning. We are skilled at creating cost-effective, customized kits to meet your classroom needs.

### National Assessment of Educational Progress (NAEP)

#### Booth 340

Washington, DC  
202-706-3600

[www.nationsreportcard.gov](http://www.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 Geographic Learning | Cengage Learning

#### Booth 411

Mason, OH  
800-543-0487  
[NGL.Cengage.com](http://NGL.Cengage.com)

National Geographic Learning provides quality pre-K–12, academic, and adult education instructional solutions for reading, writing, science, social studies, ESL/ELD, and Spanish/Dual language.

### National Museum of Mathematics

#### Booth 1143

New York, NY  
212-542-0566  
[www.momath.org](http://www.momath.org)

Come visit the National Museum of Mathematics to learn how you can win \$25,000! The Museum runs an annual contest for innovative math lessons, and we want YOU to participate: [rosenthalprize.momath.org](http://rosenthalprize.momath.org). We'll also have some unique math manipulatives to share that help math come alive.

### NewPath Learning

#### Booth 1232

Victor, NY  
585-742-0164  
[www.newpathlearning.com](http://www.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 a unique Online Learning Program with ready-to-use lessons and tools/templates to develop and deliver custom lessons at [www.newpathlearning.com](http://www.newpathlearning.com).

### NextLesson

#### Booth 734

San Francisco, CA  
415-968-9655  
[www.nextlesson.org](http://www.nextlesson.org)

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

### North American Study Group on Ethnomathematics (NASGEM)

#### Booth 541

Estes Park, CO  
970-371-0167  
[nasgem.rpi.edu](http://nasgem.rpi.edu)

Ubiratan D'Ambrosio and others coined "Ethnomathematics" to describe math practices of identifiable cultural groups. More broadly, it can refer to those of larger groups also of small sects. Mathematical practices include symbolic systems, spatial designs, practical construction techniques, algorithms, measurement, ways of reasoning, etc. for which formal representation is possible. NASGEM and EONAS promote culturally responsive math education practices.

### NumbersAlive!

#### Booth 836

Washington, DC  
202-652-1820  
[www.numbersalive.org](http://www.numbersalive.org)

Created by educator Rebecca Klemm, PhD, NumbersAlive! presents numbers as fun and friendly characters who uncover numeric patterns embedded everywhere. The playful numbers captivate children as they come alive through interdisciplinary storytelling. They are tactile as soft plush numbers (0–9 and  $\pi$ ) and enchant children through books, games, puzzles, and apps. Bring our award-winning learning tools into YOUR classroom and watch anxiety disappear! All products are teacher-developed and teacher-tested.

## O

### ORIGO Education

#### Booth 925

Earth City, MO  
314-475-3061  
[www.origoeducation.com](http://www.origoeducation.com)

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

## P

### Pearson

#### Booth 400

Boston, MA  
800-848-9500  
[www.PearsonEd.com](http://www.PearsonEd.com)

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

## Perfection Learning

### Booth 1034

Logan, IA  
800-831-4190  
[perfectionlearning.com](http://perfectionlearning.com)

For over 85 years, Perfection Learning has been a leader in reading, literature, and language arts programs with both textbook and supplemental 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 1320

Boulder, CO  
303-492-6963  
[phet.colorado.edu](http://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.

## Pitsco Education

### Booth 737

Pittsburg, KS  
620-231-0000  
[www.pitsco.com](http://www.pitsco.com)

Math—particularly algebra—is the sticking point for many students. But individualized lessons and hands-on learning can make the difference. These are the values Pitsco has promoted for 40 years. With two unique curriculum solutions and a host of engaging math products, Pitsco has the tools for your math classroom.

## Prodigy Math Game

### Booth 229

Burlington, ON  
866-585-4655  
[www.prodigygame.com](http://www.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.

## R

## Reasoning Mind

### Booth 201

Houston, TX  
832-255-2903  
[www.reasoningmind.org](http://www.reasoningmind.org)

Reasoning Mind is a nonprofit dedicated to providing a first-rate math education for every child. Reasoning Mind has created an online learning platform complete with an internationally proven curriculum that fully engages students. Teachers receive access to a user-friendly data and reporting tool as well as a vast catalog of professional development courses. Reasoning Mind provides Core Curriculum, Ancillary Curriculum, and Common Core Assessment Readiness Materials for grade 2–6.

## Redbird Advanced Learning

### Booth 637

Oakland, CA  
844-288-7225  
[redbirdlearning.com](http://redbirdlearning.com)

Redbird Advanced Learning offers digital curriculum, blended learning tools and services, and professional development that is the future of mathematics education.

## Renaissance Learning

### Booth 824

Wisconsin Rapids, WI  
715-424-3636  
[www.renaissance.com](http://www.renaissance.com)

Accelerated Math™ differentiates dynamic practice of grade-level CCSS or state standards by depth, as current standards recommend. The software automates the assess-teach-learn cycle by integrating STAR Math™ data to place students in instructional groups and automatically scheduling a full year of standards coverage. Assignments can be delivered online or printed.

## RobotLAB US Inc.

### Booth 1231

San Francisco, CA  
415-702-3033  
[www.RobotsLAB.com/box](http://www.RobotsLAB.com/box)

RobotsLAB introduces RobotsLAB BOX, an award winning teaching-aid demonstrating math's core concepts using robots. The easy to use tablet includes interactive lessons which bring the robots to life, helping students understand why math is relevant to their life. Algebra, Geometry, Trig, Pre-Calc, are some of our favorite topics, but for most middle and high school students this isn't the case. In fact, math proficiency in US has fallen to 32%, disqualifying many graduates from entry-level jobs.

## Routledge / Eye on Education

### Booth 441

New York, NY  
212-216-7800  
[routledge.com](http://routledge.com)

Routledge publishes practical books for in-service teachers and administrators, as well as textbooks and resources for pre-service teachers and higher education professionals on a variety of subjects including math teaching and learning, professional development, teaching skills, and more. Routledge Journals is an international publisher of scholarly research. Visit the Routledge booth to learn about our products and services, and request free copies of publications in the field of education.

## S

## Scholastic

### Booth 333

New York, NY  
212-343-6100  
[www.scholastic.com](http://www.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.

## SIAM – Society for Industrial & Applied Mathematics

### Booth 1326

Philadelphia, PA  
267-992-8681  
[www.siam.org](http://www.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.



# Exhibitor Directory

## Singapore Math Inc.

### Booth 818

Tualatin, OR  
503-557-8100  
[www.SingaporeMath.com](http://www.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 818 to peruse our Singapore Math® books and to learn more about the Singapore approach to teaching and learning mathematics.

## Solution Tree

### Booth 341

Bloomington, IN  
800-733-6786  
[www.solution-tree.com](http://www.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.

## Staff Development for Educators

### Booth 936

Peterborough, NH  
603-924-9621  
[www.sde.com](http://www.sde.com)

We believe that educators have the most important job in the world. That's why we're dedicated to empowering educators with ongoing professional development that is not only research-based, innovative, and rigorous, but also practical, motivating, and fun. SDE offers PD in Singapore Math, CCSS for Math, Differentiated Math, Math Interventions & more. Our Singapore Math Conference each July in Las Vegas is attended by math educators from all over the world. Visit [www.sde.com/nationals](http://www.sde.com/nationals)

## Stenhouse Publishers

### Booth 932

Portland, ME  
800-988-9812  
[www.stenhouse.com](http://www.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 832

Sunnyvale, CA  
408-541-9145  
[www.stokespublishing.com](http://www.stokespublishing.com)

Daily drawings for a TeachTimer II using coupon in back of NCTM Program book. Bargain priced books . . . 50–80% off! Your source for CALC!, NUMERO, PolyPackPuzzles, Trig-Trainer, Hall Pass Timer, MyChron student timers, SpeedScorer, and teacher resource materials all at conference discounted prices.

## SumBlox Group

### Booth 332

Paradise, UT  
435-512-5161  
[www.sumblox.com](http://www.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.

## Suntex International/First in Math

### Booth 431

Easton, PA  
610-253-5255  
[www.firstinmath.com](http://www.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.

## T

## Teacher Created Materials

### Booth 217

Huntington Beach, CA  
714-891-2273  
[www.tcmpub.com](http://www.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 Education, An Amazon Company

### Booth 1201

Burlingame, CA  
415-305-7211  
[www.tenmarks.com](http://www.tenmarks.com)

TenMarks, an Amazon company, develops an innovative web-based mathematics curriculum program aligned with the new math standards that is used by students and teachers across in thousands of districts across the country. Designed by teachers for teachers, TenMarks knows that students achieve greater success when they're individually motivated, engaged, and nurtured.

## TERC

### Booth 1103

Cambridge, MA  
617-873-9709  
[www.terc.edu](http://www.terc.edu)

For 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

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[education.ti.com](http://education.ti.com)

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## The Actuarial Foundation

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Schaumburg, IL  
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[www.actuarialfoundation.org](http://www.actuarialfoundation.org)

Teachers across the country are inspiring a new generation of math-skilled thinkers with The Actuarial Foundation's free lesson plans and curriculum resources. See what the buzz is all about! Visit the Foundation booth to bring these exciting "real world math" and financial literacy materials home to your students. Visit us at: [http://www.actuarialfoundation.org/programs/youth\\_education.shtml](http://www.actuarialfoundation.org/programs/youth_education.shtml).



## The College Board

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[www.collegeboard.org](http://www.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.

## The Learning Carpet-TLC, Inc.

### Booth 324

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[thelearningcarpet.com](http://thelearningcarpet.com)

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[www.mathlearningcenter.org](http://www.mathlearningcenter.org)

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

## The Presidential Awards for Excellence in Mathematics and Science Teaching

### Booth 311

Arlington, VA  
703-292-8742  
[www.paemst.org](http://www.paemst.org)

The Presidential Awards for Excellence in Mathematics and Science Teaching (PAEMST) are the highest honors bestowed by the US government specifically for K–12 mathematics and science (including computer science) teaching. Up to 108 awards are made annually. Each recipient receives \$10,000 from the National Science Foundation (NSF); a trip for 2 to Washington D.C.; and a certificate signed by the President. NSF manages PAEMST on behalf of the White House Office of Science and Technology Policy.

## Think Through Math

### Booth 532

Pittsburgh, PA  
866-357-8664  
[www.thinkthroughmath.com](http://www.thinkthroughmath.com)

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## Triumph Learning

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859-552-5765  
[www.triumphlearning.com](http://www.triumphlearning.com)

Triumph Learning, LLC, is a leading educational content publisher of print and digital K–12 resources and standards-aligned instructional materials, serving over 400,000 teachers and 6 million students. Triumph Learning offers a mix of interactive digital tools and innovative student texts with products such as Coach, Waggle, and Buckle Down.

## Tutto Luggage/Mascot Metropolitan, Inc.

### Booth 1329

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[www.tutto.com](http://www.tutto.com)

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## U

## UM Products

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714-540-5595  
[www.unimedmassager.com](http://www.unimedmassager.com)

## US Math Recovery Council

### Booth 1218

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[www.mathrecovery.org](http://www.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.

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San Francisco, CA

415-615-3144

[www.wested.org](http://www.wested.org)

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## Western Governors University

### Booth 640

Salt Lake City, UT

385-428-1000

[www.wgu.edu](http://www.wgu.edu)

The Teachers College at Western Governors University offers regionally, nationally, and NCATE accredited, online competency-based master's degrees in mathematics education. WGU is the largest educator of math and science teachers in the U.S., conferring 5% of the nation's baccalaureate degrees and 15% of the nation's master's degrees in STEM teaching. WGU students enjoy modest tuition rates, unbelievable flexibility, and unmatched student support. Scholarships and financial aid are available.

## Wiley

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201-748-6000

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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.

## Women and Mathematics Education

### Booth 543

Philadelphia, PA

267-992-1612

[www.wme-usa.org](http://www.wme-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 225

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303-449-6284

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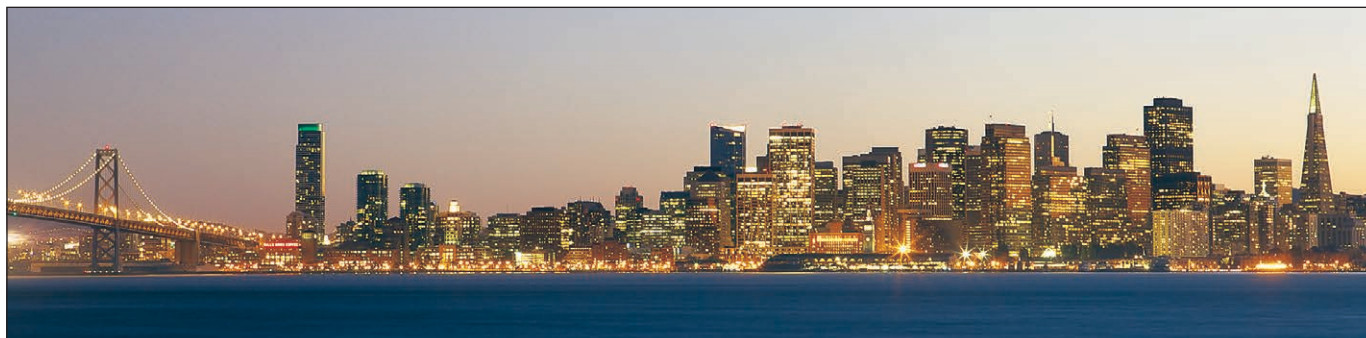
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New York, NY

215-527-3971

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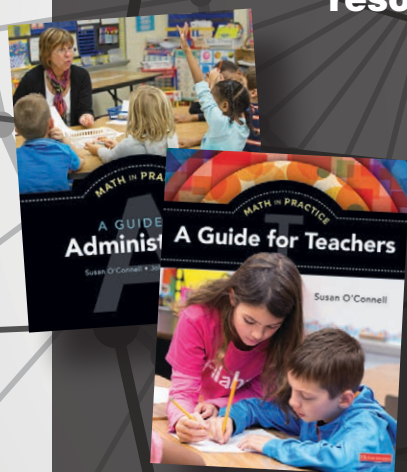
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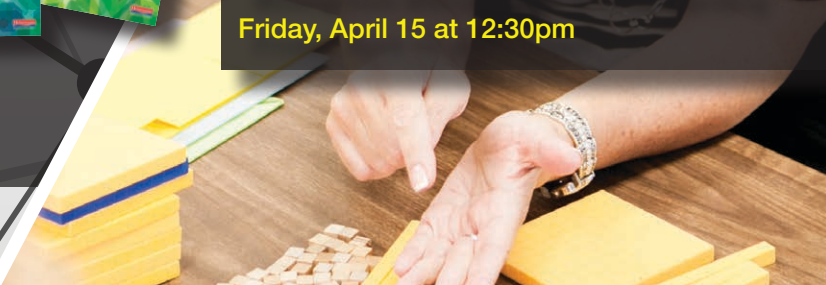


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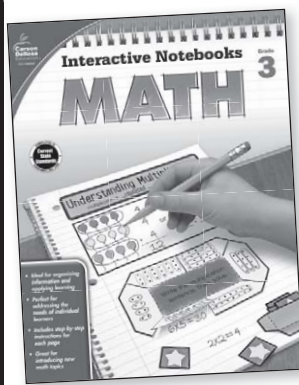
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Type: ☐ Consumer ☐ Educator

Name: \_\_\_\_\_ Title: \_\_\_\_\_

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Email: \_\_\_\_\_ @ \_\_\_\_\_ Phone: ( ) \_\_\_\_\_

Grade Level Taught: ☐ K-5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12  
☐ College/University ☐ AP/IB ☐ Other

Does your class/school use calculators? ☐ Y or ☐ N

Who determines the model calculator(s) used at your school? ☐ Superintendent/District ☐ Principal  
☐ Assistant Principal ☐ Department Chair ☐ Classroom Teacher

Would you like to be contacted by your Casio Representative? ☐ Y or ☐ N

Would you be interested in receiving free calculator training? ☐ Y or ☐ N

Notes: \_\_\_\_\_

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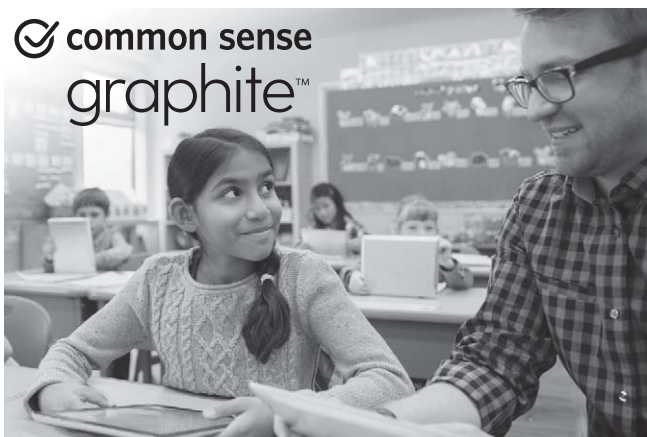
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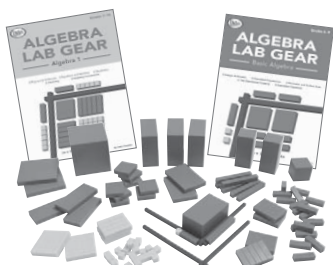
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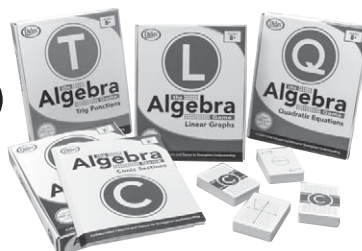


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Grade: ☐ PreK ☐ K-5 ☐ 6-8 ☐ 9-12



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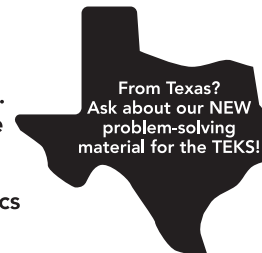




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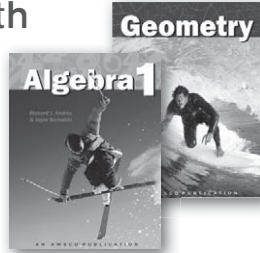
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School Phone \_\_\_\_\_ Your School E-mail \_\_\_\_\_

Grade Level \_\_\_\_\_ ☐ Teacher ☐ Admin (check one)

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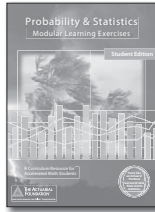
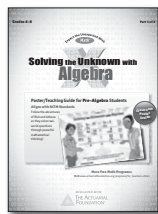
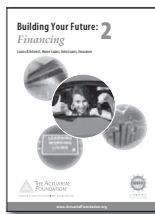
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☐ Statistics  
☐ Financial  
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☐ \_\_\_\_\_

**Grades:**

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☐ 9–12

**School Type:**

- ☐ Public  
☐ Private  
☐ Charter  
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