Celebrating 100 Years
LOOKING BACK AND MOVING FORWARD
Program Book
NCTM.org/100
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CITY __________________________ STATE ________ ZIP ________

PHONE __________________________
HOSTS
Illinois Council of Teachers of Mathematics
Metropolitan Mathematics Club of Chicago

MEETING FACILITY
All Annual Meeting presentations will be held at the
McCormick Place - Lakeside Center. See pages 110-117 for
door plans.

REGISTRATION
Wednesday 7:00 a.m. - 7:00 p.m.
Thursday 7:00 a.m. - 5:00 p.m.
Friday 7:00 a.m. - 5:00 p.m.
Saturday 7:00 a.m. - 12:00 p.m.

EXHIBITS
Thursday 9:00 a.m. - 5:00 p.m.
Friday 9:00 a.m. - 5:00 p.m.
Dedicated exhibit hall time is scheduled from 12:00 p.m.
to 1:00 p.m. on Thursday and Friday.

NCTM CENTRAL
Wednesday 10:00 a.m. - 6:00 p.m.
Thursday 9:00 a.m. - 5:00 p.m.
Friday 9:00 a.m. - 5:00 p.m.

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Mathematics present a variety of viewpoints. The content, affiliations, and
views expressed or implied in this publication, unless otherwise noted, should
not be interpreted as official positions of the Council. References to particular
commercial products by a speaker should not be construed as an NCTM
endorsement of said product(s). NCTM reserves the right to change speakers,
change facilities, or modify program content.

Some speakers on this program have elected to print their e-mail addresses as
a means for individual correspondence with conference attendees. Unsolicited
commercial e-mail or unsolicited bulk e-mail, whether or not that e-mail is
commercial in nature, is expressly prohibited. Any use of e-mail addresses
beyond personal correspondence is not authorized by NCTM.

National Council of Teachers of Mathematics, 1906 Association Drive, Reston, VA
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org; Web nctm.org.
Printed in U.S.A.
Welcome!

PROGRAM CHAIR’S WELCOME
Welcome to this very special Centennial Annual Meeting for mathematics education. Turning 100 is a BIG deal, so we plan to celebrate in a BIG way, throughout this conference and throughout the rest of the year!

Whether this is your first or 50th NCTM Annual Meeting, you are in for a professional learning treat. As always, you’ll find a wide variety of sessions, workshops, bursts, and networking opportunities to arm you with ideas, resources, tools, and materials to use with your students and share with colleagues. Opening speaker Christine Darden will kick off the celebration, and closing speaker Eugenia Cheng will encourage us as we move forward beyond the conference.

And let’s not forget about the additional celebratory activities, including attempting a GUINNESS WORLD RECORDS® title for the largest pattern blocks mosaic, celebrating NCTM history in song with Zalman Usiskin, and recognizing song contest winners on Thursday evening! We’ll also be highlighting Mathical Award authors in burst sessions and the reading room on both Thursday and Friday.

The Program Committee has also worked tirelessly to put together a diverse program with a range of topics and speakers for you to choose from. And don’t forget to visit the Exhibit Hall, where you’ll have the opportunity to visit with vendors and learn about resources for teaching and learning mathematics.

Borrowing from our celebration strands . . . we hope as we look back and move forward during our celebration event that you’ll experience the depth and excitement of mathematics as you explore the implementation of effective teaching practices to build student agency and foster student identity—all of which can create positive change. Enjoy your time here celebrating NCTM and mathematics education!

HOST AFFILIATES LIAISON’S WELCOME
Welcome to the NCTM Centennial Annual Meeting. We at Chicago Public Schools are extremely excited to host you in Chicago and encourage you to explore our great city. Feel free to check in with the conference hosts, the Illinois Council of Teachers of Mathematics and the Metropolitan Mathematics Club of Chicago, to discuss the exciting things happening in CPS or for a friendly restaurant recommendation. We look forward to learning with you!

PRESIDENT’S WELCOME
Welcome to the NCTM Centennial Annual Meeting and Exposition! NCTM’s rich 100-year history is a credit to the strength of its members, the thousands of volunteers who have given their time and expertise over the years, and visionary Board members and leaders. Together they are responsible for making the Council an influential and respected organization in the field of mathematics education. Simply put, NCTM is “Truly Wonderful and Getting Better.”

Our theme for the Centennial Annual Meeting, “Celebrating 100 Years—Looking Back and Moving Forward,” gives us the opportunity to acknowledge the “Truly Wonderful” legacy of the Council while at the same time looking toward the future to “Get Better.” As NCTM celebrates its centennial, we should look back and celebrate the rich legacy the Council has developed over its first 100 years.

Thank you for attending this special celebration. My hope for you is that we grow and learn together through our sense of community. If you are on social media please use #NCTM100 to post your learning, pictures, selfies, and reflections. Let’s memorialize this special celebration together.

EXECUTIVE DIRECTOR’S WELCOME
On behalf of the NCTM staff, welcome to Chicago and a conference that happens once in a lifetime. It’s exciting to see all the planning and work of the past two years come together in a celebration for thousands of attendees on the occasion of our centennial.

Whether you’re part of the attempt to set a GUINNESS WORLD RECORDS® title, exploring a 100-year timeline of NCTM accomplishments and significant events in math education, or attending an evening celebrating NCTM and mathematics through music, you’re part of a program that sets this Centennial Annual Meeting apart. And we’ll kick it off in style at the Opening Session.

Looking back, there is plenty to celebrate. Your participation in the Centennial Annual Meeting not only contributes to a brighter future for today’s students, it’s also moving NCTM forward.

Cynthia (Cindy) G. Bryant
Program Committee Chair
Greater Ozarks Cooperating School Districts, Missouri

Matthew Rosenberg
Host Affiliate Liaison
Chicago Public Schools, Illinois

Robert Q. Berry III
President
National Council of Teachers of Mathematics, Reston, Virginia

Ken Krehbiel
Executive Director
National Council of Teachers of Mathematics, Reston, Virginia
Types of Presentations

All presentations are open to all conference participants. Admission is on a first-come, first-served basis. Saving seats is not permitted.

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

**Workshops** (75 minutes) allow speakers to engage participants in an interactive environment. Rooms are set with round tables for interaction.

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

**Exhibitor Workshops** (60 minutes) allow exhibitors to showcase their products and services. Rooms are set in either theater or classroom style.

Grade Bands

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

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

Sunrise Yoga

Namaste! On Thursday, April 2, and Friday, April 3, from 6:00 a.m. to 7:00 a.m., come start the day with fellow yogis. The hour-long, all-levels yoga flow class will be located in the McCormick Place - South Building 4th level at 406 Lobby. Classes are limited to 50 attendees. The class fee is $20, which includes a yoga mat designed for math lovers. Advance registration is required. Space is limited, with on-site registration available. To register, please visit the NCTM Registration Desk the day prior to your class.

PiRun

On Saturday, April 4, at 6:00 a.m., we’ll start the final day of the Centennial Annual Meeting & Exposition with a 3.14-km fun run. (Preregistration required.)

Annual Meeting Overview & Orientation

Whether this is your first NCTM Annual Meeting or your twentieth, we have something for you! Hosted by members of the Board of Directors, this orientation will help you get the most out of your time at the Centennial Annual Meeting. Learn about the new features of this year’s meeting or discover something you missed at previous ones. Find out how to navigate presentations, learn to use our conference app, and network with other attendees.

- **Wednesday**  
  Presentation #1  
  4:00 p.m.–4:30 p.m.  
  E354 B (McCormick Place – Lakeside Center)

- **Thursday**  
  Presentation #3  
  7:15 a.m.–7:45 a.m.  
  E270 (McCormick Place – Lakeside Center)
Focus Strands

**IMPLEMENT THE EFFECTIVE TEACHING PRACTICES**
Sessions in this strand will highlight the eight Effective Mathematics Teaching Practices as defined in *Principles to Actions: Ensuring Mathematical Success for All*, with classroom-tested activities that allow all students to engage with and find success in mathematics. Examples include sessions that promote conceptual understanding and focus on strategic competence, and that support lasting learning, the choice of appropriate tools (including technological ones), the use of assessment to promote student learning, and an emphasis on effective intervention. Sessions will include evidence of classroom implementation, such as samples of student work or classroom videos.

**EXPERIENCE THE DEPTH AND EXCITEMENT OF MATHEMATICS**
“I never thought about ________ that way!” Sessions about experiencing the wonder, joy, and beauty of mathematics are appropriate for this strand. Sessions in this strand will help participants build deeper understanding of essential ideas and concepts about fundamental topics in mathematics. Sessions could also address new topics in mathematics that may be of interest to K-12 teachers (e.g., computational thinking, mathematical modeling), trajectories of big ideas, or important connections to other disciplines (e.g., design and engineering).

**LOOK BACK AND MOVE FORWARD: A CENTENNIAL VIEW**
This centennial event is a time for celebrating the successes of NCTM and the progress of mathematics education. Sessions in this strand will offer a centennial perspective on what has been done and learned about teaching and learning as well as on those obstacles that face our profession, and visions for mathematics education for the next 100 years.

**CREATE POSITIVE CHANGE**
Are you looking to create positive change with regard to mathematics teaching and learning? Sessions in the strand will explore ideas related to enhancing mathematics learning cultures in classrooms, schools, districts, and beyond. One such idea involves developing leadership: seeing teachers as leaders; encouraging the work of those who support teachers, such as instructional coaches; and clarifying the multifaceted role of school administrators in supporting mathematics teaching and learning. Effective professional learning structures and tools will be explored. This strand also provides space to examine systemic structures that promote sound, equitable mathematics teaching and learning for all students and ways to engage families, communities, and other stakeholders in the process.

**BUILD STUDENT AGENCY, FOSTER STUDENT IDENTITY, AND PROMOTE SOCIAL CHANGE**
This strand focuses on developing ways to build student agency, foster student mathematics identities, and promote social change. Sessions in this strand will focus on strategies that support and empower students to take risks and position them as doers of mathematics. Sessions include but are not limited to discussing equitable classroom norms and routines; creating spaces where students are socially and emotionally safe to engage in mathematics; and using mathematics to understand and critique the world.

**NEW TEACHER**
Get insights, strategies, and techniques for new, early-career, and preservice teachers that will support your growth and success. Come join us!
Wi-Fi Access
Complimentary Wi-Fi will be available in the McCormick Place – Lakeside Center.

Username: NCTM
Password: NCTM100

Mobile App
The NCTM app keeps you connected with every aspect of the Annual Meeting including sessions, speakers, and exhibits. This free app allows you to view the Exhibit Hall floor plan, highlight your favorite presentations, get a Twitter feed update (hashtag #NCTM100), rate presentations, and connect with other attendees. Visit nctm.org/confapp for more information.

In addition, the NCTM app connects to the mobile itinerary planner so you can personalize and keep track of everything in one convenient place.

Registration and Access to Presentations
Registration will be located in the McCormick Place – Lakeside Center in Exhibit Hall D. You must wear your badge to enter all presentations and the NCTM Exhibit Hall. You will need to show a picture ID to have your badge reprinted.

By registering for the NCTM Centennial 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.

Infinity Bar
The Infinity Bar gives you an opportunity to talk directly with highlighted conference speakers about issues related to mathematics education. Space is limited and time slots fill up fast. You can sign up in advance online or at the Infinity Bar on-site.

Speaker Handouts
Attendees can access available electronic speaker presentation handouts through the mobile app and itinerary planner.

Itinerary Planner
The itinerary planner is a great way to search the conference program book, set up your schedule, and download presentation handouts. The itinerary planner is updated with the latest program changes and presentation information. Visit nctm.org/Plan100.

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

Bookstore
Save 25% off the list price on all purchases made at the on-site NCTM Bookstore in Exhibit Hall D of the McCormick Place - Lakeside Center. You’ll find a selection of NCTM’s acclaimed books and publications as well as a variety of mathematics-themed specialty products that make great gifts, prizes, and incentives. Preview the store at nctm.org/catalog.

Note on Sales Tax Exemptions: To qualify for sales tax exemption in the NCTM Bookstore, you must furnish a copy of an Illinois 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.

The NCTM Bookstore is not equipped to handle shipping from the meeting site. FedEx on level 2 of the McCormick Place – Lakeside Center is ready to assist you with your shipping needs.
Performance Tasks, Rubrics, and Anchor Papers That Improve Student Learning

Problem Solving for the 21st Century

- **800+ problem-solving performance tasks** to develop and assess students’ critical thinking and reasoning skills.

- **Preliminary Planning Sheets** serve as the teacher’s guide to the task, outlining the math concepts and skills that students need to know as well as alternative strategies they may use to solve the problem. These also serve as a valuable assessment tool.

- **Assessment rubrics** provide teachers with clear guidelines for evaluating their students’ understanding and providing meaningful feedback.

- **Differentiated tasks** for instruction, exploration and formative assessment.

- **Corresponding summative assessments** include student anchor papers and scoring rationales.

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

- **Customizations** available for CCSSM and non-CCSSM based curriculums.
NCTM Central
Visit NCTM Central in Exhibit Hall D of the McCormick Place – Lakeside Center during exhibit hours to learn how NCTM supports you and the field of mathematics education:

- Get sample journals and more at Member Services. 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).
- Explore NCTM’s Classroom Resources and learn about NCTM’s collection of lesson plans, problems, and more.
- Join current and past NCTM presidents and board members as they share Tasks That Transcend Time in the Networking Lounge Presentation Area.
  A presentation schedule is available on the NCTM Central mobile app, and on the Wednesday schedule and pages 17 and 57.
- Learn about NCTM’s Professional Development offerings, including upcoming events (Regional and Annual Conferences) and NCTM’s new Professional Learning Services.
- Engage with like-minded attendees in the Shared Interest Groups. A group schedule is available on the NCTM Central mobile app, and on the Wednesday schedule and pages 17 and 57.

Celebrate 100 years by visiting NCTM Central and become eligible to win a prize.

Information Booth
There will be an NCTM Information Booth on level 3 of the McCormick Place – Lakeside Center. Convention staff will be available to answer your questions.

Lost-and-Found
You may retrieve or turn in lost-and-found items at the NCTM Information Booth in McCormick Place – Lakeside Center. At the end of the conference, lost-and-found items will be turned over to Convention Center Security.

Mother’s Room
A Mother’s Pod is located on the level 2 of McCormick Place – Lakeside Center and level 2.5 of McCormick Place – South Building. There is a sign on the pod with information to download the Mamava App.

First Aid
A first aid station will be staffed in the NCTM Exhibit Hall during the conference. If you need medical services while in Chicago, please check with your hotel concierge for the closest medical facilities. For any medical emergency, call 911 without hesitation.

For Your Child’s Safety
During installation and dismantle, no one under 16 years old will be allowed in the Exhibit Hall. Due to the size and professional nature of the conference, and for your child’s safety, children under the age of 16 are not permitted in the Exhibit Hall during show hours. Exceptions to this rule will be made for nursing mothers and their infants.

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 next to NCTM Annual Meeting Registration in Exhibit Hall D of the McCormick Place – Lakeside Center. Please pick up all items each day by closing time; you may not leave items overnight.
Special Events Section

Exhibit Hall Information
Visit the NCTM Exhibit Hall to explore, try out, and purchase products and services for your classroom or to help you meet your career goals. Meet the people who produce these products, get fresh ideas, and see how products work. The hall will be open on:

- Thursday 9:00 a.m.–5:00 p.m.
- Friday 9:00 a.m.–5:00 p.m.

Dedicated Exhibit Hall time is scheduled 12:00 p.m.–1:00 p.m. on Thursday and Friday. Concessions will be available in the back of the NCTM Exhibit Hall. Check out the map of the Exhibit Hall on pages 116-117 and the Exhibitor Directory on pages 118-126.

World Record: GUINNESS WORLD RECORDS® Title Attempt
Sponsored by hand2mind
Join us in the NCTM Exhibit Hall on Thursday, April 2, starting at 10:00 a.m. as we attempt a GUINNESS WORLD RECORDS® title for the largest pattern blocks mosaic.

Mathical Book Prize Authors
The Mathical Book Prize recognizes math-inspiring children's literature, both fiction and nonfiction, selected to inspire a love of math in the world around us. Prizewinning books are chosen by a committee of math teachers, reading teachers, librarians, math research professors, early childhood experts, and others. The list spans pre-K through grade 12 and features novels, biographies, chapter books, picture books, and more. Get the Mathical List at mathicalbooks.org.

The Mathical Book Prize is presented by the Mathematical Sciences Research Institute (MSRI) in partnership with the National Council of Teachers of English (NCTE) and the National Council of Teachers of Mathematics (NCTM), and in coordination with the Children's Book Council (CBC). The Mathical Book Prize is made possible with support from the Firedoll Foundation and the Patrick J. McGovern Foundation. MSRI thanks the Simons Foundation for founding support of the prize.

MSRI is proud to collaborate with NCTM to bring eight Mathical authors to the NCTM Centennial Annual Meeting.

Mathical Reading Room
In addition, we hope you will stop by the Mathical Reading Room to meet the Mathical Book Prize Authors. Browse the entire Mathical list in hard copy in the Mathical Reading Room located in the Exhibit Hall on Thursday and Friday. The authors will read from their award-winning books, sign books, and sell books. Authors would love to chat with you about using their books in the classroom.

MSRI
Mathematical Sciences Research Institute

Mathical
BOOK PRIZE
FROM NCTM PUBLICATIONS

Humanizing Disability in Mathematics Education: Forging New Paths
This book examines the current mindset and pedagogy that students with special needs encounter, and then it offers strategies and practices to humanize the mathematics experience for these students.
STOCK #15722

Activity Gems for the PK-2 Classroom
The Activity Gems in this volume are a selected and adapted set of lessons from NCTM’s Navigations series, with a special emphasis on incorporating the Mathematics Teaching Practices in NCTM’s Principles to Actions: Ensuring Mathematical Success for All. Teachers of PK-2 students can use these lessons to engage their students in exploring, thinking, connecting, and advancing in their mathematical understanding and confidence.
STOCK #15753

Math That Matters: Targeted Assessment and Feedback for Grades 3–8
This resource by popular professional developer Marian Small comprehensively addresses different mathematical domains for grades 3–8.
STOCK #15893

Learning Trajectories for Teachers: Designing Effective Professional Development for Math Instruction
Designed to strengthen the teaching of mathematics in the elementary grades, this book focuses on helping teachers engage in instruction based on learning trajectories. The authors bring together the experiences and key research-based findings of four different groups of teacher educators. The book includes a final discussion and commentary chapter by professional development researcher Hilda Borko.
STOCK #15791

Mathematical Thinking: From Assessment Items to Challenging Tasks
This compilation of problem-based activities encourages students to engage in productive struggle and deep thinking.
STOCK #14854

Check out these and other new releases at nctm.org/store
Wednesday

**NETWORKING LOUNGE: TASKS THAT TRANSCEND TIME**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Task</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:30 p.m.-1:15 p.m.</td>
<td><strong>Session: Tasks Matter</strong></td>
<td><strong>Task: The Unusual Baker</strong> Grades 3-5</td>
<td>Margaret (Peg) Smith</td>
</tr>
<tr>
<td>1:30 p.m.-1:50 p.m.</td>
<td><strong>Task: Stairs Task</strong> Middle Grades</td>
<td></td>
<td>John SanGiovanni</td>
</tr>
<tr>
<td>2:00 p.m.-2:20 p.m.</td>
<td><strong>Task: Packing Candies</strong> Elementary</td>
<td></td>
<td>Fred Dillon</td>
</tr>
<tr>
<td>2:30 p.m.-2:50 p.m.</td>
<td><strong>Task: Linear and Quadratic Change: A Problem from Japan</strong> Upper Middle/High School</td>
<td></td>
<td>Latrenda Knighten</td>
</tr>
<tr>
<td>3:00 p.m.-3:20 p.m.</td>
<td><strong>Task: Linear and Quadratic Change: A Problem from Japan</strong> Upper Middle/High School</td>
<td></td>
<td>Jennifer Outz</td>
</tr>
</tbody>
</table>

*Author will be available after talk for book signing*

**NETWORKING LOUNGE: SHARED INTEREST GROUPS**

<table>
<thead>
<tr>
<th>Time</th>
<th>Group</th>
<th>Speakers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:00 p.m.-2:00 p.m.</td>
<td><strong>NCTM/SIAM/COMAP Math Modeling</strong></td>
<td>Jennifer Suh, Benjamin Galluzzo, and Daniel Teague</td>
</tr>
<tr>
<td>3:00 p.m.-4:00 p.m.</td>
<td><strong>Place Value and the Anti-Racist Mathematician</strong></td>
<td>Hema Khodai, Marian Dingle, Ralph Pantozzi, Tina Cardone, and Ty Martinez-Black</td>
</tr>
</tbody>
</table>

**Highlights**

- Annual Meeting Overview & Orientation .................................................. 1
- Opening Session: T-Strap Shoes & a Sac Dress—“What Love Can Do” ... 2

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**Author Panel Talks**

Join us for **two** Author Panel Talks at the Centennial Annual Meeting!

**Classroom Tasks**

**Thursday, April 2**
2:30–3:30 pm, Room E256

Join celebrated authors as they discuss rich tasks that are classroom ready.

**Access and Equity**

**Friday, April 3**
2:30–3:30 pm, Room E256

Come learn how access and equity can influence your teaching practices.
Regional Caucuses

2:00pm–4:00pm

The NCTM Affiliates’ Region 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 for the Delegate Assembly information. The Regional Caucuses information is below.

ALL REGIONAL CAUCUSES WILL BE HELD AT THE MCCORMICK PLACE – LAKESIDE CENTER.

<table>
<thead>
<tr>
<th>REGION</th>
<th>PRESIDERS</th>
<th>ROOM</th>
</tr>
</thead>
</table>
| Affiliate-at-Large | Carol Matsumoto, Retired, Winnipeg, Manitoba, Canada  
                        Denise Walston, Council of the Great City Schools, Washington, D.C. | E259 |
| Canadian     | Michelle Naidu, Saskatchewan Teachers Federation, Saskatoon, Saskatchewan, Canada | E271B|
| Central      | Jackie Murawska, Skokie/Morton Grove School District 69, Skokie, Illinois  
                        Becky Walker, Howard-Suamico School District, Green Bay, Wisconsin | E258 |
| Eastern      | Jeffrey Corbishley, Ridgefield Public Schools, Ridgefield, Connecticut  
                        Joanna Burt-Kinderman, Pocahontas County Schools, Buckeye, West Virginia | E265 |
| Southern     | Judy Rodgers, Rodgers Educational Consulting, Williamsburg, Virginia  
                        Ryan Nivens, Clemmer College, East Tennessee State University, Johnson City, Tennessee | E271A|
| Western      | Joanie Funderburk, Texas Instruments, Parker, Connecticut  
                        Jeffrey Corbishley, Ridgefield Public Schools, Ridgefield, Connecticut | E270 |
Get an extra 15% off all professional books. Use code NCTM2020 from 4/1–4/15.

IDEAS AND EXPERTISE FROM STENHOUSE AUTHORS TO YOUR CLASSROOM

**Rough Draft Math**
Revising to Learn
Amanda (Mandy) Jansen

**Hands Down, Speak Out**
Listening and Talking
Across Literacy and Math
Kassia Omohundro Wedekind
and Christy Hermann Thompson

**Early Childhood Math Routines**
Empowering Young Minds to Think
Antonia Cameron with Patricia Gallahue
and Danielle lacoviello

**Open Middle Math**
Problems That Unlock Student Thinking, Grades 6–12
Robert Kaplinsky

**Beyond Answers**
Exploring Mathematical Practices with Young Children
Mike Flynn

**Choral Counting & Counting Collections**
Transforming the PreK–5 Math Classroom
Megan L. Franke, Elham Kazemi,
and Angela Chan Turrou

**How Many?**
A Counting Book and Teacher’s Guide
Christopher Danielson

**Becoming the Math Teacher You Wish You’d Had**
Ideas and Strategies from Vibrant Classrooms
Tracy Johnston Zager

**Up for Debate!**
Exploring Math Through Argument
Chris Luzniak

**Understanding the Math We Teach and How to Teach It Classroom Libraries Collections, Grades K–3 and 4–8**
From early number concepts to fractions and decimals, each of the two collections (K–3 and 4–8) offer high-quality books that can supplement your math instruction while enriching your classroom library.

**Building Fact Fluency: A Toolkit for Addition & Subtraction**
Developed by math specialist, Graham Fletcher, this comprehensive toolkit provides everything a teacher needs to help students develop number sense on the way to fluency—from cards, games, and videos to online resources, a facilitator’s guide, and hundreds of highly-engaging activities and tasks.

Stenhouse.com | 800-988-9812
Wednesday Afternoon Sessions

4:00pm–4:30pm

Annual Meeting Overview & Orientation
General Interest Session
McCormick Place • Lakeside Center, E354B

5:30pm–7:00pm

Opening Session: T-Strap Shoes & a Sac Dress—“What Love Can Do”
General Interest Session
McCormick Place • Lakeside Center, Arie Crown

Dr. Darden will share her story of how her LOVE for mathematics and aerospace affected her entire life—from being a mathematics teacher, to working at NASA for 40 years, and eventually to speaking to young people all over the country about how she developed the discipline to accomplish this career. And it started with t-strap shoes and a sac dress!!

Dr. Christine Darden, National Aeronautics and Space Administration (NASA), Retired

After she began her education in segregated schools in her hometown of Monroe, North Carolina, Christine Darden’s parents enrolled her in 1956 in a boarding school where two events totally changed her life. The first was a math class she took—Plane Geometry—where the teacher who taught the subject was unlike any other teacher she had seen. Christine was fascinated by this teacher and her habit of wearing “T-strap shoes” and “sac dresses” almost every day. At a “Teacher-Switch Day” later in the year, Christine asked to be the geometry teacher for the day and went on a search for her own pair of T-strap shoes and sac dress.

The second was during her senior year, when one of Christine’s jobs was taking the morning newspaper to the library. On the morning of October 5, 1957, Christine brought in the paper and saw this headline: “SOVIET UNION LAUNCHES SPUTNIK.” In this session, Christine will share the story of how her love for mathematics and aerospace has impacted her entire life.
GREAT MATH
at your
DOORSTEP

NCTM REGIONAL CONFERENCES & EXPOSITIONS unite you with math education leaders and colleagues in a setting that fosters collaboration, conversation, and the sharing of knowledge. Learn about superior resources and innovative ideas that will help drive student success in your classroom, school, and district.

YOU’LL HAVE ACCESS TO THE FOLLOWING:

- New strategies you can immediately put to use in the classroom
- Updates on best practices from recognized innovators
- In-depth discussions about the latest math education tools
- Opportunities to connect, learn, and share with like-minded peers
- The latest educational products and resources in the exhibit hall

WHO SHOULD ATTEND?

- PK–Grade 12 classroom teachers
- Math coaches
- Administrators
- Math teacher educators
- Preservice teachers
- Math specialists

Join NCTM in Tampa, Baltimore, or Dallas and access information and tools that will help lead your students to success in the classroom and beyond.

nctm.org/regionals

TAMPA | NOVEMBER 11–13, 2020
BALTIMORE | FEBRUARY 17–19, 2021
DALLAS | MARCH 25–27, 2021
BIG IDEAS MATH

BY RON LARSON AND LAURIE BOSWELL

One voice K–12 mathematics curriculum by Ron Larson and Laurie Boswell. No other authorship team provides a balance of classroom experience and mathematical expertise for Kindergarten through Algebra 2.

Congratulations NCTM on a Century of Leadership in Mathematics Education! Here’s to another hundred years!

Visit the Big Ideas Learning booth, #511, to learn more and to find out what events are planned for the day!

- Live Math Musicals at the top of every hour
- In-booth education sessions
- Coffee and pastry cafe every morning and afternoon
- And more!

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Thursday

Highlights

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**NETWORKING LOUNGE: TASKS THAT TRANSCEND TIME**

<table>
<thead>
<tr>
<th>Time</th>
<th>Task</th>
<th>Presenter</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:00 a.m.-10:20 a.m.</td>
<td><strong>Task:</strong> Is Women's Income Catching Up to Men's? Grades 8-10</td>
<td>Gail Burrill</td>
</tr>
<tr>
<td>10:30 a.m.-10:50 a.m.</td>
<td><strong>Task:</strong> Taxman, a Twist on the Factor Game Grades 3-5</td>
<td>Linda Gojak</td>
</tr>
<tr>
<td>11:00 a.m.-11:20 a.m.</td>
<td><strong>Task:</strong> Fraction Density Grades 4-7</td>
<td>Skip Fennell</td>
</tr>
<tr>
<td>11:30 a.m.-11:50 a.m.</td>
<td><strong>Article:</strong> An Appetite for Fractions! MTMS</td>
<td>Trena Wilkerson</td>
</tr>
<tr>
<td>12:00 p.m.-12:20 p.m.</td>
<td><strong>Task:</strong> Students Building Expressions/Functions with Reasoning Grade 7—Advanced High School</td>
<td>Hank Kepner</td>
</tr>
<tr>
<td>12:30 p.m.-12:50 p.m.</td>
<td><strong>Task:</strong> The McDonald's Problem Middle/High</td>
<td>Diane Briars</td>
</tr>
<tr>
<td>1:00 p.m.-1:20 p.m.</td>
<td><strong>Task:</strong> Would You Work for Me? Secondary</td>
<td>Johnny Lott</td>
</tr>
<tr>
<td>1:30 p.m.-1:50 p.m.</td>
<td><strong>Task:</strong> Fostering Geometric Thinking Grades 6-10</td>
<td>Cathy Seeley</td>
</tr>
<tr>
<td>2:00 p.m.-2:20 p.m.</td>
<td><strong>Task:</strong> Sharing Money Multiple Grade Levels</td>
<td>Marilyn Strutchens</td>
</tr>
<tr>
<td>2:30 p.m.-2:50 p.m.</td>
<td><strong>Task:</strong> Quotient Quandry Reversibility Task Upper Elem/Early Middle</td>
<td>Sarah Bush</td>
</tr>
<tr>
<td>3:00 p.m.-3:20 p.m.</td>
<td><strong>Task:</strong> Patty Paper Geometry Middle Grades</td>
<td>Robert Berry</td>
</tr>
<tr>
<td>3:30 p.m.-3:50 p.m.</td>
<td><strong>Task:</strong> The Case of the Grouchy Customers Grades 6+</td>
<td>Michael Shaughnessy</td>
</tr>
</tbody>
</table>

* Author will be available after talk for book signing

**NETWORKING LOUNGE: SHARED INTEREST GROUPS**

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Facilitators</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:00 a.m.-11:00 a.m.</td>
<td>Detracking: Creating Equitable Structures</td>
<td>Bryan Meyer, Andrea McCloskey, and Theodore Chao</td>
</tr>
<tr>
<td>12:00 p.m.-1:00 p.m.</td>
<td>Statistics Education</td>
<td>Christine Franklin and Rebecca Nichols</td>
</tr>
<tr>
<td>2:00 p.m.-3:00 p.m.</td>
<td>NCTM/SIAM/COMAP Math Modeling</td>
<td>Jennifer Suh, Benjamin Galluzzo, and Daniel Teague</td>
</tr>
</tbody>
</table>

Registration Hours 7:00 a.m.-5:00 p.m.
Exhibit & NCTM Central Hours 9:00 a.m.-5:00 p.m.
Thursday

The Infinity Bar and the Wellness Workshops will be held in the NCTM Exhibit Hall.

**Infinity Bar:** Conference speakers will talk to individuals or groups of teachers about issues related to mathematics education. You will be able to sign up either in advance or on-site to speak to someone at a designated time.

**Wellness Workshops:** Take time to focus on your well-being. As teachers, you need to constantly respond to change, manage a work/life balance, and stay grounded. These sessions will help you manage life’s challenges as a classroom teacher.

### INFINITY BAR

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker 1</th>
<th>Speaker 2</th>
<th>Speaker 3</th>
<th>Speaker 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:30 a.m.-10:30 a.m.</td>
<td>Marian Small</td>
<td>Skip Fennell</td>
<td>Annie Fetter</td>
<td>Tim Kanold</td>
</tr>
<tr>
<td>11:00 a.m.-12:00 p.m.</td>
<td>Gladis Kersaint</td>
<td>Diane Briars</td>
<td>Eli Luberoff</td>
<td>Crystal Morton</td>
</tr>
<tr>
<td>12:30 p.m.-1:30 p.m.</td>
<td>Jo Boaler</td>
<td>Maggie McGatha</td>
<td>Marian Dingle</td>
<td>Gail Burrill</td>
</tr>
<tr>
<td>2:00 p.m.-3:00 p.m.</td>
<td>Marilyn Burns</td>
<td>Johnny Lott</td>
<td>Cathy Seeley</td>
<td>Dan Meyer</td>
</tr>
<tr>
<td>3:30 p.m.-4:30 p.m.</td>
<td>Robert Berry</td>
<td>Fred Dillon</td>
<td>Florence Glanfield</td>
<td>Trena Wilkerson</td>
</tr>
</tbody>
</table>

### WELLNESS WORKSHOPS

**Tidying Up Your Life: Declutter and Clear**
Arianna Brooks, Corepower Yoga Certified Instructor

To be a teacher, one must have a high level of organizational prowess. This wellness workshop will help hone/find those skills for life outside of your classroom parameters. We will discuss tips and tricks you can use to organize, declutter, and clear your home.

**Vulnerability as Self-Care**
Laila Nur, LAUSD

Not much can prepare us for the emotional strength and investment that is required to be an educator. We give so much. The emotional toll of teaching can cause us to suppress “negative” emotions as a defense mechanism, but this does more harm than good. This session will work to create a safe space for us to process, reframe, and learn how to share those emotions as an act of vulnerability for our own self-care.

**Thank You: A Journaling Workshop**
Ruth Cohen, Yoga Alliance Certified Instructor

In this workshop, we will explore ways in which to be thankful in your personal and professional lives. We will go over a number of writing prompts on thankfulness and then have journaling time. Each workshop attendee will receive a writing essentials package to aid in your journaling journey.

**Notes**
THURSDAY

**Thursday Morning Sessions**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:15am–7:45am</td>
<td>Annual Meeting Overview &amp; Orientation</td>
</tr>
<tr>
<td></td>
<td>McCormick Place - Lakeside Center, E270</td>
</tr>
<tr>
<td>7:30am–9:00am</td>
<td>Seventy-First Annual Delegate Assembly</td>
</tr>
<tr>
<td></td>
<td>McCormick Place - South Building, S406A</td>
</tr>
</tbody>
</table>

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CPM EDUCATIONAL PROGRAM

Empowering mathematics students and teachers for 30 years through exemplary curriculum, professional development, and leadership

- Curriculum written by a team of experienced teachers
- Problem-based lessons for active student engagement
- Free, comprehensive professional learning progression to support teacher expertise, growth, and leadership
- Educational nonprofit 501(c)(3)

We are pleased to support the NCTM Centennial Annual Meeting in Chicago. Stop by booth #1221 to meet with a CPM mentor teacher, see our materials, and request a preview.

Visit CPM.ORG/cpminfo or scan the QR code to get more information and view our conference sessions.

MORE MATH FOR MORE PEOPLE

CPM EDUCATIONAL PROGRAM

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Notes
### Thursday Morning Sessions

<table>
<thead>
<tr>
<th>Session</th>
<th>Title</th>
<th>Location</th>
<th>Time</th>
<th>Speakers</th>
<th>Presentations</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>COVE Early Learning, Where Content Overlaps Verbal-Language &amp; Efficacy</td>
<td>McCormick Place - Lakeside Center, E261</td>
<td>8:00am–9:00am</td>
<td>Kristin Klingensmith, Institute for Learning, University of Pittsburgh, Pennsylvania&lt;br&gt;Victoria Bill, Institute for Learning, University of Pittsburgh, Pennsylvania</td>
<td>@klingensmith&lt;br&gt;@vbillmath</td>
</tr>
<tr>
<td>6</td>
<td>Creating Real-World Learning Situations in Your Elementary Math Classroom</td>
<td>McCormick Place - Lakeside Center, E351</td>
<td>8:00am–9:00am</td>
<td>Julie Thiele, Kansas State University, Manhattan&lt;br&gt;Sherri Martinie, Kansas State University, Manhattan</td>
<td>@klingensmith&lt;br&gt;@vbillmath</td>
</tr>
<tr>
<td>7</td>
<td>Deepening Number Sense &amp; Eliciting Student Thinking with a Rekenrek</td>
<td>McCormick Place - Lakeside Center, D2 - B</td>
<td>8:00am–9:00am</td>
<td>Pia Hansen, Math Learning Center, Cheyenne, Wyoming&lt;br&gt;Tod Johnston, Clarity Innovations, Portland, Oregon</td>
<td>@klingensmith&lt;br&gt;@vbillmath</td>
</tr>
<tr>
<td>8</td>
<td>(Re)Thinking Fractions with Dynamic Ruler</td>
<td>McCormick Place - Lakeside Center, D2 - K</td>
<td>8:00am–9:00am</td>
<td>Sheunghyun Yeo, University of Missouri-Columbia</td>
<td>@klingensmith&lt;br&gt;@vbillmath</td>
</tr>
<tr>
<td>9</td>
<td>Amplifying Language in Sense-Making Routines</td>
<td>McCormick Place - Lakeside Center, D2 - I</td>
<td>8:00am–9:00am</td>
<td>Nichole Lindgren, Buncombe County Schools, Asheville, North Carolina&lt;br&gt;Erin Sylves, Fairfax County Public Schools, Fairfax, Virginia</td>
<td>@klingensmith&lt;br&gt;@vbillmath</td>
</tr>
<tr>
<td>10</td>
<td>Sense Making through Socratic Math</td>
<td>McCormick Place - Lakeside Center, E260</td>
<td>8:00am–9:00am</td>
<td>Mario Valdez, Oak Grove Elementary, Porterville, California&lt;br&gt;@ogstars_val</td>
<td>@klingensmith&lt;br&gt;@vbillmath</td>
</tr>
<tr>
<td>11</td>
<td>Frogs, Cubes, and Robots: Integrating Design Thinking through Origami-Based STEAM Projects</td>
<td>McCormick Place - Lakeside Center, E263</td>
<td>8:00am–9:00am</td>
<td>Norma Boakes, Stockton University, Galloway, New Jersey</td>
<td>@klingensmith&lt;br&gt;@vbillmath</td>
</tr>
</tbody>
</table>
Thursday Morning Sessions

18  Using Representations as a Tool for Sense Making and Justification in High School Algebra
8–10 Session
McCormick Place - Lakeside Center, E267
Scott Hendrickson, Mathematics Vision Project, American Fork, Utah
@ScottMVPMath

19  Machine Learning and the Future of Mathematical Modeling
10–12 Session
McCormick Place - Lakeside Center, E264
Jedediah Williams, Nantucket High School, Massachusetts
@jedediah

20  Self-Assessment in Math? How?
10–12 Session
McCormick Place - Lakeside Center, D2 - F
Claudia Mathison, Ursuline Academy of Dallas, Texas
Katelyn Hayes, Ursuline Academy of Dallas, Texas

21  The Model Rocket Challenge with Euler's Method and Python
10–12 Session
McCormick Place - Lakeside Center, D2 - H
North Carolina School of Science and Mathematics, Durham

22  Go Open: Our Journey and Results with a K-12 Transition to Open Educational Resources (OERs)
Coaches/Leaders/Teacher Educators Session
McCormick Place - Lakeside Center, D2 - G
Brian Seguin, School District of the Menomonie Area, Wisconsin
@seguin_b
Amy Zuber Seguin, School District of the Menomonie Area, Wisconsin

23  A Tool to Support Formative Assessment of Equitable Mathematics Teaching and Learning Practices
General Interest Session
McCormick Place - Lakeside Center, D2 - E
Ruth Heaton, Teachers Development Group, Portland, Oregon

24  Choose Your Own Adventure: Equity-Minded Teacher Edition
General Interest Session
McCormick Place - Lakeside Center, D2 - J
Hema Khodai, Brampton, Ontario, Canada
Tina Cardone, Lesley University, Cambridge, Massachusetts
Marian Dingle, DeKalb County School District, Georgia

General Interest Session
McCormick Place - South Building, S401D
Thomas McDougal, Lesson Study Alliance, Chicago, Illinois
@TFMcD

26  Making Assessment an Integral Part of Instruction: A Focus on Numerical Reasoning, Grades K-8
General Interest Session
McCormick Place - Lakeside Center, Arie Crown
Marilyn Burns, Self-Employed, Sausalito, California
@mburnsmath

27  Powerful Moments in Math Class: Why Certain Experiences Stand Out and How We Create More of Them
General Interest Session
McCormick Place - Lakeside Center, E350
Michael Flynn, Mount Holyoke College, South Hadley, Massachusetts
@MikeFlynn55

28  True Confessions of Math Educators = Learning How to Best Serve Our Students
General Interest Session
McCormick Place - Lakeside Center, E354B
Andrew Stadel, Tustin Unified School District, California
@mr_stadel
Thursday Morning Sessions

29 What Math Do Elementary Math Teachers Really Need to Know?
General Interest Session
McCormick Place - South Building, S406B
Marian Small, University of New Brunswick, Canada
@marian_small

30 You’ve Got Stories: Now It’s Time to Write!
General Interest Session
McCormick Place - Lakeside Center, D2 - L
Angela Barlow, University of Central Arkansas, Conway

31 Free Problem Posing and the Impact on Developmental Mathematics Students
Higher Education Session
McCormick Place - Lakeside Center, E259
John Sevier
Appalachian State University, Boone, North Carolina
Michael Bosse
Appalachian State University, Boone, North Carolina
Anthony Fernandes
University of North Carolina at Charlotte

31.1 Teaching Students to Think with Dimensions Math
3-5 Exhibitor Workshop
McCormick Place - Lakeside Center, E253B
Singapore Math

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DOWNLOAD NCTM CENTRAL

Plan your itinerary by speaker, grade band or strand.
Play the interactive game with fun prizes.
Search exhibitors and record notes.
Connect with other attendees.
Get important alerts.
Thursday Morning Workshops

8:00am–9:15am

32 New Teachers Kickoff
   Workshop
   McCormick Place - Lakeside Center, E271A
   Dave Barnes, National Council of Teachers of Mathematics, Reston, Virginia

33 Building Children’s Mathematical Knowledge via Play-Based Learning
   Pre-K-2 Workshop
   McCormick Place - Lakeside Center, E258
   Elizabeth Gamino, California Math Council - Central, Fresno @missmath229
   Jaclyn Russell, Clovis Unified School District, California

34 Come Experience Tools, Techniques, and Technology to Amplify ALL Student Voices in K-2 Mathematics
   Pre-K-2 Workshop
   McCormick Place - South Building, S405
   Cheryl Fricchione, Educational Consultant, Toms River, New Jersey @mathcoachchery
   Emily Steenwyk, Rodeph Sholom School, New York, New York
   Michelle Alperin, Rodeph Sholom School, New York, New York

35 Empowering Early Learners’ Mathematical Thinking
   Pre-K-2 Workshop
   McCormick Place - South Building, S404A
   Toni Galassini, Chicago Public Schools, Illinois @ToniGalassini
   Gavin Creaden, Chicago Public Schools, Illinois

36 Math Games That Count: More Than FUN and Games—Promoting Math SUCCESS through Play!
   Pre-K-2 Workshop
   McCormick Place - Lakeside Center, E353B
   Seema Gersten, Emek Hebrew Academy, Sherman Oaks, California
   Danielle Lototsky, Emek Hebrew Academy, Sherman Oaks, California
   Karley Cacibaua, Emek Hebrew Academy, Sherman Oaks, California

37 Calling All Students’ Reasoning! Setting Up Your Class Environment to Nurture Mathematical Writing
   3-5 Workshop
   McCormick Place - South Building, S404B
   Fabiana Cardetti, University of Connecticut, Storrs
   Madelyn Colonnese, University of North Carolina at Charlotte
   Tutita Casa, University of Connecticut, Mansfield

38 Division by Zero: The Math, the Myth, and the Legend
   3-5 Workshop
   McCormick Place - South Building, S403
   Joann Barnett, Missouri State University, Ozark

39 Embed STEM to Create Reasons for Students to Reason
   3-5 Workshop
   McCormick Place - South Building, S402
   Jennifer Leimberger, University of Illinois at Chicago @jleimberger1
   Elizabeth Cape, University of Illinois at Chicago

40 Five Strategies for Making Your Math Classroom Come Alive for English Language Learners
   3-5 Workshop
   McCormick Place - Lakeside Center, E353C
   Eric Siegel, Generation Ready, Brooklyn, New York
   Megan Demarkis, Public School 139, Brooklyn, New York

41 Celebrating 100 Years with Big Beautiful Problems
   6-8 Workshop
   McCormick Place - Lakeside Center, E451B
   Alicia Burdess, Grande Prairie and District Catholic Schools, Alberta, Canada @BurdessAlicia
   Jessie Shirley, Grande Prairie and District Catholic Schools, Alberta, Canada

42 Creating Access and Support for Struggling Middle School Students
   6-8 Workshop
   McCormick Place - South Building, S401BC
   Allison Krasnow, Willard Middle School, Berkeley, California @allison_krasnow
   Geeta Makhija, King Middle School, Berkeley, California
Thursday Morning Workshops

**People Count: Math and Demography in the Year of the Census**
6–8 Workshop
McCormick Place - Lakeside Center, E271B
Carol Biese, Population Education, Washington, D.C.
@PopulationEd

**Building a Pathway to Student Success with Learning Goals and Evidence of Student Thinking**
8–10 Workshop
McCormick Place - Lakeside Center, E450A
Allan Bellman, University of Mississippi, Oxford
@abellman7
Hanah Ryan, University of Mississippi, Oxford

**Who’s Hiding? Empathizing and Expanding Opportunities for All**
8–10 Workshop
McCormick Place - South Building, S404D
Matthew Rosenberg, Chicago Public Schools, Illinois
@mrberg
Romel Coleman, Chicago Public Schools, Bridgeport, Illinois
Latanya Robertson, Chicago Public Schools, Illinois

**Dice Tic-Tac-Toe Bingo**
10–12 Workshop
McCormick Place - Lakeside Center, E450B
James Krzeminski, Niles West High School, Skokie, Illinois
@jamkrz
Robert Nortillo, Niles West High School, Skokie, Illinois
Matthew Fahrenbacher, Niles West High School, Skokie, Illinois

**Modeling: Teaching It Right!**
10–12 Workshop
McCormick Place - Lakeside Center, E353A
David Ewing, University of Central Missouri, Warrensburg

**What Would Your Dream Math Course Look Like?**
10–12 Workshop
McCormick Place - South Building, S401A
Jeremy Judge, Walter Payton College Prep, Chicago, Illinois
@jezzajudge

**A Buffet of Tasks and Tools for Elementary Mathematics Content Courses and K-8 Coaches**
Coaches/Leaders/Teacher Educators Workshop
McCormick Place - Lakeside Center, E451A
Jackie Murawska, Skokie/Morton Grove School District 69, Illinois
@murawskamath
Keith Nabb, University of Wisconsin–River Falls

**Build Procedural Fluency for Multiplication/Division that “Sticks” to its Conceptual Base!**
3–5 Workshop
McCormick Place - Lakeside Center, E265
Mary Leer, Consultant, New York, New York
Makoto Yoshida, East West Math, Madison, New Jersey
Thursday Morning Sessions

9:30am–10:30am

51 A “Quick Look” at Using Ten-Frame Images to Develop Addition Fact Strategies in Meaningful Ways
Pre-K–2 Session
McCormick Place - Lakeside Center, E352
Gina Kling, Western Michigan University, Kalamazoo

52 Community, Culture, and Mathematics: Developing Lessons That Engage and Connect ALL Students.
Pre-K–2 Session
McCormick Place - Lakeside Center, D2 - A
Justin Burris, University of Houston, Texas
@drburrismath

53 LSA: Students Explore How To Calculate Subtraction Problems Involving Regrouping 1 Hundred Into 10 Tens
Pre-K–2 Session
McCormick Place - South Building, S401D
Rebecca Reddicliffe, Chicago Public Schools, Illinois

54 Frameworks, Rubrics, and Criteria: Empower Teacher Leaders and Encourage Positive Change
3–5 Session
McCormick Place - Lakeside Center, D2 - B
Annie Forest, Berwyn South District 100, Illinois
@mrsforest

55 Fun Ways to Use Technology in Enhancing any Math Program
3–5 Session
McCormick Place - Lakeside Center, D2 - K
Susan Weiss, Solomon Schechter Day School, Brookline, Massachusetts

56 Getting Started with Differentiation in Your Math Workshop
3–5 Session
McCormick Place - Lakeside Center, D2 - E
Alison Mello, Foxborough Public Schools, Massachusetts
@alisonmellomathpd

57 Guided Math: Success for You and Your Students (Grades 3-5)
3–5 Session
McCormick Place - Lakeside Center, E259
Brittany Goerig, hand2mind, Libertyville, Illinois
@bgoerig
Reagan Tunstall, Tunstall’s Teaching Tidbits

58 “Black Is Positive”: Using Game Play with Urban Middle School Students to Increase Number Fluency
6–8 Session
McCormick Place - Lakeside Center, E260
Lesa Covington Clarkson, University of Minnesota, St. Paul
Elena Contreras Gullickson, University of Minnesota, St. Paul
Jessica Forrester, University of Minnesota, St. Paul

59 Developing Powerful Creators of Mathematics through Rich Argumentation Discourse
6–8 Session
McCormick Place - Lakeside Center, E261
Jennifer Knudsen, TERC, Austin, Texas
@jen_knudsen
Teresa Lara-Meloy, SRI International, Menlo Park, California
Harriette Stevens, SRI International, San Francisco, California

60 Math + Language Teaching Strategies = Success!
6–8 Session
McCormick Place - South Building, S406A
Cathy Marks Krpan, University of Toronto, Ontario, Canada
@CathyMarksKrpan

61 Archimedes’ Box
8–10 Session
McCormick Place - Lakeside Center, D2 - C
Don Balka, Saint Mary’s College, Notre Dame, Indiana

62 Igniting Discourse: Routines for Sparking Mathematical Conversations
8–10 Session
McCormick Place - Lakeside Center, D2 - I
Donna Brink, Pinkerton Academy, Derry, New Hampshire
Ben Winchell, Pinkerton Academy, Derry, New Hampshire
Tracey Mouaison, Pinkerton Academy, Derry, New Hampshire

63 Math Camp: A Summer Intervention That Allows Students to Relax and Find Success in Mathematics
8–10 Session
McCormick Place - Lakeside Center, E263
Cathy Gaspard, California State University, Northridge
@cat_gaspard
Thursday Morning Sessions

64 Strategies for Engaging and Enhancing Student Motivation in Mathematics
   8-10 Session
   McCormick Place - Lakeside Center, E264
   James Middleton, Arizona State University, Tempe
   @jimboasu

65 Integrating Euler Into AP Calculus: His Context, Results, and Legacy
   10-12 Session
   McCormick Place - Lakeside Center, E267
   Brent Ferguson, The Lawrenceville School, New Jersey
   @BAFerg
   Teresa Misiak, Hopewell Valley Central High School, New Jersey

66 Taylor Polynomials and Series from the Ground Up
   10-12 Session
   McCormick Place - Lakeside Center, D2 - H
   Brian Shay, San Dieguito Union High School District, San Diego, California
   @MrBrianShay

67 Creating Clarity, Building Capacity, Growing Leaders: One District’s Story of Change
   Coaches/Leaders/Teacher Educators Session
   McCormick Place - Lakeside Center, D2 - L
   Susan Loveless, Rutherford County Schools, Murfreesboro, Tennessee
   @susanlovelless23

68 Personalized Professional Learning: The Power of Job-Embedded Coaching
   Coaches/Leaders/Teacher Educators Session
   McCormick Place - Lakeside Center, E262
   Thomas Nobili, Milford Public Schools, Connecticut
   Kevin Mahoney, Region 14 Schools, Woodbury, Connecticut

69 100 Years of Paper Folding in the Mathematics Classroom
   General Interest Session
   McCormick Place - Lakeside Center, E270
   David Masunaga, Iolani School, Honolulu, Hawaii

70 Assessing Mathematics Assessment Policies and Practices: Lessons Learned and Actions to Move Forward
   General Interest Session
   McCormick Place - Lakeside Center, E351
   Diane Briars, Past President, National Council of Teachers of Mathematics, Reston, Virginia; Pittsburgh, Pennsylvania

71 Don’t Let Your Affiliate’s Relationship with NCTM Miss the MARC!
   General Interest Session
   McCormick Place - South Building, S406B
   Jeffrey Corbishley, Ridgefield High School, Connecticut
   Judy Rodgers, Loudoun County Public Schools, Leesburg, Virginia
   Becky Walker, Howard-Suamico School District, Wisconsin

72 Engaging Families in Adult Mathematics: Promoting Change in Classroom Culture
   General Interest Session
   McCormick Place - Lakeside Center, D2 - J
   Rachel Woolley, New York City Department of Education, Public School 139, Brooklyn
   Megan Demarkis, New York City Department of Education, Public School 139, Brooklyn

73 Grants to Build Innovation in Mathematics Education
   General Interest Session
   McCormick Place - Lakeside Center, D2 - F
   Ralph Connelly, Mathematics Education Trust, Reston, Virginia

74 Limitless: Learn, Lead & Live without Barriers
   General Interest Session
   McCormick Place - Lakeside Center, Arie Crown
   Jo Boaler, Stanford University, California

75 Supporting Productive Struggle through Manipulatives
   General Interest Session
   McCormick Place - Lakeside Center, D2 - G
   Kevin Dykema, Mattawan Consolidated Schools, Michigan
   @kdykema
Thursday Morning Sessions

76 Talk Number 2 Me: Mathematics & Mindfulness
General Interest Session
McCormick Place - Lakeside Center, D2 - D
Christina Lincoln-Moore, Westside Global Awareness Magnet, Marina Del Rey, California
@virtuouscm

77 Up for Debate! An Introduction to Debate Routines in Math Class
General Interest Session
McCormick Place - Lakeside Center, E350
Chris Luzniak, The Archer School, Los Angeles, California
@cluzniak

78 Why Teach Mathematics?
General Interest Session
McCormick Place - Lakeside Center, E354B
Matthew Larson, Past President, National Council of Teachers of Mathematics, Reston, Virginia; Lincoln Public Schools, Nebraska

78.1 Making Principles to Actions Come Alive with CPM Education Program
8-10 Exhibitor Workshop
McCormick Place - Lakeside Center, E253A
CPM Educational Program, Elk Grove, California

78.2 Leave the Math, Change the Language (K–8)
3-5 Exhibitor Workshop
McCormick Place - Lakeside Center, E253D
Pearson K12 Learning

78.3 Shape the Future of EdTech: Join Mathspace’s User Research Group
8-10 Exhibitor Workshop
McCormick Place - Lakeside Center, E253B
Mathspace, New York, New York

Notes
Thursday Morning Workshops

79 Connecting Content to Community: A Road Map to Developing Culturally Relevant Math Tasks
- Pre-K-2 Workshop
- McCormick Place - Lakeside Center, E451A
- Emily Yanisko, Columbia, Maryland
- Alice Cook, Urban Teachers at Johns Hopkins, Baltimore, Maryland
- Ca’trish Griffin, Urban Teachers at Johns Hopkins, Baltimore, Maryland

80 Cross Number Puzzles: Collaborative, Flexible, Strategic, and Grounded in Place-Value Understanding!
- Pre-K-2 Workshop
- McCormick Place - South Building, S405
- Becky Holden, Trinity School, Atlanta, Georgia
  @bholden86

81 Using the Trajectory Approach to Teach Mathematics in the Early Childhood Classroom
- Pre-K-2 Workshop
- McCormick Place - Lakeside Center, E271B
- Michelle School-Reese, Brillion Public Schools, Wisconsin
- Cheryl Kittel, Brillion Public Schools, Wisconsin

82 Creating Mathematics: Rich STEAM Learning Opportunities for Each and Every Student!
- 3–5 Workshop
- McCormick Place - Lakeside Center, E450A
- Sarah Bush, Board of Directors, National Council of Teachers of Mathematics, Reston, Virginia; University of Central Florida, Orlando
  @sarahbush
- Daniel Edelen, University of Central Florida, Orlando
- Richard Cox, Bullitt County Public Schools, Crestwood, Kentucky

83 I Never Thought about SPATIAL REASONING That Way! It’s More Than Just Geometry
- 3–5 Workshop
- McCormick Place - South Building, S401BC
- Bronwyn Papisideris, Thames Valley District School Board, London, Ontario, Canada
  @papisiderisb
- Kristin Methot, Thames Valley District School Board, London, Ontario, Canada
- Tracy White, Thames Valley District School Board, London, Ontario, Canada

84 Mathematical Mindsets: Change the Game in the First Fifteen Days
- 3–5 Workshop
- McCormick Place - Lakeside Center, E353C
- Lukas Hefty, Pinellas County Schools, Largo, Florida
  @LukasHefty

85 New Uses of Equations to Explore Fraction Relationships
- 3–5 Workshop
- McCormick Place - Lakeside Center, E271A
- Victoria Jacobs, University of North Carolina at Greensboro
- Susan Empson, University of Missouri, Columbia
- Joan Case, Hesperia, California

86 Clothesline Math: Statistics on the Open Number Line
- 6–8 Workshop
- McCormick Place - Lakeside Center, E265
- Chris Shore, Temecula Valley USD, Murrieta, California
  @MathProjects

87 Focus on the Question: Making Sense of Problems and Persevering in Solving Them
- 6–8 Workshop
- McCormick Place - Lakeside Center, E451B
- Melanie Janzen, San Bernardino County Superintendent of Schools, California
  @MelanieJanzen15
- Catherine Vittorio, San Bernardino County Superintendent of Schools, California
- Denise Cates-Darnell, San Bernardino County Superintendent of Schools, California

88 Productive Struggle for All: Supporting Students with Disabilities in a General Education Class
- 6–8 Workshop
- McCormick Place - South Building, S404A
- Malia Hite, Utah State Board of Education, Salt Lake City
  @maliabrite
Thursday Morning Workshops

9:45am–11:00am

89  Statistics: Why Are You Looking So M.A.D.?
6–8 Workshop
McCormick Place - South Building, S404BC
Nicole Howard, Anne Arundel County Public Schools, Annapolis, Maryland
Mary Rathlev, Glen Burnie, Maryland

90  Using Learning Trajectories to Assess Students’ Understanding of Algebra Concepts
6–8 Workshop
McCormick Place - South Building, S402
Edith Aurora Graf, Educational Testing Service, Princeton, New Jersey
Alison Castro Superfine, University of Illinois at Chicago
Lynda Wynn, CSU Stanislaus, Turlock, California

91  Desmos and the 5 Practices
8–10 Workshop
McCormick Place - Lakeside Center, E450B
Martha Mulligan, Chicago Public Schools, Illinois
@marthamulligan

92  Problems to Ponder: You Know You Have a Really Good Problem for You and Your Students When . . .
8–10 Workshop
McCormick Place - Lakeside Center, E353B
J. Michael Shaughnessy, Past President, National Council of Teachers of Mathematics, Reston, Virginia; Portland State University, Oregon

93  Statistics Content That Every Math Teacher Should Know
10–12 Workshop
McCormick Place - Lakeside Center, E258
Lindsey Gallas, Kentwood Public Schools, Michigan
@thestatsmedic
Luke Wilcox, Kentwood Public Schools, Michigan

94  Supporting Students’ Pathways through the Cycle of Inquiry and Justification
10–12 Workshop
McCormick Place - South Building, S403
Michelle Cirillo, University of Delaware, Newark
@UDMichy
Jenifer Hummer, University of Delaware, Newark

95  Turner’s Graph of the Week: Using Real-Life Statistical Data to Engage Your Students
10–12 Workshop
McCormick Place - Lakeside Center, E353A
Kelly Turner, Anaheim Union High School District, California

96  Examining Math Identity, Equity, and Racial Bias to Develop Teachers as Change Agents in Mathematics
Coaches/Leaders/Teacher Educators Workshop
McCormick Place - South Building, S401A
Nancy Horowitz, Independent Consultant, Cambridge Public Schools, Massachusetts
Lynne Godfrey, Independent Consultant, Cambridge Public Schools, Massachusetts
Katisha John, Cambridge Public Schools, Massachusetts

97  The Key to Coaching Teachers through the Process of Creating Connections for ALL
Coaches/Leaders/Teacher Educators Workshop
McCormick Place - South Building, S404D
Cassie Sisemore, Tulare County Office of Education, Visalia, California
@cassiesisemore

THURSDAY
Thursday Morning Sessions

98  Experience the Wonder, the Joy, and the Beauty of Math! Learn a Little, Smile a Little, Enjoy a Lot!
Session
McCormick Place - Lakeside Center, Arie Crown
Lee Stiff, Past President, National Council of Teachers of Mathematics, Reston, Virginia; North Carolina State University, Raleigh

99  Improving the Impact of Research on Practice: Challenges, Possible Solutions, and Potential Research Pathways
General Interest Session
McCormick Place - Lakeside Center, D2 - L
Jinfa Cai, University of Delaware, Newark
Michelle Cirillo, University of Delaware, Newark
James Hiebert, University of Delaware, Newark
Stephen Hwang, University of Delaware, Newark

100 Growing Primary Mathematicians
Pre-K–2 Session
McCormick Place - Lakeside Center, E259
Lori Price, St. Johns County Schools, Ponte Vedra Beach, Florida

101 No More Tears: Developmentally Appropriate Assessment
Pre-K–2 Session
McCormick Place - Lakeside Center, D2 - L
Lacy Endo-Peery, Great Minds, Woodland Hills, California
Kate Austin, Great Minds, Reston, Virginia
Tammy Hanlon, Great Minds, Tampa, Florida

102 Playing with Mathematical Ideas
Pre-K–2 Session
McCormick Place - Lakeside Center, D2 - B
Janice Novakowski, Richmond School District, British Columbia, Canada
@jnovakowski3B

103 Say Goodbye to Keywords
Pre-K–2 Session
McCormick Place - Lakeside Center, E261
Paula Muehler, Math Learning Center, Salem, Oregon
Lori Bluemel, Math Learning Center, Salem, Oregon

104 Fractions on the Number Line: Reconstructing the Unit
3–5 Session
McCormick Place - Lakeside Center, D2 - G
Debra Monson, University of St. Thomas, Minneapolis, Minnesota
@debsmonson
Sue Ahrendt, Metropolitan State University of Denver, Colorado
Kathleen Cramer, University of Minnesota, St. Paul

105 One School’s Journey to Center Equity and Social Emotional Learning in Elementary Math Classrooms
3–5 Session
McCormick Place - Lakeside Center, E260
Sarah Hunter, Minneapolis Public Schools, Minnesota
@sarahhunty

106 The 5 Practices in Practice: Taking on Classroom Challenges
3–5 Session
McCormick Place - South Building, S406A
Victoria Bill, Institute for Learning, University of Pittsburgh, Pennsylvania
Miriam Sherin, Northwestern University, Evanston, Illinois
Margaret (Peg) Smith, University of Pittsburgh, Pennsylvania (Emeritus)

107 The Practice of Statistics: YES, We Can Do It at School!
3–5 Session
McCormick Place - Lakeside Center, D2 - H
Jane Watson, University of Tasmania, Hobart, Australia

108 AMPing UP Middle School Mathematics Classrooms
6–8 Session
McCormick Place - Lakeside Center, D2 - E
Jeffrey Rosen, Georgia Tech - CEISMC, Atlanta
Douglas Edwards, Georgia Tech - CEISMC, Atlanta

109 LSA: Inviting Students into the Kitchen to Make a Mathematical Meal Together
6–8 Session
McCormick Place - South Building, S401D
Dan Meyer, Desmos, San Francisco, California
@ddmeyer

Implement the Effective Teaching Practices
Experience the Depth and Excitement of Mathematics
Look Back and Move Forward: A Centennial View
Create Positive Change
Build Student Agency, Foster Student Identity, Promote Social Change
Thursday Morning Sessions  

110  Why Ask Why? How to Use Questioning in a Mathematics Classroom  
6–8 Session  
McCormick Place - Lakeside Center, D2 - J  
Shannon Motsco, Anne Arundel County Public Schools, Annapolis, Maryland  
@smmoran2  
Jonathan VerMerris, Anne Arundel County Public Schools, Annapolis, Maryland

111  Facilitating Meaningful Discourse through Connecting Data Representations  
8–10 Session  
McCormick Place - Lakeside Center, E262  
Rick Hudson, University of Southern Indiana, Evansville  
Stephanie Casey, Eastern Michigan University, Ypsilanti  
Christina Azmy, North Carolina State University, Raleigh

112  Make All Students Mathematicians with Desmos Challenge Creator  
8–10 Session  
McCormick Place - Lakeside Center, E352  
Nolan Doyle, Clover Hill High School, Midlothian, Virginia  
David Petro, Windsor Essex Catholic District School Board, Harrow, Ontario, Canada

113  Mathematical Mindsets: Focus on the Problem  
8–10 Session  
McCormick Place - Lakeside Center, D2 - A  
Laura Smith, New Trier High School, Northfield, Illinois

114  Using Desmos to Create and Implement Social Justice Math Lessons  
8–10 Session  
McCormick Place - Lakeside Center, D2 - D  
Pamela Seda, Griffin-Spalding County School District, Georgia  
@pamseadal  
Faith Mohnihan, Desmos, San Francisco, California

115  How to Raise Test Scores without Teaching to the Test: Providing Access and Equity for All Learners  
10–12 Session  
McCormick Place - South Building, S406B  
Ivan Cheng, California State University, Northridge  
@drivancheng  
Angelica Morfin, Birmingham Community Charter High School, Van Nuys, California  
Andrea Manzo-Ustariz, Birmingham Community Charter High School, Van Nuys, California

116  Using Cryptography to Teach Statistics and Computer Programming  
10–12 Session  
McCormick Place - Lakeside Center, D2 - C  
Taylor Gibson, North Carolina School of Science and Math, Durham  
Veronica Vazquez, North Carolina School of Science and Math, Durham

117  What’s the Point of Points? Rethinking the Assessment of Student Mathematics Work  
10–12 Session  
McCormick Place - Lakeside Center, E263  
Douglas Guyette, Notre Dame de la Baie Academy, Green Bay, Wisconsin

118  Math We Can! A Lab Approach to Growing Students as Mathematicians and Building Teacher Efficacy  
Coaches/Leaders/Teacher Educators Session  
McCormick Place - Lakeside Center, E270  
Mary Mitchell, Math Solutions, Cincinnati, Ohio  
@marymitchell  
Susan Chapman, Math Solutions, League City, Texas

119  Mathematical Mindset: A District-Wide Revolution  
Coaches/Leaders/Teacher Educators Session  
McCormick Place - Lakeside Center, E264  
Jacquie Duginske, CUSD 300, Algonquin, Illinois  
@jduginske  
Joseph Santucci, CUSD 300, Algonquin, Illinois  
Paige Sidlo, CUSD 300, Algonquin, Illinois

120  Is 2020 Vision Good Enough? Looking Ahead to What Comes Next  
General Interest Session  
McCormick Place - Lakeside Center, E354B  
Cathy Seeley, Past President, National Council of Teachers of Mathematics, Reston, Virginia; University of Texas, Austin  
@cathyseeley

121  Measuring Equity: Do You Measure Up?  
General Interest Session  
McCormick Place - Lakeside Center, D2 - F  
Peter Eley, Fayetteville State University, North Carolina  
@drpeterley
### Thursday Morning Sessions

**122** The Transformation of Geometry in the Last 100 Years  
**General Interest Session**  
McCormick Place - Lakeside Center, E351  
Johnny Lott, Past President, National Council of Teachers of Mathematics, Reston, Virginia; Retired, Oxford, Mississippi

**123** Two Is Better Than One: Resources to Support All Students and Teachers In Co-Taught Classes  
**General Interest Session**  
McCormick Place - Lakeside Center, E350  
Sararose Lynch, Westminster College, New Wilmington, Pennsylvania  
Jeremy Lynch, Slippery Rock University, Pennsylvania

**124** Using an Instructional Routine to Build Culture  
**General Interest Session**  
McCormick Place - Lakeside Center, E267  
Pamela Harris, Texas State University, San Marcos  
@pwharris

**125** Supporting Beginning Teachers with Mathematics Instruction  
**Higher Education Session**  
McCormick Place - Lakeside Center, D2 - K  
Mary Little, University of Central Florida, Orlando  
@MaryELittle  
Melissa Carli, University of Central Florida, Orlando  
Lisa Brooks, University of Central Florida, Orlando

**125.1** Engage Your Students by Orchestrating Creative Aha! Moments with Technology for Grades 8 to 12  
**10–12 Exhibitor Workshop**  
McCormick Place - Lakeside Center, E253A  
Texas Instruments Incorporated, Dallas, Texas

**125.2** Test Prep: Beyond State Assessments  
**General Interest Exhibitor Workshop**  
McCormick Place - Lakeside Center, E253B  
IXL Learning, San Mateo, California

**125.3** The Impact of Algebra in the Elementary Math Curriculum  
**3–5 Exhibitor Workshop**  
McCormick Place - Lakeside Center, Presentation Pavilion  
Didax Education

### Notes
### Thursday Morning Bursts

<table>
<thead>
<tr>
<th>Session</th>
<th>Title</th>
<th>Audience</th>
<th>Room</th>
<th>Speakers/Details</th>
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<tr>
<td>126</td>
<td>Connecting Schools and Families to Strengthen Young Children's Development in Mathematics</td>
<td>Pre-K-2</td>
<td>McCormick Place - Lakeside Center, E451A</td>
<td><strong>Frederique Yova</strong>, North Carolina State University, Raleigh</td>
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<tr>
<td>127</td>
<td>Making Math Magical with Literature in K-4</td>
<td>Pre-K-2</td>
<td>McCormick Place - South Building, S401BC</td>
<td><strong>Gina Kilday</strong>, Metcalf Elementary School, West Greenwich, Rhode Island; @MathLadyRI; <strong>Anne Barbour</strong>, Metcalf Elementary School, West Greenwich, Rhode Island</td>
</tr>
<tr>
<td>128</td>
<td>Mathical Author: 100 Bugs! A Counting Book—Inspired, Written and Revised by Elementary Teachers</td>
<td>Pre-K-2</td>
<td>McCormick Place - Lakeside Center, E258</td>
<td><strong>Kate Narita</strong>, Farrar Straus Giroux/Macmillan Children's Publishing Group, New York, New York; @katenarita</td>
</tr>
<tr>
<td>129</td>
<td>Building Student Empathy Through Mathematical Discoveries</td>
<td>3-5</td>
<td>McCormick Place - Lakeside Center, E450A</td>
<td><strong>Daniel Edelen</strong>, University of Central Florida, Orlando; <strong>Richard Cox</strong>, University of Central Florida, Orlando</td>
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<tr>
<td>130</td>
<td>Danger! Animals in the Mathematics Classroom</td>
<td>3-5</td>
<td>McCormick Place - Lakeside Center, E353C</td>
<td><strong>Stefanie Livers</strong>, Missouri State University, Springfield; @LiversStefanie; <strong>Kristin Harbour</strong>, University of South Carolina, Columbia</td>
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<tr>
<td>131</td>
<td>Identifying Elementary Standards That Lend Themselves to Rich Mathematical Tasks</td>
<td>3-5</td>
<td>McCormick Place - South Building, S402</td>
<td><strong>Brooke Max</strong>, Purdue University, West Lafayette, Indiana; <strong>Andrew Hoffman</strong>, Huntington University, Indiana</td>
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<tr>
<td>132</td>
<td>Meaningful Student Math Reflections That Lead to Action</td>
<td>3-5</td>
<td>McCormick Place - South Building, S404D</td>
<td><strong>Matt Coaty</strong>, CUSD # 95, Lake Zurich, Illinois; @mcoaty</td>
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<tr>
<td>133</td>
<td>The Fantastic Factors of Fairy Tales: Finding the Math in Classic Children’s Tales</td>
<td>3-5</td>
<td>McCormick Place - Lakeside Center, E451B</td>
<td><strong>Lloyd Goldberg</strong>, Clark County School District, Las Vegas, Nevada; @WhoIsGoldberg; <strong>Carie Thibault</strong>, Clark County School District, Las Vegas, Nevada; <strong>Jessica Spielman</strong>, Clark County School District, Las Vegas, Nevada</td>
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<tr>
<td>134</td>
<td>A Responsive Middle Grades Math Exploration of the Effects of Animal Agriculture on Our Planet</td>
<td>6-8</td>
<td>McCormick Place - Lakeside Center, E271B</td>
<td><strong>Eugenia Vomvoridi-Ivanovic</strong>, University of South Florida, Tampa; @EugeniaVomvoridiIvanovic; <strong>Cheryl Ellerbrock</strong>, University of South Florida, Tampa</td>
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<tr>
<td>135</td>
<td>Female Leadership in the Mathematics Classroom—Supporting Girls’ Math Identities in Middle School</td>
<td>6-8</td>
<td>McCormick Place - South Building, S401A</td>
<td><strong>Kellie Pop</strong>, University of Nevada, Reno</td>
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<td>136</td>
<td>What’s New with Desmos?</td>
<td>8-10</td>
<td>McCormick Place - Lakeside Center, E353B</td>
<td><strong>Jessica Breur</strong>, Mounds View Public Schools, Shoreview, Minnesota; @breurbreur; <strong>Mark Kreie</strong>, Brookings High School, South Dakota</td>
</tr>
</tbody>
</table>
Thursday Morning Bursts

138 Geometric Proof Court: Engaging Students to Defend and Argue Proofs through Mathematical Reasoning
10–12 Burst
McCormick Place - South Building, S403
Carol Kinney, Bronx Collaborative High School, NYC DOE, New York
Rebecca Guarino, South Bronx Preparatory High School, NYC DOE, New York

139 The Revolution of Artificial Intelligence in the AP Calculus Classroom
10–12 Burst
McCormick Place - Lakeside Center, E265
Ana Gonzalez Enriquez, Osceola County School for the Arts, Kissimmee, Florida

140 Developing Culturally Responsive Mathematics Educators: Our Journey
Coaches/Leaders/Teacher Educators Burst
McCormick Place - South Building, S404A
Tashana Howse, Georgia Gwinnett College, Atlanta
@tdhowse_math

142 The Power of the Words We Speak and Think
11:30am–Noon
General Interest Burst
McCormick Place - South Building, S405
Sam Kaplan, Math for America, Los Angeles, California
Diana McClean, Los Angeles Unified School District, California

143 Unpacking the Reality of Mathematics Anxiety in Our Students
General Interest Burst
McCormick Place - South Building, S404BC
Stephanie Quan, Holy Names University, Oakland, California

144 Does Social Justice Really Make a Difference in Student Learning?
Research Burst
McCormick Place - Lakeside Center, E271A
Marian Dingle, DeKalb County School District, Georgia
@DingleTeach

Notes
### Thursday Afternoon Sessions

**1:00pm–2:00pm**

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<thead>
<tr>
<th>Session</th>
<th>Title</th>
<th>Time</th>
<th>Location</th>
<th>Speaker(s)</th>
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<tbody>
<tr>
<td>145</td>
<td>President’s Address: Unpacking the Catalyzing Change Series to Initiate Critical Conversations</td>
<td>1:00pm–2:00pm</td>
<td>McCormick Place - Lakeside Center, Arie Crown</td>
<td>Robert Q. Berry III, President, National Council of Teachers of Mathematics, Reston, Virginia; University of Virginia, Charlottesville</td>
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<tr>
<td>146</td>
<td>Replace Math Anxiety with Math Positivity—Finally . . . Fact Fluency!</td>
<td>1:00pm–2:00pm</td>
<td>McCormick Place - Lakeside Center, E259</td>
<td>Lynn Rule, MathRack, Wheaton, Illinois</td>
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<tr>
<td>147</td>
<td>Six of One, Half-Dozen of the Other: Routines to Promote Unitizing in the Primary Grades</td>
<td>1:00pm–2:00pm</td>
<td>McCormick Place - Lakeside Center, D2 - A</td>
<td>Jeanine Brownell, Erikson Institute, Chicago, Illinois</td>
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<td>Lisa Ginet, Erikson Institute, Chicago, Illinois</td>
<td>Rebeca Itzkowich, Erikson Institute, Chicago, Illinois</td>
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<td>148</td>
<td>Strategies for Eliciting &amp; Using Student Thinking to Facilitate Powerful Lessons with Young Students</td>
<td>1:00pm–2:00pm</td>
<td>McCormick Place - Lakeside Center, D2 - G</td>
<td>Danielle Curran, Math Specialist, Reading, Massachusetts</td>
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<td>danigirl1216</td>
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<td>149</td>
<td>Building Math Residue and Identifying Misconceptions with Lessons That Stick</td>
<td>1:00pm–2:00pm</td>
<td>McCormick Place - Lakeside Center, E351</td>
<td>Graham Fletcher, Math Specialist, McDonough, Georgia</td>
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<td>150</td>
<td>Empowering Students as Mathematical Sense Makers through Teacher Questioning</td>
<td>1:00pm–2:00pm</td>
<td>McCormick Place - Lakeside Center, D2 - B</td>
<td>Annie Sussman, TERC, Cambridge, Massachusetts</td>
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<td>151</td>
<td>Hear, Ye! Hear Ye! Strategies for Giving Students Voice in the Mathematics Classroom</td>
<td>1:00pm–2:00pm</td>
<td>McCormick Place - South Building, S406A</td>
<td>Thomasenia Adams, University of Florida, Gainesville</td>
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<td>152</td>
<td>LSA: Using Lesson Study to Implement the Effective Teaching Practices—A Study of Division in Grade 3</td>
<td>1:00pm–2:00pm</td>
<td>McCormick Place - South Building, S401D</td>
<td>Joshua Lerner, Chicago Public Schools, Illinois</td>
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<td>153</td>
<td>Making Sense of Word Problems</td>
<td>1:00pm–2:00pm</td>
<td>McCormick Place - Lakeside Center, E261</td>
<td>Melissa Crowley, Ritenour School District, St. Louis, Missouri</td>
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<td>Mandy Harvell, Ritenour School District, St. Louis, Missouri</td>
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<td>154</td>
<td>Step Aside: Student-Driven Math Conversations</td>
<td>1:00pm–2:00pm</td>
<td>McCormick Place - Lakeside Center, D2 - J</td>
<td>Shannon Jones, Montgomery County Public Schools, Silver Spring, Maryland</td>
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<td>MsJonesLuvsMath</td>
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<td>155</td>
<td>It’s Not Always Simple to Make a Problem Simpler: Seeking Connections That Aren’t Apparent</td>
<td>1:00pm–2:00pm</td>
<td>McCormick Place - Lakeside Center, D2 - C</td>
<td>William Speer, University of Nevada Las Vegas, Henderson</td>
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<tr>
<td>156</td>
<td>Learning Mathematics Actively: Experiences with Mathematics Trails</td>
<td>1:00pm–2:00pm</td>
<td>McCormick Place - Lakeside Center, D2 - K</td>
<td>Rosa Ferreira, University of Porto &amp; CMUP, Portugal</td>
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<td>157</td>
<td>Little Activities with a Big Bang</td>
<td>1:00pm–2:00pm</td>
<td>McCormick Place - Lakeside Center, D2 - E</td>
<td>Stephen Arndt, Sacramento City Unified School District, California</td>
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<td>Jennifer Graziano, Sacramento City Unified School District, California</td>
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Thursday Afternoon Sessions

158 Accelerating Learning for ELs Using the Math Workshop Model in the Secondary Math Classroom
8-10 Session
McCormick Place - Lakeside Center, D2 - F
Cassie Eatmon, Fairfax County Public Schools, Virginia
CassieEatmon

159 Coordinating the Expertise of Mathematicians and Educators in Writing a High School Curriculum
8-10 Session
McCormick Place - Lakeside Center, D2 - I
Bill McCallum, Illustrative Mathematics, Tucson, Arizona
@wgmccallum

160 Using Simulation to Develop an Understanding of Probability and Informal Statistical Inference
8-10 Session
McCormick Place - Lakeside Center, E263
Todd Swanson, Hope College, Holland, Michigan
Nathan Tintle, Dordt University, Sioux Center, Iowa

161 Making Math Culturally Relevant through Experiential Learning
10-12 Session
McCormick Place - Lakeside Center, E352
Bredeen Pickford-Murray, The Bay School of San Francisco, California
@btwnthenumbers
Kevin Davis, Great Minds, Syracuse, New York

162 Making Probability Visible: Understanding & Extending Inference
10-12 Session
McCormick Place - Lakeside Center, D2 - H
Peter Petto, Lakewood High School, Ohio
@ppetto

163 Students + Choice = Inspired Learners
10-12 Session
McCormick Place - Lakeside Center, D2 - D
Justine Repplinger, Lake Zurich CUSD 95, Illinois
@repplinger5
Rachel O’Connor, Lake Zurich CUSD 95, Illinois

164 The 5 Practices in Practice: Orchestrating Productive Mathematics Discussions in High School
10-12 Session
McCormick Place - South Building, S406B
Mike Steele, University of Wisconsin-Milwaukee
@mdsteele47
Margaret (Peg) Smith, University of Pittsburgh, Pennsylvania, Emeritus
Miriam Sherin, University of Pittsburgh, Pennsylvania

165 Letting Go of Your Textbook: OER In Math Class
Coaches/Leaders/Teacher Educators Session
McCormick Place - Lakeside Center, E267
Melissa Moore, Liberty Public Schools, Missouri
Emily Hoffman, Liberty Public Schools, Missouri

166 Talk Talk Talk Talk Talk: Routines for Math Workshop
Coaches/Leaders/Teacher Educators Session
McCormick Place - Lakeside Center, E262
LeVada Gray, Math Solutions, Country Club Hills, Illinois
@iamacgirl
Tanaga Hannah-Rodgers, Math Solutions, Crofton, Maryland

167 100 Photos + 100 Math Questions from Cities That Have Hosted NCTM Conferences in the Past 100 Years
General Interest Session
McCormick Place - Lakeside Center, E354B
Ron Lancaster, University of Toronto, Ontario, Canada

168 Challenging Spaces of Marginalization in the K-5 Math Class
General Interest Session
McCormick Place - Lakeside Center, E270
Nicki Newton, Newton Education Solutions, Bridgeport, Connecticut
@drnickimath

Implement the Effective Teaching Practices
Experience the Depth and Excitement of Mathematics
Look Back and Move Forward: A Centennial View
Create Positive Change
Build Student Agency, Foster Student Identity, Promote Social Change
Thursday Afternoon Sessions

169  Equity and Justice in the Math Classroom: A Practical Approach
     General Interest Session
     McCormick Place - Lakeside Center, E350
     Ethan Weker, Mid-Peninsula High School, Menlo Park, California
     Andrea Henderson, Mid-Peninsula High School, Menlo Park, California

170  Mathematics Education Research and Mathematics Instruction: Parallel or Intersecting Domains?
     General Interest Session
     McCormick Place - Lakeside Center, D2 - L
     Cynthia Langrall, Illinois State University, Normal
     Amanda Cullen, Illinois State University, Normal

171  Using Guided Reinvention to Support the Transition from Secondary to Collegiate Mathematics
     Higher Education Session
     McCormick Place - Lakeside Center, E264
     Mark Yannotta, Clackamas Community College, Oregon City, Oregon
     Keith Nabb, University of Wisconsin-River Falls

172  Computational Thinking: Entry Level to Early Algebra? The Study of a Quebec Team
     Research Session
     McCormick Place - Lakeside Center, E260
     Melanie Boucher, Commission scolaire de la Capitale, Quebec, Canada
     Martin Baril, Commission scolaire de la Capitale, Quebec, Canada

172.1 Exploring the 3-Part Lesson: Designing and Implementing an Opening Anchor Task
     3-5 Exhibitor Workshop
     McCormick Place - Lakeside Center, E253A
     think! Mathematics, Neptune Beach, Florida

172.2 Japan Math: A Proven Path to Success
     Pre-K-2 Exhibitor Workshop
     McCormick Place - Lakeside Center, E253B
     Japan America Educational Research Institute (JAERI)

172.3 Routines Don’t Have to Be Routine
     Pre-K-2 Exhibitor Workshop
     McCormick Place - Lakeside Center, E253D
     Pearson K12 Learning, Hoboken, New Jersey

Notes
Thursday Afternoon Workshops

173 Constructing Strength-Based Views of the Students We Teach
Pre-K–2 Workshop
McCormick Place - Lakeside Center, E353C
Ryan Flessner, Butler University, Indianapolis, Indiana
@ryanflessner
Courtney Flessner, Indiana University, Bloomington

174 Counting and Place Value: How Are They Connected?
Pre-K–2 Workshop
McCormick Place - South Building, S402
Megan Murray, TERC, Cambridge, Massachusetts
@Inv3_Math
Karen Economopoulos, TERC, Cambridge, Massachusetts

175 Whole Body Math: Kinesthetic and Sensory Engagement in Early Childhood Mathematics
Pre-K–2 Workshop
McCormick Place - South Building, S402
Yvonne Liu-Constant, Lesley University, Cambridge, Massachusetts
Jacquelyn Berkowitz, Somerville Public Schools, Massachusetts
Stephen DeBenedictis, Somerville Public Schools, Massachusetts

176 Building a Protractor: Connecting Angles, Degrees, Fraction Operations, and Measurement
3–5 Workshop
McCormick Place - Lakeside Center, E271B
Janna Canzone, University of California, Irvine
@irvinemathproj
Karajean Hyde, University of California, Irvine

177 Extreme Equality in the Math Classroom
3–5 Workshop
McCormick Place - Lakeside Center, E353A
Daryl Rock, Rock Academic Services, Brooklyn, New York
John Mighton, Jump Math, Toronto, Ontario, Canada

178 I've Selected an Open-Ended Math Task—Now What?
3–5 Workshop
McCormick Place - South Building, S405
Amanda Zimolzak, UChicago STEM Education, University of Chicago, Illinois
@Zimolzak1
Alison Whittington, UChicago STEM Education, University of Chicago, Illinois

179 Rethinking Pre-Assessments: Gathering Data with Equity in Mind
3–5 Workshop
McCormick Place - South Building, S404D
Jenna Laib, Public Schools of Brookline, Massachusetts
@jennalaib

180 The 100 Bead String: A Tool You Can Count on (and More!)
3–5 Workshop
McCormick Place - Lakeside Center, E451B
Kristen Manquis, Howard County Public School System, Ellicott City, Maryland
@kristenlmangus
Jennifer Stairs, Howard County Public School System, Columbia, Maryland

181 Using the Effective Teaching Practices to Develop Rigor with Multiplication and Division
3–5 Workshop
McCormick Place - Lakeside Center, E353B
Linda Gojak, Past President, National Council of Teachers of Mathematics, Reston, Virginia; Willowick, Ohio

182 Activating Adolescents’ Agency for Linking Language and Learning in Mathematics
6–8 Workshop
McCormick Place - Lakeside Center, E450B
Harold Asturias, Lawrence Hall of Science, University of California, Berkeley

183 Empowering Students in Math through Entrepreneurship
6–8 Workshop
McCormick Place - Lakeside Center, E258
Erin Krupa, North Carolina State University, Raleigh
Michael Belcher, North Carolina State University, Raleigh
Jere Confrey, North Carolina State University, Raleigh

184 Supporting Written Math Arguments: Leveraging Tech Tools for Feedback, Revision, & Assessment Cycles
6–8 Workshop
McCormick Place - South Building, S404A
Andrea Barraugh, Math Transformations, San Diego, California
@MathTransform
Thursday Afternoon Workshops

1:00pm–2:15pm

185 Tape Diagrams: A Valuable Tool for Students
8–10 Workshop
McCormick Place - South Building, S401BC
Jennifer Tadlock, Great Minds, Lafayette, Louisiana

186 Where Is the Language Love? Content Objectives Are Not Enough
8–10 Workshop
McCormick Place - Lakeside Center, E451A
Heather Kohn, Marlborough Public Schools, Massachusetts
@heather_kohn

187 Who Thinks Learns! Top 5 Strategies to Foster Thinking and Conversations for High School Students
8–10 Workshop
McCormick Place - South Building, S403
Jules Bonin-Ducharme, CSCDGR, New Liskeard, Ontario, Canada
@jboninducharme

188 Mathematical Language Routines: Cultivating Conversation in High School Classrooms
10–12 Workshop
McCormick Place - Lakeside Center, E271A
Vanessa Cerrahoglu, Orange County Department of Education, California
@mymathsoul
Jennifer Wilson, Illustrative Mathematics, Black Mountain, North Carolina
Elizabeth Ramirez, Illustrative Mathematics, New York, New York

189 Nature Does Math: Using Soap Films to Solve Minimum Distance Problems
10–12 Workshop
McCormick Place - Lakeside Center, E450A
Todd Feitelson, Millbrook School, New York
@toddfeitelson

190 Project-Based Learning: A Journey in Mathematics
10–12 Workshop
McCormick Place - South Building, S401A
Marieta Angjeli, Toronto District School Board, Ontario, Canada
@angjeli4math

191 Pop-Up Math Play: How to Make Joyful Math a Part of Every Day
Coaches/Leaders/Teacher Educators Workshop
McCormick Place - Lakeside Center, E265
Molly Daley, Education Service District 112, Vancouver, Washington
@mdaley15

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Thursday Afternoon Sessions

192 Catalyzing Change in Early Childhood and Elementary: Broadening the Purposes of Learning Mathematics and Dismantling Inequitable Structures
Pre-K-5 Session
McCormick Place - Lakeside Center, E267
Cathery Yeh, Chapman University, Orange, California
@YehCathery
Anne Marshall, Lehman College, New York, New York

195 All Means All: Strategies That Make Math Accessible to Every Student
3-5 Session
McCormick Place - Lakeside Center, D2 - A
John Tapper, St. Michael’s College, Burlington, Vermont

196 Fact Strategy Instruction + Meaningful Discourse = Student Understanding
3-5 Session
McCormick Place - Lakeside Center, D2 - E
Deborah Thompson, DreamBox Learning, Derby, Kansas
@DThompsonMath

197 LSA: Representation, Computation, Communication: Purposeful Use of Routines within Curriculum Materials
3-5 Session
McCormick Place - South Building, S401D
Kristin Gray, Illustrative Mathematics, Lewes, Delaware
@mathminds
Jody Guarino, Orange County Department of Education, California
John Drake, Newport Mesa Unified School District, California

198 The Story of Problem Solving: Looking Back and Moving Forward
6–8 Session
McCormick Place - Lakeside Center, D2 - G
Sherri Martinie, Kansas State University, Manhattan
Julie Thiele, Kansas State University, Manhattan

199 Whole-School Math Problems: Empower Students and Create Community
6–8 Session
McCormick Place - Lakeside Center, E263
Julie Biggane, Tompkins Square Middle School, NYC
DOE, New York, New York
Rachel Gordon, Tompkins Square Middle School, NYC
DOE, New York, New York

200 Change the Faces in Your Math Classroom
8–10 Session
McCormick Place - Lakeside Center, D2 - J
Donald Rogers, The Right Addition, Towson, Maryland

203 Take Your Geometry Lessons to the Next Level with Desmos Activity Builder
8–10 Session
McCormick Place - South Building, S406B
Anna Scholl, Xavier High School, Marion, Iowa
@MathTeachScholl
David Petro, Windsor Essex Catholic District School Board, Harrow, Ontario, Canada
### Thursday Afternoon Sessions

#### 2:30pm–3:30pm

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Taylor Bainter, P. K. Yonge Developmental Research School at the University of Florida, Gainesville |
| 205     | Starting Your Inquiry Practice as Early Career Teachers               | McCormick Place - Lakeside Center, E264 | Samantha Dougherty, Central Hardin High School, Elizabethtown, Kentucky  
Cassandra Selboldt, Lincoln, Nebraska  
Erin Oakley, Minneapolis, Minnesota |
| 206     | The Joy of Creation: Serious High School Math in the Arts              | McCormick Place - Lakeside Center, D2 - L | Vin Urbanowski, Academy of Information Technology & Engineering, Stamford, Connecticut |
| 207     | Two Heads Are Better Than One: Using Co-Teaching to Support Equity in Secondary Mathematics | McCormick Place - Lakeside Center, D2 - I | Ruthmae Sears, University of South Florida, Tampa  
Caree Pinder, University of South Florida, Tampa  
Cynthia Castro-Minnehan, University of South Florida, Tampa |
| 208     | Enhancing the Quality of Mathematics in Classrooms through Lesson Study: A Japanese Perspective | McCormick Place - Lakeside Center, D2 - B | Yoshinori Shimizu, University of Tsukuba, Ibaraki, Japan |
| 209     | From Coaching to Confidence: Building Capacity within a School        | McCormick Place - Lakeside Center, E261 | Elizabeth Petty, Meigs Middle Magnet School, Nashville, Tennessee |
| 210     | Increasing Desmos Love in Your Mathematics Community                  | McCormick Place - Lakeside Center, D2 - C | Chris Wright, Baltimore County Public Schools, Maryland  
Brett Parker, Baltimore County Public Schools, Maryland |
| 211     | Going Dutch? Collaboration in Designing Curricular Materials That Are Meaningful to Students | McCormick Place - Lakeside Center, E351 | Arthur Bakker, Utrecht University, the Netherlands |
| 212     | Moving Achievement Together Holistically: An Indigenous Approach to Math Education | McCormick Place - Lakeside Center, Arie Crown | Lisa Lunney Borden, St. Francis Xavier University, Antigonish, Nova Scotia, Canada |
| 213     | NCTM Leadership over a Century of Mathematics Education              | McCormick Place - Lakeside Center, E259 | Henry Kepner, Past President, National Council of Teachers of Mathematics, Reston, Virginia; University of Wisconsin–Milwaukee |
| 214     | Of the Essence: The Art and Science of Learning and Teaching from Data | McCormick Place - Lakeside Center, D2 - K | Christine Franklin, American Statistical Association, Watkinsville, Georgia |
| 215     | Statistics: Then and Now                                             | McCormick Place - Lakeside Center, D2 - H | Kathryn Kozak, Coconino Community College/AMATYC, Flagstaff, Arizona |
Thursday Afternoon Sessions

216 Teaching and Learning Mathematics: Where Have We Been, Where Are We Now, Where Should We Be Going?
General Interest Session
McCormick Place - Lakeside Center, E354B
Gail Burrill, Past President, National Council of Teachers of Mathematics, Reston, Virginia; Michigan State University, East Lansing

217 The Effects of Unpacking Teacher Identity in the Classroom
General Interest Session
McCormick Place - Lakeside Center, E270
Sarah DiMaria, Cedars International Next Generation High School, Austin, Texas
@MsDiMaria
Dwaina Sookhoo, Academy for Young Writers, Brooklyn, New York
Allie Webb, Columbus City Schools, Ohio

218 Valuing the Whole: Building on Black Girls’ Brilliance through Holistic and Transformative Learning
General Interest Session
McCormick Place - Lakeside Center, D2 - F
Crystal Morton, Indiana University (IUPUI), Indianapolis
@drHillMorton
India Scott, Lawrence Central High School, Indianapolis, Indiana

219 The Evolution of Doctoral Programs in Mathematics Education from Research to Teaching to Whatever
Higher Education Session
McCormick Place - Lakeside Center, E352
Robert Reys, University of Missouri, Columbia

Notas
Thursday Afternoon Workshops

200 Building a Community of Mathematical Thinkers in K-2 Classrooms
Pre-K-2 Workshop
McCormick Place - South Building, S404D
Susan Katt, Lincoln Public Schools, Nebraska  
@susiekatt
Megan Fleischman, Lincoln Public Schools, Nebraska
Elizabeth Eddy, Lincoln Public Schools, Nebraska

201 Moving beyond Naming Squares, Circles, & Triangles: Developing Geometric Thinking in Young Learners
Pre-K-2 Workshop
McCormick Place - Lakeside Center, E450B
Douglas Douglas-Meyer, Oak Creek-Franklin Joint School District, Milwaukee, Wisconsin  
@mdmeyer
Melissa Hedges, University of Wisconsin-Milwaukee

202 Using Children's Literature to Support Understanding of Operations in Preschool and Kindergarten
Pre-K-2 Workshop
McCormick Place - Lakeside Center, E353A
Veronica Castro, Erikson Institute, Chicago, Illinois
Rebeca Itzkowich, Erikson Institute, Chicago, Illinois

203 Using the QFT (Question Formulation Technique) and 3-Acts to Build Math Skills & Excitement
Pre-K-2 Workshop
McCormick Place - Lakeside Center, E271B
Jaime Brookman, Richmond City Public Schools, Virginia  
@jmejimbo94

204 Building Bridges . . . Not Walls! Moving Students toward Multiplicative Automaticity in Grades 3-5
3-5 Workshop
McCormick Place - Lakeside Center, E271A
Dina Mendola, US Math Recovery Council, Oak Creek, Wisconsin  
@DinaMendola

205 Elementary Fraction Models in Scratch: Making Computational Thinking Connections
3-5 Workshop
McCormick Place - Lakeside Center, E258
Carla Strickland, UChicago STEM Education, Illinois  
@CisforCarla
Kathryn Rich, Michigan State University, East Lansing
Donna Eatinger, UChicago STEM Education, Illinois

206 Going beyond Three-Act Math: Engaging in Mathematical Modeling and Empowering Young Mathematicians
3-5 Workshop
McCormick Place - Lakeside Center, E353B
Jennifer Suh, George Mason University, Fairfax, Virginia  
@completemath
Megan Wickstrom, Montana State University, Bozeman
Mary Alice Carlson, Montana State University, Bozeman

207 A “Boxful” of Geometry from One Little Greeting Card
6-8 Workshop
McCormick Place - Lakeside Center, E450A
Nicholas Restivo, MOEMS, Bellmore, New York  
@TweetMOEMS

208 Building Agency, Fostering Identities, and Promoting Social Change via Social Justice Contexts
6-8 Workshop
McCormick Place - Lakeside Center, E265
Marilyn Strutchens, Auburn University, Alabama  
@strutchens

209 Creating Mathematical Discourse through Connections
6-8 Workshop
McCormick Place - South Building, S403
Jennifer Outzs, Board of Directors, National Council of Teachers of Mathematics, Reston, Virginia; Seminole Middle School, Florida  
@outzsj
Barb Lynch, Lakewood City Schools, Ohio

210 Progressing through Proportional Reasoning with Mr. Tall and Mr. Short
6-8 Workshop
McCormick Place - South Building, S404A
Alyson Eaglen, Loudoun County Public Schools, Ashburn, Virginia  
@aleaglen
Beth Terry, Riffa Views International School, Bahrain
Shruti Sanghavi, Riffa Views International School, Bahrain

211 Geometry Proof Cards: Diagram-Based Puzzles to Support Learning of Proof in High School Geometry
8-10 Workshop
McCormick Place - South Building, S402
Wayne Nirode, Miami University, Oxford, Ohio  
@WNirode
Thursday Afternoon Workshops

8-10 Workshop
McCormick Place - South Building, S401A
Peg Cagle, LAUSD/Reseda High School, Woodland Hills, California
@pegcagle

233 Translanguaging to Persevere: Exploring Latinx Bilingual Students’ Collective Problem Solving
8-10 Workshop
McCormick Place - Lakeside Center, E451B
Hector Morales, Northeastern Illinois University, Chicago
Joseph DiNapoli, Montclair State University, New Jersey
Craig Willey, Indiana University–Purdue University Indianapolis

234 Man-Made and Natural Disasters: Experimental Simulations for Algebra Classes
10-12 Workshop
McCormick Place - Lakeside Center, E451A
Amy Herman, Math Solutions, Louisville, Kentucky
Connie Horgan, Math Solutions, Sun City West, Arizona

235 Promoting a Social & Creative Classroom with Desmos Activities
10-12 Workshop
McCormick Place - South Building, S404BC
Mark Kreie, Brookings High School, South Dakota
Jessica Breur, Mounds View Public Schools, Shoreview, Minnesota

236 Unique Ideas + Reluctant Learners = Amazing Opportunities
10-12 Workshop
McCormick Place - South Building, S405
Aundrea Atwood-Starkey, Anne Arundel County Public Schools, Annapolis, Maryland
Kevin Wajek, Anne Arundel County Public Schools, Annapolis, Maryland
Ruth Goldstraw, Anne Arundel County Public Schools, Annapolis, Maryland

237 Growing Teachers into Leaders of High-Quality Equitable Math Instruction
Coaches/Leaders/Teacher Educators Workshop
McCormick Place - Lakeside Center, E353C
Caroline Ebby, University of Pennsylvania, Philadelphia
@cbebbby
Lindsay Goldsmith-Markey, University of Pennsylvania, Philadelphia
Sheila Stubbs, School District of Philadelphia, Pennsylvania

238 Navigating Coach-Teacher Relationships to Move toward Equity in Math Education
Coaches/Leaders/Teacher Educators Workshop
McCormick Place - South Building, S401BC
Ho Nguyen, San Francisco Unified School District, California
Nicole Louie, University of Wisconsin-Madison
Angela Torres, San Francisco Unified School District, California

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<td>Kassia Omohundro Wedekind, Stenhouse Publishers, Arlington, Virginia Christy Thompson, Fairfax County Public Schools, Falls Church, Virginia</td>
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<td>Discover and Leverage Your Students’ Strengths through Powerful Asset-Based Instructional Design</td>
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<td>Beth Kobett, Board of Directors, National Council of Teachers of Mathematics, Reston, Virginia; Stevenson University, Maryland @bkobett</td>
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<td>Making Fractions Fun! It Is Possible!</td>
<td>McCormick Place - Lakeside Center, D2 - F</td>
<td>Jennifer Wilson, McCants Middle School, Anderson, South Carolina @mathteachwilson</td>
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<td>One Little Spark! Igniting Imagination in Elementary Mathematics through STEAM</td>
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<td>Richard Cox, Bellarmine University, Louisville, Kentucky @RC_STEAM Sarah Bush, Board of Directors, National Council of Teachers of Mathematics, Reston, Virginia; University of Central Florida, Orlando</td>
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<td>A Project on the Theme of Energy Working the Statistical Literacy in Basic School Curriculum</td>
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<td>Yuriko Baldin, Universidade Federal de São Carlos, São Paulo, Brazil</td>
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## Thursday Afternoon Sessions

### 250 How Common Wrong Answers Can Be Used to Support Student Learning
- **6-8 Session**
  - McCormick Place - Lakeside Center, E260
  - Cristina Heffernan, Worcester Polytechnic Institute, Massachusetts
    @CristinaHeff
  - Cindy Starks, ASSISTments, Arlington, Massachusetts

### 251 Proportional Reasoning Can Be More Than Cross Multiply and Divide
- **6-8 Session**
  - McCormick Place - Lakeside Center, D2 - E
  - Olof Steinthorsdottir, University of Northern Iowa, Cedar Falls
  - Suzanne Riehl, University of Northern Iowa, Cedar Falls

### 252 Empowering Students to Use Dynamic Technology Productively
- **8-10 Session**
  - McCormick Place - Lakeside Center, E351
  - Sandy Madden, University of Massachusetts Amherst
  - MathMadden

### 253 Teaching Math for Social Justice: Lessons Learned from within a Mile Range
- **8-10 Session**
  - McCormick Place - Lakeside Center, E263
  - Ma Bernadette Salgarino, Santa Clara County Office of Education, Mountain House, California
    @salg274

### 254 You Want Me to Talk to Them? Supporting Students to Work Collaboratively
- **8-10 Session**
  - McCormick Place - Lakeside Center, D2 - A
  - Janet Andresen, University of Central Florida, Orlando
    @JanetAndresen
  - Christine Miller, The Geneva School, Winter Park, Florida

### 255 A Geometric Introduction to Trig Functions and Identities
- **10-12 Session**
  - McCormick Place - Lakeside Center, D2 - H

### 256 Iterating through the High School Math Curriculum
- **10-12 Session**
  - McCormick Place - Lakeside Center, D2 - J
  - Cheryl Gann, North Carolina School of Science and Mathematics, Durham, North Carolina
    @hypatia314

### 257 The Status Quo in High School Mathematics is Unacceptable
- **10-12 Session**
  - McCormick Place - Lakeside Center, D2 - I
  - Eric Milou, Rowan University, Glassboro, New Jersey
    @drMi

### 258 Viable Arguments for a Viable Future
- **10-12 Session**
  - McCormick Place - Lakeside Center, D2 - K
  - John Stevens, Chaffey Joint Union High School District, Ontario, California
    @jstevens009

### 259 Building Fluency Flexibility with Formative Instruction Cycles and Routines
- Coaches/Leaders/Teacher Educators Session
  - McCormick Place - Lakeside Center, D2 - D
  - Cheryl Tobey, Palermo, Maine
  - Kate Greeley, MSAD 75, Topsham, Maine

### 260 Collaborative Teams: How Do We Support Teams to Learn Together?
- Coaches/Leaders/Teacher Educators Session
  - McCormick Place - Lakeside Center, D2 - G
  - Nicora Placa, Hunter College, New York, New York
    @nicoraplaca

### 261 Empower a Culture of Continuous Improvement Using NCSM’s Bold Leadership Essential Actions
- Coaches/Leaders/Teacher Educators Session
  - McCormick Place - Lakeside Center, E270
  - Mona Toncheff, NCSM, Phoenix, Arizona
    @toncheffS

### 262 Becoming Mathematical: The Power of Teachers to Productively Shape Students’ Identities
- General Interest Session
  - McCormick Place - South Building, S406A
  - Meaghan Pavlovich, University of Kansas, Lawrence
    @megpav4
  - Carrie LaVoy, University of Kansas, Lawrence
  - Kelli Thomas, University of Kansas, Lawrence

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**Note:** The sessions are organized by number (250, 251, etc.). The page number (46) and the editorial information (NCTM Centennial Annual Meeting & Exposition) are also included at the bottom.
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Thursday Afternoon Sessions

263 Leveraging the Principles of Number Talks to Promote Change in the Mathematics Classroom
General Interest Session
McCormick Place - Lakeside Center, Arie Crown
Sherry Parrish, Author and Independent Consultant, Birmingham, Alabama
@numbertalks

264 Native American Mathematics Materials for the Classroom
General Interest Session
McCormick Place - Lakeside Center, E350
Charles Funkhouser, California State University, Fullerton

265 Your Mathematics Heart and Soul: Living the Quadrant II Life!
General Interest Session
McCormick Place - Lakeside Center, E354B
Timothy Kanold, Center for Mathematics Learning, Lodi, California
@tkanold

266 Self-Efficacy in the Calculus II Flipped Classroom
Research Session
McCormick Place - Lakeside Center, E264
John Kerrigan, Middletown Township/Rutgers University, New Brunswick, New Jersey
@kerrigan_john
Geraldine Cochran, Rutgers University, New Brunswick, New Jersey

266.1 Building Research-Based Academic Language Practices into Your Math Lessons
6-8 Exhibitor Workshop
McCormick Place - Lakeside Center, E253A
Speak Agent, Inc.

266.2 Imagine Learning's Language Advantage: Helping Students to Find Their Voice in the Math Classroom
General Interest Exhibitor Workshop
McCormick Place - Lakeside Center, E253B
Imagine Learning

266.3 AP® Calculus Panel Discussion (Part 2)
10-12 Exhibitor Workshop
McCormick Place - Lakeside Center, E253D
Bedford, Freeman & Worth Publishers, Hamilton, New Jersey

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<td>Monica Tienda, Key Elementary, Oak Park School District, Royal Oak, Michigan</td>
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<td>268</td>
<td>Counting Collections: Getting Started Pre-K-2 Burst</td>
<td>268</td>
<td>McCormick Place - South Building, S402</td>
<td>Josie Burg, Ankeny Community School District, Iowa; @MrsBurg1st; Angela Schneden, Ankeny Community School District, Iowa</td>
</tr>
<tr>
<td>269</td>
<td>A Classroom Structure to Cast a Wider Net for Inclusivity 3-5 Burst</td>
<td>269</td>
<td>McCormick Place - Lakeside Center, E258</td>
<td>Justin Johns, International School of Latvia, Riga; @JG_Johns; Evan Guyer, American Embassy School, New Delhi, India</td>
</tr>
<tr>
<td>270</td>
<td>Mathical Author: A Hundred Billion Trillion Ways to Explore The World</td>
<td>270</td>
<td>McCormick Place - Lakeside Center, E451A</td>
<td>Seth Fishman, Self Employed, Manhattan Beach, California</td>
</tr>
<tr>
<td>271</td>
<td>Reading like a Mathematician! Making Greater Meaning Is as Easy as 1,2,3</td>
<td>271</td>
<td>McCormick Place - Lakeside Center, E353A</td>
<td>Candi DiBiase, HMH - Math Solutions, Merritt Island, Florida; Allison Gesacion, HMH - Math Solutions, Tampa, Florida</td>
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<tr>
<td>273</td>
<td>Mathical Author: Secrets, Lies and Algebra: Mathematical Fiction in the Classroom.</td>
<td>273</td>
<td>McCormick Place - South Building, S403</td>
<td>Wendy Lichtman, Self Employed, Berkeley, California</td>
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<tr>
<td>275</td>
<td>What Does Effective Fraction Intervention Look Like in Middle School or Beyond?</td>
<td>275</td>
<td>McCormick Place - Lakeside Center, E258</td>
<td>Mark Goldstein, Center for Mathematics and Teaching, Redondo Beach, California</td>
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<tr>
<td>276</td>
<td>Assessment Tracking, Evaluating, and Reporting Tool for Mastery-Based Competency Development</td>
<td>276</td>
<td>McCormick Place - South Building, S401BC</td>
<td>Mathew Geddes, St. Michaels University School, Victoria, British Columbia, Canada</td>
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<tr>
<td>277</td>
<td>Changing Mathematical Mindsets with High School Number Talks: A Story of Our Research</td>
<td>277</td>
<td>McCormick Place - Lakeside Center, E353B</td>
<td>Jacqueline Palmquist, Metea Valley High School, Aurora, Illinois; @thumbsupmath; Patricia Baltzley, Gardiner, Montana; Alyssa Schneider, Metea Valley High School, Aurora, Illinois</td>
</tr>
<tr>
<td>278</td>
<td>Connecting All Six Trigonometric Functions to the Unit Circle</td>
<td>278</td>
<td>McCormick Place - South Building, S404BC</td>
<td>Andrew Hill, Brookfield High School, Connecticut</td>
</tr>
</tbody>
</table>
Thursday Afternoon Bursts

279  Statistics Standards for the School: Solving the Problems of Your School
     10-12 Burst
     McCormick Place - Lakeside Center, E271B
     Nicholas King, University of Tennessee, Knoxville
     Julie Steimer, Knoxville, Tennessee

280  You Down with SBG? Yeah, You know Me
     10-12 Burst
     McCormick Place - Lakeside Center, E353C
     Anthony Lecheler, Notre Dame High School, San Jose, California
     @LechelerMath

281  Evidencing Standards-Based Mathematics Teaching Practices in Classroom Observations
     Coaches/Leaders/Teacher Educators Burst
     McCormick Place - Lakeside Center, E265
     Faith Peddie, National Council of Teachers of Mathematics, Reston, Virginia

282  Promoting Equitable Access to Mathematics: The Impact of Neuroscience
     General Interest Burst
     McCormick Place - South Building, S404D
     Dawn Pilotti, Currey Ingram Academy, Brentwood, Tennessee
     Mary Rasgade, Currey Ingram Academy, Brentwood, Tennessee

283  What If?: Letting Learners Lead
     General Interest Burst
     McCormick Place - Lakeside Center, E271A
     Jodie Bailey, Hilliard City Schools/Ohio Council of Teachers of Mathematics (OCTM)
     @BaileyJodie

284  Math Fair: A Path to Problem Solving and Peer Evaluation
     Higher Education Burst
     McCormick Place - South Building, S405
     Ana Barbosa, Instituto Politécnico de Viana do Castelo, Portugal
     Isabel Vale, Escola Superior de Educação, Viana do Castelo, Portugal
     Isabel Cabrita, University of Aveiro, Portugal

Notes

Implement the Effective Teaching Practices
Experience the Depth and Excitement of Mathematics
Look Back and Move Forward: A Centennial View
Create Positive Change
Build Student Agency, Foster Student Identity, Promote Social Change
THURSDAY

Thursday Afternoon Sessions

5:30pm–7:00pm

285 NCTM and a Century of Mathematics Education: A Review Sprinkled with Music
General Interest Session
McCormick Place - Lakeside Center, Arie Crown

What led to NCTM’s birth in 1920? How did NCTM and mathematics education fare through the Roaring ‘20s, the Great Depression, WWII, Sputnik and the New Math, the ‘70s back-to-basics era, the ‘80s problem-solving movement, the NCTM Standards of the ‘90s, No Child Left Behind, and the Common Core? This history will be covered in a presentation including songs and parodies.

Zalman Usiskin, University of Chicago (Emeritus), Illinois
Andrew Chukerman, Composer, Arranger, Music Director; Los Angeles, California

Zalman Usiskin is a professor emeritus of education at the University of Chicago. In 1983 he helped initiate the University of Chicago School Mathematics Project (UCSMP) and he served as its overall director from 1987 until June 2019. He began his career as a high school mathematics teacher and his research has focused accordingly on the teaching and learning of arithmetic, algebra, and geometry, with particular attention to applications of mathematics at all levels, and the incorporation of calculator and computer technology in learning and doing mathematics.

Usiskin is the author or co-author of over 150 articles and other papers on mathematics and mathematics education, and dozens of books and research monographs. In 2014, NCTM published a book containing 38 of his talks and articles. He has been on the program of every NCTM annual meeting since 1972. He received the Glenn Gilbert (National Leadership) Award from the National Council of Supervisors of Mathematics in 1994, and a Lifetime Achievement Award from NCTM in 2001. In 2018 he received the ISDDE Prize for Lifetime Achievement from the International Society for Design and Development in Education.

Andrew Chukerman works extensively in film, television, theatre, and concert work as a composer, orchestrator, music director, and keyboardist. He is a winner of the Richard Rodgers Award, the American Theatre Wing’s Jonathan Larson Award, and the Edgerton Award as composer/co-lyricist of the musical The Princess and the Black-Eyed Pea.

---

Humanizing Disability in Mathematics Education

This new book from NCTM Publications extends the concepts of access, equity, and empowerment to include students living with all types of disabilities.

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BOOK  eBook  SPANISH  AUDIOBOOK

Humanizing Disability in Mathematics Education

FORGING NEW PATHS

Paulo Tan
Alexis Padilla
Erica N. Mason
James Sheldon

Humanizing Disability in Mathematics Education

FORGING NEW PATHS
Without NCTM membership, you’re missing out on benefits that empower you and your students.

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<th>Essential Membership</th>
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nctm.org/join
“There is geometry in the humming of the strings, there is music in the spacing of the spheres.” - Pythagoras

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Marilyn Burns, Founder of Math Solutions, speaks at 8am on Thursday, April 2nd.

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FRIDAY

Registration Hours  
7:00 a.m.–5:00 p.m.

Exhibit & NCTM Central Hours  
9:00 a.m.–5:00 p.m.

NETWORKING LOUNGE: TASKS THAT TRANSCEND TIME

<table>
<thead>
<tr>
<th>Time</th>
<th>Task</th>
<th>Speaker(s)</th>
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| 10:00 a.m.–10:20 a.m. | The Michael Jordan Problem  
High School                | Daniel Teague              |
| 10:30 a.m.–10:50 a.m.  | Chocolate Chip Cookie Problem  
Middle School             | Kevin Dykema                |
| 11:30 a.m.–11:50 a.m.  | Rock-Paper-Scissors  
Task: Difference of Two Die  
Middle School         | Mark Ellis                  |
| 12:00 p.m.–12:20 p.m.   | The Bus Problem  
All Grade Levels          | Rose Marie Zbiek           |
| 12:30 p.m.–12:50 p.m.   | Developing Number Sense on the Number Line  
MTMS                    | Jennifer Bay-Williams      |
| 1:00 p.m.–1:20 p.m.     | Ruplas and Ooplas: A Measurement Mystery  
Grades 2-5               | Beth Bay-Williams          |
| 1:30 p.m.–1:50 p.m.     | Trigonometry + Bingo = Tringo  
High School            | Dave Ebert                 |
| 2:00 p.m.–2:20 p.m.     | What Time Is It?  
Grades 3-5               | Lorie Huff                 |
| 2:30 p.m.–2:50 p.m.     | A Mystery Function  
High School              | Olive Chapman              |

* Author will be available after talk for book signing.

NETWORKING LOUNGE: SHARED INTEREST GROUPS

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Speaker(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:00 a.m.–11:00 a.m.</td>
<td>Detracking: Creating Equitable Structures</td>
<td>Bryan Meyer, Andrea McCloskey, and Theodore Chao</td>
</tr>
<tr>
<td>12:00 p.m.–1:00 p.m.</td>
<td>Early Childhood (Pre-K-2)</td>
<td>Jennifer McCray, Jeanine Brownell, Marvin Cohen, and Matt McLeod</td>
</tr>
<tr>
<td>2:00 p.m.–3:00 p.m.</td>
<td>Place Value and the Anti-Racist Mathematician</td>
<td>Hema Khodai, Marian Dingle, Ralph Pantozzi, Tina Cardone, and Ty Martinez-Black</td>
</tr>
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</table>

**Highlights**

Beyond Helping with Homework: Meaningful Support for Parents and Math .................. 290
Iris Carl Address: ¡Ya Bastal Enough Already! .............................. 380
Mathical Author: Cao Chong Weighs an Elephant: Creative Thinking by a Child Prodigy in Ancient China ........... 410
Mathical Author: Really Big Numbers .......................... 416
NCTM Business Meeting ........ 426.1
President-Elect Address: Catalyzing Change in Middle School Mathematics: Initiating Critical Conversations .. 453
ShadowCon .......................... 522
Mathical Author: To the Moon and Back–Using Math! ........................ 549
Mathical Author: Math Has Feelings Too–Exposing Students to the Compassionate and Creative Side of Math .................. 550
Mathical Author: Which One Doesn’t Belong? and Other Mathematical Ambiguities .................. 553
New Teacher Celebration........... 566
Ignite! Looking Back and Moving Forward .................. 566.1
Friday

The Infinity Bar and the Wellness Workshops will be held in the NCTM Exhibit Hall.

Infinity Bar: Conference speakers will talk to individuals or groups of teachers about issues related to mathematics education. You will be able to sign up either in advance or on-site to speak to someone at a designated time.

Wellness Workshops: Take time to focus on your well-being. As teachers, you need to constantly respond to change, manage a work/life balance, and stay grounded. These sessions will help you manage life’s challenges as a classroom teacher.

### Infinity Bar

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<thead>
<tr>
<th>Time</th>
<th>Name 1</th>
<th>Name 2</th>
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<tbody>
<tr>
<td>9:30 a.m.-10:30 a.m.</td>
<td>Marta Civil</td>
<td>Sherry Parish</td>
<td>Linda Gojak</td>
<td>Ron Lancaster</td>
</tr>
<tr>
<td>11:00 a.m.-12:00 p.m.</td>
<td>Arthur Baker</td>
<td>Lisa Lunney Borden</td>
<td>Linda Sheffield</td>
<td>Karen Karp</td>
</tr>
<tr>
<td>12:30 p.m.-1:30 p.m.</td>
<td>Zal Usiskin</td>
<td>Linda Fulmore</td>
<td>Catherine Fosnot</td>
<td>Julia Aguirre</td>
</tr>
<tr>
<td>2:00 p.m.-3:00 p.m.</td>
<td>Jose Vilson</td>
<td>Nora Ramirez (Iris Carl Address)</td>
<td>Margaret (Peg) Smith</td>
<td>Jennifer Bay-Williams</td>
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### Wellness Workshops

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<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker</th>
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<tbody>
<tr>
<td>9:30 a.m.-10:30 a.m.</td>
<td>Yoga in the Classroom</td>
<td>Arianna Brooks, Corepower Yoga Certified Instructor</td>
</tr>
<tr>
<td>1:30 p.m.-2:30 p.m.</td>
<td>Mirrors: The Teacher Survival Tool</td>
<td>Laila Nur</td>
</tr>
<tr>
<td>3:00 p.m.-4:00 p.m.</td>
<td>Chakra Balancing: The History and the Healing</td>
<td>Ruth Cohen, Yoga Alliance Certified Instructor</td>
</tr>
</tbody>
</table>

Notes
Friday Morning Sessions

8:00am—9:00am

286 Leadership in Action: Presidential Awardees—Impact, Opportunity, and Support
Session
McCormick Place - Lakeside Center, E260
Mike Steele, National Science Foundation, Alexandria, Virginia
Joni Falk, TERC, Cambridge, Massachusetts
Luke Wilcox, East Kentwood High School, Michigan

287 Ideas, Not Answers
Pre-K–2 Session
McCormick Place - Lakeside Center, E352
Berkeley Everett, Glendale, California
@BerkeleyEverett

288 The Equal Sign = Understanding
Pre-K–2 Session
McCormick Place - Lakeside Center, E259
David Janssen, Southern Nevada Regional Professional Development, Las Vegas
Michael Everson, Clark County School District, Las Vegas, Nevada

289 VENN_turing into Math and ELA to Deepen Understanding
Pre-K–2 Session
McCormick Place - Lakeside Center, E263
Jeremy Winters, MTSU, Murfreesboro, Tennessee
Dovie Kimmins, MTSU, Murfreesboro, Tennessee
Cynthia Cliche, Murfreesboro City Schools, Tennessee

290 Beyond Helping with Homework: Meaningful Support for Parents and Math
3–5 Session
McCormick Place - Lakeside Center, Arie Crown
Christopher Danielson, Desmos, Inc., Saint Paul, Minnesota
@Trianglelemanscd

291 Bringing Intervention into the 21st Century
3–5 Session
McCormick Place - Lakeside Center, E270
Tomika Altman-Lewis, Seawell Elementary School, Chapel Hill, North Carolina
@Prettysqueaky

292 Play-Full Mathematics for Justice
3–5 Session
McCormick Place - Lakeside Center, D2 - G
University of Central Florida, Orlando
@lybryakebread
Farshid Safi, University of Central Florida, Orlando

293 The Whole School Agreement: Aligning across K-Grade 6
3–5 Session
McCormick Place - South Building, S406A
Karen Karp, Johns Hopkins University, Baltimore, Maryland

294 Transforming Arithmetic into Adventure: Using Story and Number Theory to Launch Children on a Quest
3–5 Session
McCormick Place - Lakeside Center, D2 - C
Amy Alznauer, Northwestern University, Evanston, Illinois
@amyalz

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### Friday Morning Sessions

<table>
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<th>Title</th>
<th>Time</th>
<th>Location</th>
<th>Presenter(s)</th>
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<tbody>
<tr>
<td>295</td>
<td>Learn How to Implement Tasks That Promote Problem Solving, Reasoning, and Meaningful Discourse</td>
<td>8:00am-9:00am</td>
<td>McCormick Place - Lakeside Center, D2 - K</td>
<td>Hoyun Cho, Capital University, Columbus, Ohio; Gary Lawrence, Mustard Seed School, Hoboken, New Jersey</td>
</tr>
<tr>
<td>296</td>
<td>Ratio, Rate, and Proportional Relationships in Japanese Textbooks</td>
<td>8:00am-9:00am</td>
<td>McCormick Place - Lakeside Center, D2 - I</td>
<td>Tadanobu (Tad) Watanabe, Kennesaw State University, Georgia; @watanabeKSU</td>
</tr>
<tr>
<td>297</td>
<td>The Beauty of Harmonic Divisions of Golden Rectangle Designs</td>
<td>8:00am-9:00am</td>
<td>McCormick Place - Lakeside Center, E262</td>
<td>Stephanie Cooperman, Retired, Chester, New Jersey; Neil Cooperman, Retired, Chester, New Jersey</td>
</tr>
<tr>
<td>298</td>
<td>Catalyzing Change and the Essential Concepts: A Catalyst for Equitable Mathematics Instruction</td>
<td>8:00am-9:00am</td>
<td>McCormick Place - Lakeside Center, D2 - F</td>
<td>Mark Russo, Pascack Valley Regional High School District, Montvale, New Jersey; @RussoMarkF</td>
</tr>
<tr>
<td>299</td>
<td>Sell Me Math: A Formula for Entrepreneurship</td>
<td>8:00am-9:00am</td>
<td>McCormick Place - Lakeside Center, E264</td>
<td>Erin Mancini, Evanston Township High School, Illinois; @MsManciniETHS; Chris Manila, Evanston, Illinois</td>
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<tr>
<td>300</td>
<td>Solving the Problematic: Creating Tasks, Lessons, and Projects That Model Our Actual, Messy World</td>
<td>8:00am-9:00am</td>
<td>McCormick Place - Lakeside Center, D2 - B</td>
<td>Carl Oliver, City-As-School, Brooklyn, New York</td>
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<tr>
<td>301</td>
<td>Strategies and Tools for Facilitating Meaningful Discussions in Secondary Mathematics Classrooms</td>
<td>8:00am-9:00am</td>
<td>McCormick Place - Lakeside Center, D2 - L</td>
<td>Leslie Dietiker, Boston University, Massachusetts; Suzanne Chapin, Boston University, Massachusetts; Ziv Feldman, Boston University, Massachusetts; Benjamin Sinwell, Pendleton High School, Anderson, South Carolina; @Mr_Sinwell</td>
</tr>
<tr>
<td>302</td>
<td>Teaching Algebra: A Look Back at the Materials and Methods We Have Used over the Last 100 Years</td>
<td>8:00am-9:00am</td>
<td>McCormick Place - Lakeside Center, E350</td>
<td>Tad Watanabe, Kennesaw State University, Georgia; @watanabeKSU</td>
</tr>
<tr>
<td>303</td>
<td>Why Is That True? How Does It Work? Finding Multiple Answers for Mathematical Classroom Situations</td>
<td>8:00am-9:00am</td>
<td>McCormick Place - Lakeside Center, E267</td>
<td>Connie Schrock, NCSM Past President/ ESU, Emporia, Kansas; @cfryschrock</td>
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<tr>
<td>304</td>
<td>Engaging Students through Classic Problems to Promote Curiosity and Reasoning about Mathematics</td>
<td>8:00am-9:00am</td>
<td>McCormick Place - Lakeside Center, D2 - D</td>
<td>Mark Russo, Pascack Valley Regional High School District, Montvale, New Jersey; @RussoMarkF</td>
</tr>
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<td>305</td>
<td>Is it Possible? Is it Plausible? Become a Probability Detective!</td>
<td>8:00am-9:00am</td>
<td>McCormick Place - Lakeside Center, D2 - A</td>
<td>Robert Lochel, Hatboro-Horsham High School, Pennsylvania; @bobloch</td>
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<tr>
<td>306</td>
<td>Liberation through Project-Based Learning</td>
<td>8:00am-9:00am</td>
<td>McCormick Place - Lakeside Center, E261</td>
<td>Jeffrey Pearson, Prince George’s County Public Schools, District Heights, Maryland</td>
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Friday Morning Sessions

307 Mentoring to Create Change
Coaches/Leaders/Teacher Educators Session
McCormick Place - South Building, S401D
Fred Dillon, Math Stuff, Strongsville, Ohio
@fdizzle1955

308 Six Expectations for Effective Mathematics Instruction: Moving beyond Focus, Coherence, and Rigor
Coaches/Leaders/Teacher Educators Session
McCormick Place - South Building, S406B
Juli Dixon, University of Central Florida, Orlando
@thestrokeofluck

309 “Out of Our Gloomy Past”: Leading a New Era of “Our Mathematics”
General Interest Session
McCormick Place - Lakeside Center, D2 - H
Lou Matthews, Urban Teachers, Washington, D.C.
@loumatthewslive

310 2% Is Not Enough: Learning from Black Male Mathematics Educators (A Pathway Forward)
General Interest Session
McCormick Place - Lakeside Center, E354B
John W. Staley, Baltimore County Public Schools, Randallstown, Maryland
Reginald Todd, Texas Southern University, Houston
Robert Q. Berry III, President, National Council of Teachers of Mathematics, Reston, Virginia; University of Virginia, Charlottesville

311 The Beauty of Movement: Increasing Discourse in Mathematics Classrooms
General Interest Session
McCormick Place - Lakeside Center, D2 - J
Sara VanDerWerf, Van Der Werf Educational Consulting, Minneapolis, Minnesota
@saravdwerf
Chris Luzniak, The Archer School, West Hollywood, California

312 Thirty Years and Going Strong: NCTM Leadership in the Standards Movement, and Prospects for Tomorrow
General Interest Session
McCormick Place - Lakeside Center, E351
Joan Ferrini-Mundy, University of Maine, Orono

313 What’s in a Grade?: How Feedback and Self-Reflections Changed My College Algebra Classroom
Higher Education Session
McCormick Place - Lakeside Center, D2 - E
Melissa Michael, John Brown University, Siloam Springs, Arkansas
Savannah Carter, John Brown University, Siloam Springs, Arkansas

313.1 Math Workshop: A Hands-On Instructional Model for all Students (K-Grade 5)
General Interest Exhibitor Workshop
McCormick Place - Lakeside Center, E253C
hand2mind, Inc., Vernon Hills, Illinois

313.2 Shape the Future of EdTech: Join Mathspace’s User Research Group
6-8 Exhibitor Workshop
McCormick Place - Lakeside Center, E253B
Mathspace, New York, New York

Notes
Friday Morning Workshops

314  Counting Collections: An Instructional Activity to Build Counting and Place-Value Understandings  
Pre-K–2 Workshop  
McCormick Place - South Building, S401A  
Jody Guarino, Orange County Department of Education, Costa Mesa, California  
@jody_guarino  
John Drake, Newport Mesa Unified School District, Costa Mesa, California  
Myuriel Von Aspen, Newport Mesa Unified School District, Costa Mesa, California

315  Developing Computational Thinking in Elementary Learners  
Pre-K–2 Workshop  
McCormick Place - Lakeside Center, E353C  
Sara Delano Moore, ORIGO Education, Kent, Ohio  
@saradelanomoore  
James Burnett, ORIGO Education, Brendale, Australia  
Peter Stowasser, ORIGO Education, Brendale, Australia

316  Making Sense of Word Problems: Visualizing Additive Situations  
Pre-K–2 Workshop  
McCormick Place - Lakeside Center, E271B  
Neet Priya Bajwa, Illinois State University, Normal

317  Using Games to Authentically Assess and Strengthen Number Sense  
Pre-K–2 Workshop  
McCormick Place - South Building, S402  
Lauren Solarski, Erikson Institute, Chicago, Illinois  
@laurensolarski  
Lisa Ferguson, Erikson Institute, Chicago, Illinois

318  Exploring Properties and Equivalence: Using Representations to Develop Algebraic Reasoning  
3–5 Workshop  
McCormick Place - South Building, S404D  
Virginia Lewis, Longwood University, Farmville, Virginia  
Toni Sorrell, Longwood University, Farmville, Virginia  
Maria Timmerman, Longwood University, Farmville, Virginia

319  Language Learners and Mathematics: Building Supports for ALL!  
3–5 Workshop  
McCormick Place - South Building, S405  
Leslie Waltz, School District of Waukesha, Wisconsin  
@leslie_waltz  
Rachel Boario, School District of Waukesha, Wisconsin

320  Making Sense of Decimal Operations: Let’s Talk Money!  
3–5 Workshop  
McCormick Place - Lakeside Center, E258  
Dana Enriquez-Vontoure, Vontoure Learning, LLC, Humble, Texas  
@Vontoure_Math  
Angela Franco, Vontoure Learning, LLC, Humble, Texas

321  Rethinking the Meaning of the Numerator and Denominator  
3–5 Workshop  
McCormick Place - Lakeside Center, E451B  
Debi DePaul, ORIGO Education, Gig Harbor, Washington  
@debi_depaul  
Peter Stowasser, ORIGO Education, Brisbane, Australia

322  “What’s Fair?”: Exploring Social Values through Mathematics  
6–8 Workshop  
McCormick Place - Lakeside Center, E353A  
Steve Starr, Chicago Public Schools (Ret.), Illinois

323  Making Sense of Rational Number Division through Modeling  
6–8 Workshop  
McCormick Place - Lakeside Center, E265  
John Ashurst, Retired, Harlan Independent Schools, Baxter, Kentucky  
@kiltedcyclist  
Lindsay Gold, University of Dayton, Tipp City, Ohio  
Michael Houston, Riverside High School, Ellwood City, Pennsylvania

324  The Art of Wonderment and Equity: Bridging the Philosophy of Math (Circles to the Classroom)  
6–8 Workshop  
McCormick Place - Lakeside Center, E450B  
Sara Rezvi, Saga Education, Chicago, Illinois  
@arsinoepi  
Amanda Ruch, Chicago Public Schools, Illinois

325  Math in Motion: Promoting Equity and Engagement through Purposeful Movement  
8–10 Workshop  
McCormick Place - South Building, S403  
Brittany Leknes, International School of Panama, Panama City  
Tim Kokotovich, International School of Panama, Panama City

Implement the Effective Teaching Practices  
Experience the Depth and Excitement of Mathematics  
Look Back and Move Forward: A Centennial View  
Create Positive Change  
Build Student Agency, Foster Student Identity, Promote Social Change
Friday Morning Workshops

8:00am—9:15am

326 There's So Much Out There! How Do I Pick a Good Mathematical task?
8–10 Workshop
McCormick Place - Lakeside Center, E451A
Jenny Sagrillo, University of Wisconsin-Milwaukee
@jsagrillo

327 Using GeoGebra to Create Memorable Experiences in the Geometry Classroom
8–10 Workshop
McCormick Place - South Building, S401BC
Elizabeth Masslich, Cedarburg High School, Wisconsin
@EMasslich

328 Dynamic Activities to Enhance the AP Calculus Experience
10–12 Workshop
McCormick Place - South Building, S404A
Gail Kaplan, Towson University, Annapolis, Maryland

329 Student Grouping Structures That Support Discourse and Peer Feedback
10–12 Workshop
McCormick Place - Lakeside Center, E450A
Connie Horgan, Math Solutions, Sun City West, Arizona
Amy Herman, Math Solutions, Louisville, Kentucky

330 Understanding Confidence Intervals and Power: Simulations for Teaching Statistical Concepts
10–12 Workshop
McCormick Place - Lakeside Center, E271A
Nicholas Koberstein, The North Carolina School of Science and Mathematics, Durham
@nkoberstein
Floyd Bullard, The North Carolina School of Science and Mathematics, Durham

331 Strategies for Enhancing Teacher Learning from Lesson Video
Coaches/Leaders/Teacher Educators Workshop
McCormick Place - Lakeside Center, E353B
Meg Bates, UChicago STEM Education, Illinois
@megbates_stemed
Cheryl Moran, UChicago STEM Education, Illinois
Shereen Oca Beilstein, University of Illinois

332 Strengths-Based Coaching: Creating a Shared Vision and Growing Professionally
Coaches/Leaders/Teacher Educators Workshop
McCormick Place - South Building, S404BC
Delise Andrews, Lincoln Public Schools, Nebraska
@deliseandrews
Beth Kobett, Board of Directors, National Council of Teachers of Mathematics, Reston, Virginia; Stevenson University, Maryland

Notes
Friday Morning Sessions

334 Beautiful Explanations in the Primary Math Class
   Pre-K–2 Session
   McCormick Place - Lakeside Center, D2 - I
   Solana Ray, Callahan Consulting, Los Angeles, California
   Jessica Balli, Callahan Consulting, San Diego, California

335 See It, Move It, Grasp It: Math with Virtual Manipulatives
   Pre-K–2 Session
   McCormick Place - Lakeside Center, D2 - K
   Chrissy Newell, Stanislaus County Office of Education, Modesto, California
   @MrsNewell

336 Selecting and Sequencing Student Work to Build Meaningful Conversation in the Primary Classroom
   Pre-K–2 Session
   McCormick Place - Lakeside Center, D2 - F
   Laura Grandau, Curriculum Associates, Highland Park, Illinois
   Susan Meyer, Peoria, Arizona

337 Taking an Asset-Based Lens to Students’ Mathematical Thinking
   Pre-K–2 Session
   McCormick Place - Lakeside Center, D2 - G
   Marcus Deja, Kent Intermediate School District, Grand Rapids, Michigan
   @DejaMarcus
   Rusty Anderson, Kent Intermediate School District, Rockford, Michigan

338 Building Mathematical Memory Muscle through Number Talks for Special Education Students
   3–5 Session
   McCormick Place - Lakeside Center, E352
   Stephanie Bernander, University of Wisconsin-Oshkosh
   Terrill Alleman, Natrona County School District, Casper, Wyoming

339 Inspiring Persistent Problem Solvers: Conceptual Algebra Readiness for Everyone
   3–5 Session
   McCormick Place - Lakeside Center, E263
   Martin Briggs, La Porte Community Schools, Mill Creek, Indiana
   Jennifer Shelton, Valparaiso Community Schools, Indiana
   David Feikes, Valparaiso Community Schools, Indiana

340 The Ten Frame Grows Up: Using the “Infinite Ten Frame” in Grades 2–5
   3–5 Session
   McCormick Place - Lakeside Center, D2 - J
   Kimberly Rimby, KP Mathematics & Buckeye Elementary School District, Phoenix, Arizona

341 DUCK-In: Deepen the Understanding and Conceptual Knowledge of Integers
   6–8 Session
   McCormick Place - Lakeside Center, D2 - L
   Rachelle McNamara, Newport News Public Schools, Virginia
   @Rachelle_Mc_
   Alison Moir, Newport News Public Schools, Virginia

342 Integrating Mathematics and Coding into the Learning of Shadows
   6–8 Session
   McCormick Place - Lakeside Center, D2 - A
   Erell Feb Germia, Montclair State University, New Jersey
   Nicole Panorkou, Montclair State University, New Jersey

343 Math Reasoning That Supports Mathematical Procedures
   6–8 Session
   McCormick Place - Lakeside Center, D2 - H
   Nakasha Kirkland, Prince William County Schools, Manassas, Virginia
## Friday Morning Sessions

<table>
<thead>
<tr>
<th>Session</th>
<th>Title</th>
<th>Time</th>
<th>Location</th>
<th>Speakers</th>
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</thead>
<tbody>
<tr>
<td>344</td>
<td>Orchestrationing Productive Mathematics Discussions: Overcoming the Challenges</td>
<td>9:30am–10:30am</td>
<td>McCormick Place - Lakeside Center, E350</td>
<td>Margaret (Peg) Smith, University of Pittsburgh (Emeritus), Pennsylvania&lt;br&gt;Miriam Sherin, Northwestern University, Evanston, Illinois</td>
</tr>
<tr>
<td>345</td>
<td>Every Student. Every Day.</td>
<td>10:12 Session</td>
<td>McCormick Place - Lakeside Center, E262</td>
<td>Shawna Morgan, Fremont County School District #1, Lander, Wyoming&lt;br&gt;Rachel Giesmann, Fremont County School District #1, Lander, Wyoming</td>
</tr>
<tr>
<td>346</td>
<td>Creating and Implementing Project-Based Learning and Assessment</td>
<td>10:12 Session</td>
<td>McCormick Place - Lakeside Center, E261</td>
<td>David Postlethwait, Prince William County Public Schools, Woodbridge, Virginia&lt;br&gt;Shannon Miller, Prince William County Public Schools, Woodbridge, Virginia&lt;br&gt;Jeannette Newman, Garfield High School, Woodbridge, Virginia</td>
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<tr>
<td>347</td>
<td>Key Connections between Mathematics Curriculum and the SAT</td>
<td>10:12 Session</td>
<td>McCormick Place - South Building, S401D</td>
<td>Jennifer Cox, Indiana University, Bloomington</td>
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<tr>
<td>348</td>
<td>The Mathematics of Elections and Representation</td>
<td>10:12 Session</td>
<td>McCormick Place - Lakeside Center, E260</td>
<td>Julien Meyer, Severn School, Severna Park, Maryland&lt;br&gt;Chris Lepi, Severn School, Severna Park, Maryland</td>
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<tr>
<td>349</td>
<td>Three Teachers, 3000 Problems, and the Quest to Make Math Stick: Interleaving in the Math Classroom</td>
<td>10:12 Session</td>
<td>McCormick Place - Lakeside Center, E264</td>
<td>Fred Kong, Harry Ainlay High School, Edmonton, Alberta, Canada&lt;br&gt;Steve Hardy, Harry Ainlay High School, Edmonton, Alberta, Canada</td>
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<tr>
<td>350</td>
<td>A Framework to Open Dialogue and Self-Reflection on Equitable Mathematics Instruction</td>
<td>10:12 Session</td>
<td>McCormick Place - Lakeside Center, E270</td>
<td>Cynthia Taylor, Millersville University of Pennsylvania&lt;br&gt;Kelley Buchheister, University of Nebraska-Lincoln&lt;br&gt;Christa Jackson, University of Nebraska-Lincoln</td>
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<tr>
<td>351</td>
<td>Creating Change through Co-Teaching: Moving Forward with Inclusive Mathematics</td>
<td>10:12 Session</td>
<td>McCormick Place - Lakeside Center, E264</td>
<td>Kristin Harbour, University of South Carolina, Columbia&lt;br&gt;Stefanie Livers, Missouri State University, Springfield</td>
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<tr>
<td>352</td>
<td>Did I Do That? Harnessing the Power of Video for Teacher Reflection and Improved Practice</td>
<td>10:12 Session</td>
<td>McCormick Place - Lakeside Center, E260</td>
<td>Elizabeth Flegar, Naugatuck School District, Cheshire, Connecticut</td>
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<tr>
<td>353</td>
<td>Engaging Families in Math Fact Fluency</td>
<td>10:12 Session</td>
<td>McCormick Place - South Building, S406A</td>
<td>Jennifer Bay-Williams, University of Louisville, Kentucky&lt;br&gt;@JBayWilliams</td>
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<tr>
<td>354</td>
<td>Learning, Not Labeling: Challenging Beliefs and Practices to Support Math Learning for All Students</td>
<td>10:12 Session</td>
<td>McCormick Place - South Building, S406B</td>
<td>Mark Ellis, CSU Fullerton, California&lt;br&gt;@EllisMathEd&lt;br&gt;Cathery Yeh, Chapman University, Orange, California</td>
</tr>
</tbody>
</table>
Friday Morning Sessions

355  Math-Positive Mindsets for Math-Phobic Parents: How to Tackle Parental Concerns about Math Nowadays
General Interest Session
McCormick Place - Lakeside Center, D2 - E
Carrie Cutler, University of Houston, Texas
@DrCarrieCutler

356  Supporting Emergent Bilinguals through Mathematical Inquiry and the Discursive Assessment Protocol
General Interest Session
McCormick Place - Lakeside Center, E259
Richard Kitchen, University of Wyoming, Laramie

357  The Changing Views of Development, the Complexities of Learning Trajectories, and the Challenges
General Interest Session
McCormick Place - Lakeside Center, Arie Crown
Catherine Fosnot, New Perspectives on Learning, CEO, New London, Connecticut
@ctfosnot

358  The Write Stuff ... Mathematically Speaking
General Interest Session
McCormick Place - Lakeside Center, E351
Cindy Neuschwander, San Luis Coastal Unified School District, San Luis Obispo, California

359  Using Learning Progressions to Implement the 8 Effective Teaching Practices In Principles to Actions
General Interest Session
McCormick Place - Lakeside Center, E354B
Michael Battista, The Ohio State University, Columbus

360  Secondary Mathematics Teachers’ Reflections on Statistical Literacy
Research Session
McCormick Place - Lakeside Center, D2 - C
Amanda Riske, Tempe, Arizona
Fabio Milner, Arizona State University Tempe

360.1  Exploring the 3-Part Lesson: Differentiating the Levels of Learning
3-5 Exhibitor Workshop
McCormick Place - Lakeside Center, E253A
think! Mathematics

360.2  Bar Model Bootcamp: Singapore Math Model Drawing
3-5 Exhibitor Workshop
McCormick Place - Lakeside Center, E253B
Singapore Math, Tualatin, Oregon

360.3  Improve Math Fluency through Effective Interventions (Grades 3-8)
3-8 Exhibitor Workshop
McCormick Place - Lakeside Center, E253C
hand2mind, Inc.

360.4  More Choice, More Voice (K–8)
3-5 Exhibitor Workshop
McCormick Place - Lakeside Center, E253D
Pearson K12 Learning, Hoboken, New Jersey

360.5  Promoting Success on the AP® Exam with The Practice of Statistics
10–12 Exhibitor Workshop
McCormick Place - Lakeside Center, Presentation Pavilion
Bedford, Freeman & Worth Publishers, Hamilton, New Jersey

Notes
# Friday Morning Workshops

<table>
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<th>Workshop Number</th>
<th>Title</th>
<th>Location</th>
<th>Facilitators</th>
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<tr>
<td>361</td>
<td>5 Practices + 8 Effective Mathematics Teaching Practices = A Winning Combination!</td>
<td>McCormick Place - South Building, S405</td>
<td>Latrenda Knighten, East Baton Rouge Parish School System, Louisiana @Latrendak</td>
</tr>
<tr>
<td>362</td>
<td>Engaging Students in Mathematical Discussions Using Literature</td>
<td>McCormick Place - South Building, S404A</td>
<td>Monique Lynch, Walden University, Middleburg, Virginia Demery Bader-Saye, NYOS, Austin, Texas</td>
</tr>
<tr>
<td>363</td>
<td>Now What? Assessment Data, Pacing Calendar, and Clear Learning Gaps—How Do We Make It All Fit?</td>
<td>McCormick Place - South Building, S401A</td>
<td>Katie Moore, Tillamook School District, Oregon</td>
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<tr>
<td>365</td>
<td>Division of Fractions: Don’t Let the Legacy Be Keep, Change, Flip</td>
<td>McCormick Place - South Building, S402</td>
<td>Jeanine Haistings, William Jewell College, Kansas City, Missouri Angela Broadus, Benedictine College, Atchison, Kansas</td>
</tr>
<tr>
<td>366</td>
<td>Safe Water in Schools: Mathematical Modeling and Critical Agency in Grades 3-5</td>
<td>McCormick Place - Lakeside Center, E353C</td>
<td>Julia Aguirre, University of Washington Tacoma Erin Turner, University of Arizona, Tucson Mary Foote, Queens College–City University of New York</td>
</tr>
<tr>
<td>367</td>
<td>Engaging Students Using Rich Mathematical Tasks by Altering Their Beliefs as Learners of Mathematics</td>
<td>McCormick Place - Lakeside Center, E451B</td>
<td>Holly McCarty, Blue Valley School District, Overland Park, Kansas @bvmathematics</td>
</tr>
<tr>
<td>368</td>
<td>Fair Play: Games That Bridge Number Sense, Probability, and Data Analysis</td>
<td>McCormick Place - South Building, S404BC</td>
<td>Aran Glancy, St. Thomas University, Woodbury, Minnesota @aranglancy Christy Pettis, University of Wisconsin–River Falls</td>
</tr>
<tr>
<td>369</td>
<td>Logic for Middle School</td>
<td>McCormick Place - South Building, S401BC</td>
<td>James Olsen, Western Illinois University, Macomb @DrOlsen314 Jesus Aguirre, Student, Macomb, Illinois Alex Rangel, Student, Macomb, Illinois</td>
</tr>
<tr>
<td>371</td>
<td>Formative Assessment Strategies Meetup</td>
<td>McCormick Place - Lakeside Center, E450B</td>
<td>Crystal Vesperman, Saint Paul Conservatory for Performing Artists, St. Paul, Minnesota</td>
</tr>
<tr>
<td>372</td>
<td>The Desmos Dashboard: A Love Letter to the Five Practices</td>
<td>McCormick Place - Lakeside Center, E450A</td>
<td>Michael Fenton, Desmos, Inc., Fresno, California @mjfenton</td>
</tr>
</tbody>
</table>

**Schedule:** 9:45am–11:00am
Friday Morning Workshops

373 Approximation Tasks in Calculus: A Hands-On Way Bring Rigor to Your Classroom
10-12 Workshop
McCormick Place - Lakeside Center, E258
Andrew Wille, Stuyvesant High School, New York, New York
@afwille
Lori Bodner, Brooklyn Technical High School, New York

374 Credit Cards: Using the Geometric Series to Unveil Debts Incurred by the Ubiquitous Plastic
10-12 Workshop
McCormick Place - South Building, S403
Greg Williams, Norfolk Public Schools, Virginia

375 Relighting Mathematical Wonder through Mathematical Modeling
10-12 Workshop
McCormick Place - Lakeside Center, E353A
Aline Abassian, University of Central Florida, Casselberry
@AlineAbassian
Farshid Safi, University of Central Florida, Orlando

376 Simulations That Solve the Collector’s Problem
10-12 Workshop
McCormick Place - Lakeside Center, E265
Raymond Siegrist, SUNY Oneonta, New York

377 Developing Political Knowledge for Teaching Mathematics: Lessons from the Math Equity Group
Coaches/Leaders/Teacher Educators Workshop
McCormick Place - South Building, S404D
Susan Gregson, University of Cincinnati, Ohio
@sagregson
Justin Harris, Roselawn Condon Elementary, Cincinnati, Ohio
Jennifer Steller, Roselawn Condon Elementary, Cincinnati, Ohio

378 Promoting Effective Teaching Practices: Using Student Work to Reflect on Tasks and Implementation
Coaches/Leaders/Teacher Educators Workshop
McCormick Place - Lakeside Center, E451A
Amber Candela, University of Missouri - St. Louis, Saint Louis
@amcan36
Melissa Boston, Duquesne University, Ellwood City, Pennsylvania

379 The I'm W.O.K.E. Project: Widening Options through Knowledge and Empowerment
Coaches/Leaders/Teacher Educators Workshop
McCormick Place - Lakeside Center, E271A
Tonya Clarke, Clayton County Public Schools, Jonesboro, Georgia
@clarkesgotclass
Charlene Matthew, Clayton County Public Schools, Jonesboro, Georgia

Notes

Implement the Effective Teaching Practices
Experience the Depth and Excitement of Mathematics
Look Back and Move Forward: A Centennial View
Create Positive Change
Build Student Agency, Foster Student Identity, Promote Social Change
Friday Morning Sessions

11:00am–12:00pm

380 Iris Carl Address: ¡Ya Basta! Enough Already!
Session
McCormick Place - Lakeside Center, Arie Crown
Nora G. Ramirez, Executive Director, TODOS, Tempe, Arizona
Nora G. Ramirez is the Executive Director of TODOS: Mathematics for ALL and a mathematics education consultant working in urban, suburban, and rural school districts. She is a founding member and past president of TODOS, a past member of the NCTM Board of Directors, and a past president of the Arizona Association of Teachers of Mathematics (AATM). She has worked at Arizona State University and Maricopa Community Colleges as a professional developer and mathematics specialist. In 2014, she received the Iris Carl Equity and Leadership Award from TODOS recognizing her significant contributions to increasing the quality of mathematics education provided to underserved students, particularly Latinx students. She is a co-editor of Beyond Good Teaching: Advancing Mathematics Education for ELLs (NCTM 2012).

381 Equitable Participation: The Why, What, & How
Pre-K–2 Session
McCormick Place - Lakeside Center, E259
Rusty Anderson, Kent Intermediate School District, Grand Rapids, Michigan
@RAnderson_Math
Andrew Smith, Kent Intermediate School District, Grand Rapids, Michigan

382 Let Your Kids Talk! Teacher Talk Moves Offer ALL Students Voice & Choice in How They Learn Math
Pre-K–2 Session
McCormick Place - Lakeside Center, E352
Barbara Blanke, Educational Consultant, San Luis Obispo, California
@bblankephd

383 Building Students’ Mathematical Competence
3–5 Session
McCormick Place - Lakeside Center, E261
Dan Battey, Rutgers University, New Brunswick, New Jersey
@danbattey

384 Solving the Fractions Problem: From Research to Classroom
3–5 Session
McCormick Place - Lakeside Center, D2 - G
Paul Cholmisky, ExploreLearning, Ottawa, Ontario, Canada

385 Building a Conceptual Understanding of Ratios Using Various Models
6–8 Session
McCormick Place - Lakeside Center, D2 - C
Stephanie Doran, The Discovery School, Jacksonville, Florida
Janet Tomlinson, Carnegie Learning, Statham, Georgia

386 Changing the Story: Using Math Workshop to Help Teachers and Students Reach Their Full Potential
6–8 Session
McCormick Place - Lakeside Center, E270
Jennifer Lempp, Author & Educational Consultant, Fairfax, Virginia
@Lempp5
Skip Tyler, Henrico County Public Schools, Quinton, Virginia

387 Impacting Learning for Black and Latinx Youth through Culturally Sustaining Pedagogies
6–8 Session
McCormick Place - Lakeside Center, D2 - D
Desha Williams, Georgia College and State University, Milledgeville
Jasia Clark, Pre-service Teacher, Georgia College and State University, Georgia

388 Pancakes, Pizza, and Fast Food: Great Contexts for Great Middle School Lessons and Projects
6–8 Session
McCormick Place - South Building, S406A
Steven Leinwand, American Institute for Research, Washington, D.C.
@steve_leinwand

389 The Future of Mathematics Education: Using Artificial Intelligence to Provide Efficient Feedback
6–8 Session
McCormick Place - Lakeside Center, D2 - B
Hilary Kreisberg, Lesley University, Cambridge, Massachusetts
@Dr_Kreisberg
Cristina Heffernan, Worcester Polytechnic Institute, Massachusetts

390 A Lesson on Social Justice—What Should Be In It?
8–10 Session
McCormick Place - South Building, S401D
Kwame Anthony Scott, Chicago, Illinois
Friday Morning Sessions

391 Probability That Students Understand: A Different Approach to Teaching Probability in Grades 9-12
8-10 Session
McCormick Place - Lakeside Center, D2 - A
Roxy Peck, Cal Poly, San Luis Obispo, California

392 Public Record: Cornerstone of Productive Whole-Class Mathematical Discussions
8-10 Session
McCormick Place - Lakeside Center, E260
Laura Van Zoest, Western Michigan University, Kalamazoo
Carlee Hollenbeck, Western Michigan University, Kalamazoo
Sarah Jokela, Carney-Nadeau Public Schools, Michigan

393 While You Were Out ...
8-10 Session
McCormick Place - Lakeside Center, E263
Tiffany Peters, Greenville Tech Charter High School, South Carolina
Charlotte Ihme, Greenville Tech Charter High School, South Carolina

394 Developing Conceptual Understanding through Making Mathematical Connections
10-12 Session
McCormick Place - Lakeside Center, D2 - I
Laura Singletary, Lee University, Cleveland, Tennessee

395 Let’s Do Some Math! A Few Fun and Easy Data Collection Activities That Demonstrate Real-Life Math
10-12 Session
McCormick Place - Lakeside Center, D2 - E
Stephen Miller, Winchester Thurston School, Pittsburgh, Pennsylvania

396 Optimizing Traffic Flow in the Suez Canal: The Power of the Modeling Cycle
10-12 Session
McCormick Place - Lakeside Center, E262
Daniel Teague, Board of Directors, National Council of Teachers of Mathematics, Reston, Virginia; North Carolina School of Science and Mathematics, Durham

397 What’s Questioning Got to Do, Got to Do with It?
10-12 Session
McCormick Place - Lakeside Center, E267
Kyle Eller, Wheaton Warrenville South High School, Illinois
Fred Dillon, Strongsville, Ohio

398 Helping Administrators Support High-Quality K-8 Mathematics Programs: What Do They Need to Know?
Coaches/Leaders/Teacher Educators Session
McCormick Place - Lakeside Center, E264
Martin Gartzman, UChicago STEM Ed, The University of Chicago, Illinois
Debbie Leslie, UChicago STEM Ed, Illinois

399 The TRUth about PLCs: How the Teaching for Robust Understanding Framework Put the Focus On Students
Coaches/Leaders/Teacher Educators Session
McCormick Place - Lakeside Center, E351
Mary Reed, Oakland Unified School District, California
Courtney Ortega, Oakland Unified School District, California

400 Challenging Dis/Abilities: Leveraging the Potential of All Students as Math Problem Solvers
General Interest Session
McCormick Place - Lakeside Center, D2 - K
Cathery Yeh, Chapman University, Orange, California @YehCathery
Emilia Frias, Salk Elementary School, Anaheim, California
Melissa Brennan, Maxwell Elementary School, Anaheim, California

401 Don’t Go It Alone! Collaborative Lesson Research Is a Structure for Continuous School Improvement
General Interest Session
McCormick Place - Lakeside Center, D2 - H
Akihiko Takahashi, DePaul University, Chicago, Illinois @AkihikoTa

Implement the Effective Teaching Practices
Experience the Depth and Excitement of Mathematics
Look Back and Move Forward: A Centennial View
Create Positive Change
Build Student Agency, Foster Student Identity, Promote Social Change
Friday Morning Sessions

402  Fostering Mathematics Identities in African American Children—What Do Teachers Say?
    General Interest Session
    McCormick Place - Lakeside Center, D2 - L
    Linda Fulmore, Education Consultant, Cave Creek, Arizona
    @lfulmore

403  Making Math Meaningful: Disciplinary Literacy, 3-Act Tasks, & Community Exploration
    General Interest Session
    McCormick Place - Lakeside Center, D2 - J
    Margaret Knapiik, GEMS World Academy Chicago, Illinois
    @megknapi

404  Promote Equitable Teaching Practices AND Focus on Content & Connections—Don’t Settle for Only One!
    General Interest Session
    McCormick Place - Lakeside Center, E354B
    Farshid Safi, University of Central Florida, Orlando
    @FarshidSafi
    George Roy, University of South Carolina, Columbia

405  Questioning Practices to Support Mathematical Practices
    General Interest Session
    McCormick Place - South Building, S406B
    Maggie McGatha, M^2 Consulting, Louisville, Kentucky
    Jennifer Bay-Williams, University of Louisville, Kentucky

406  Teaching Basic Computation & Developing Strategic Competence for ELL Students Using the Model Method
    General Interest Session
    McCormick Place - Lakeside Center, E350
    Michelle Sencibaugh, Valley Park School District, Missouri
    Joseph Sencibaugh, Webster University, Saint Louis, Missouri
    Jennifer Bond, Ferguson-Florissant School District, Saint Louis, Missouri

407  What Are the Components of a Successful Mathematics Methods Course for Grades 6-12 Preservice Teachers?
    Higher Education Session
    McCormick Place - Lakeside Center, D2 - F
    Christine Larson, South Dakota State University, Brookings
    @CLL2718

407.1 Making Principles to Actions Come Alive with CPM Mathematics
    6-8 Exhibitor Workshop
    McCormick Place - Lakeside Center, E253A
    CPM Educational Program

407.2 Rate of Change: Algebra through Calculus
    10-12 Exhibitor Workshop
    McCormick Place - Lakeside Center, E253B
    Texas Instruments Incorporated, Dallas, Texas

407.3 Hands-On Learning Is Easy with the Right Tools (K-Grade 5)
    General Interest Exhibitor Workshop
    McCormick Place - Lakeside Center, E253C
    hand2mind, Inc.

407.4 Implementation Models to Help Foster Independence in Math
    8-10 Exhibitor Workshop
    McCormick Place - Lakeside Center, Presentation Pavilion
    Great Work, Inc., Denver, Colorado

Notes
Friday Morning Bursts

408 NCTM’s Resources for the Secondary Classroom
   Burst
   McCormick Place - Lakeside Center, E451B
   Faith Peddie, National Council Teachers Mathematics, Reston, Virginia

409 Helping Students Understand Mathematical Equivalence
   Pre-K-2 Burst
   McCormick Place - South Building, S402
   Kristen Johannes, WestEd, Alameda, California
   Jodi Davenport, WestEd, Alameda, California

410 Mathical Author: Cao Chong Weighs an Elephant: Creative Thinking by a Child Prodigy in Ancient China
   Pre-K-2 Burst
   McCormick Place - South Building, S401A
   Songju Daemicke, Consultant, Glenview, Illinois
   @SongjuD

411 Teaching Elementary School Students to Participate in Mathematics Discourse: Techniques That Work
   Pre-K-2 Burst
   McCormick Place - Lakeside Center, E353C
   Paola Sztajn, North Carolina State University, Raleigh
   Daniel Heck, Horizon Research Inc, Chapel Hill, North Carolina
   Kristen Malzahn, Horizon Research Inc, Chapel Hill, North Carolina

412 Engaging Parents in Elementary Mathematics
   3-5 Burst
   McCormick Place - South Building, S401BC
   Chad Williams, SMTS, Saskatoon, Saskatchewan, Canada
   @Chadillac60

413 Math Lesson Structures: Instructional Models for Flexible Delivery of Mathematics Content
   3-5 Burst
   McCormick Place - Lakeside Center, E353B
   Joslyn Katz, Barrington 220, Illinois
   @joslynkatz
   Sean McGann, Barrington 220, Illinois
   Laura Meehan, Barrington 220, Illinois

414 Building Procedural Fluency from Conceptual Understanding through Reasoning and Problem Solving
   6-8 Burst
   McCormick Place - South Building, S405
   Glenda Morrissey, Mercer University, Western Springs, Illinois
   Zachary Alford, Mercer University, Western Springs, Illinois

415 If a Picture Paints a Thousand Words
   6-8 Burst
   McCormick Place - Lakeside Center, E450B
   Marilyn Dibble, Eisenhower Middle School, Topeka, Kansas

416 Mathical Author: Really Big Numbers
   6-8 Burst
   McCormick Place - Lakeside Center, E451A
   Richard Schwartz, Brown University, Providence, Rhode Island

417 Numeracy Time: Beyond Our Math Classes
   6-8 Burst
   McCormick Place - Lakeside Center, E265
   Tricia Perry, George Waters Middle School, Winnipeg, Manitoba, Canada

418 What Do Fish Tanks, Compatible Groupings, Scheduling, and Coloring Have in Common?
   6-8 Burst
   McCormick Place - Lakeside Center, E271B
   Mary McMahon, North Central College, Naperville, Illinois
   @MaryNCC

419 Sometimes, Always, Never: Using Conjectures to Develop Mathematical Reasoning
   8-10 Burst
   McCormick Place - South Building, S403
   Kathy Hawes, Henry M. Gunn High School, Washington, D.C.
### Friday Morning Bursts

<table>
<thead>
<tr>
<th>Session</th>
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<tr>
<td>420</td>
<td><strong>The Inequalities of Global Poverty</strong>&lt;br&gt;8–10 Burst&lt;br&gt;McCormick Place - South Building, S404D&lt;br&gt;Kristen Smith, Summit Atlas, Seattle, Washington @kasmith07</td>
</tr>
<tr>
<td>421</td>
<td><strong>Geometry Tiny House Project: Designing Learning, Building Community, Creating Connections</strong>&lt;br&gt;10–12 Burst&lt;br&gt;McCormick Place - Lakeside Center, E258&lt;br&gt;Jessica Angelo, Notre Dame High School, San Jose, California&lt;br&gt;Beverly Heigre, Notre Dame High School, San Jose, California</td>
</tr>
<tr>
<td>422</td>
<td><strong>Mathematics Is More Than Just Numbers: Integrating Astronomy, Engineering, and Physics with NASA</strong>&lt;br&gt;10–12 Burst&lt;br&gt;McCormick Place - South Building, S404A&lt;br&gt;Bradly Rivera, Robinson School, San Juan, Puerto Rico&lt;br&gt;Joel Sánchez, Robinson School, San Juan, Puerto Rico</td>
</tr>
<tr>
<td>423</td>
<td><strong>Things You Should Know That Your Students Learned about Math in Science Class</strong>&lt;br&gt;10–12 Burst&lt;br&gt;McCormick Place - Lakeside Center, E450A&lt;br&gt;Josh Berberian, The Shipley School, Bryn Mawr, Pennsylvania</td>
</tr>
<tr>
<td>424</td>
<td><strong>Acceleration In Mathematics, to Do or Not to Do? Our Journey</strong>&lt;br&gt;10–12 Burst&lt;br&gt;Coaches/Leaders/Teacher Educators Burst&lt;br&gt;McCormick Place - Lakeside Center, E353A&lt;br&gt;Michelle Dupree, School District of the Menominee Area, Wisconsin @MichelleMDupree</td>
</tr>
<tr>
<td>425</td>
<td><strong>Active Learning Strategies to Elicit and Use Student Thinking</strong>&lt;br&gt;General Interest Burst&lt;br&gt;McCormick Place - Lakeside Center, E271A&lt;br&gt;Richelle Marynowski, University of Lethbridge, Alberta, Canada @rmarynow</td>
</tr>
<tr>
<td>426</td>
<td><strong>Scared of Math: Strategies for Helping Students with Math Anxiety</strong>&lt;br&gt;General Interest Burst&lt;br&gt;McCormick Place - South Building, S404BC&lt;br&gt;Heidi Sabnani, Looney Math Consulting, Foxboro, Massachusetts @hisabnani</td>
</tr>
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### Friday Afternoon Sessions

<table>
<thead>
<tr>
<th>Session</th>
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<tbody>
<tr>
<td>426.1</td>
<td><strong>NCTM Business Meeting</strong>&lt;br&gt;Session&lt;br&gt;McCormick Place - Lakeside Center, E267&lt;br&gt;Robert O. Berry III, President, National Council of Teachers of Mathematics, Reston, Virginia; University of Virginia, Charlottesville&lt;br&gt;<a href="mailto:rqb3e@virginia.edu">rqb3e@virginia.edu</a></td>
</tr>
</tbody>
</table>
Friday Afternoon Sessions

427 3 Reads + 5 Practices = Awesome Mathematical Discourse
Pre-K-2 Session
McCormick Place - Lakeside Center, D2 - F
Duane Habecker, Merced County Office of Education, California
@dhabeccker

428 Journeys to Fact Fluency
Pre-K-2 Session
McCormick Place - Lakeside Center, D2 - A
Kathryn Rich, Michigan State University, East Lansing
@KatiedheCurious
Meg Bates, University of Chicago, Illinois

429 Tasks That Matter! Ensuring Mathematical Success for All Students
Pre-K-2 Session
McCormick Place - Lakeside Center, D2 - K
Loria Allen, AMSTI UA Huntsville, Alabama

430 Making the Most of Children’s Literature: A Context to Explore Math and Understand the World
3-5 Session
McCormick Place - South Building, S406A
Susan O’Connell, Quality Teacher Development LLC, Millersville, Maryland
@SueOConnellMath

431 Questions Matter: A Framework for Questioning to Promote Discourse and Understanding
3-5 Session
McCormick Place - Lakeside Center, E264
Loryn Lenartowicz, Curriculum Associates, Oakland Park, Florida
@Llenartowicz
Derin Garrison, Curriculum Associates, Tampa, Florida

432 Compare Different Ways to Introduce the Concepts of Ratio and Proportion in China, Singapore, and the United States
6-8 Session
McCormick Place - Lakeside Center, D2 - H
Xue Han, National Louis University, Chicago, Illinois

433 Kandinsky, Klee, & Mondrian: Using Abstract Art to Teach Geometric Concepts & Fractions
6-8 Session
McCormick Place - Lakeside Center, D2 - G
Kristina Barnaby, Fairfield Country Day School, Connecticut
@kmbarn

434 Read Math + Write Math + Speak Math = Teach Math
6-8 Session
McCormick Place - Lakeside Center, D2 - J
Faith Schwope, Education Service Center Region 11, Grand Prairie, Texas
@mamamath
Michelle Green, Education Service Center Region 11, Fort Worth, Texas
Nancy Trent, Education Service Center Region 11, Fort Worth, Texas

435 What Would Mathematicians Do? Engaging Students in Reasoning and Sense Making
6-8 Session
McCormick Place - Lakeside Center, E259
Elizabeth Barlow, Hardin Valley Middle School, Knoxville, Tennessee
Angela Barlow, University of Central Arkansas, Conway

436 Busted: The Top 5 Myths about Teaching Mathematics to English Learners
8-10 Session
McCormick Place - Lakeside Center, E261
Barbara Kuehl, Salt Lake City, Utah

437 Relationships and Retakes: Helping Students Develop a Growth Mindset
8-10 Session
McCormick Place - Lakeside Center, D2 - B
John Hayden, Piedmont High School, Berkeley, California
@haydenPHS

438 The 3-Part Cure for “Math is Boring!”
8-10 Session
McCormick Place - Lakeside Center, D2 - I
Liesl McConchie, La Mesa, California
@LieslMcconchie

439 Bringing Calculus to Life: Using GeoGebra to Illustrate Calculus Concepts
10-12 Session
McCormick Place - Lakeside Center, E260
Steve Phelps, Hamilton County Education Service Center, Cincinnati, Ohio
@giohio
Sidney Leigh Nataro, Moravian College, Bethlehem, Pennsylvania

1:00pm–2:00pm

Implement the Effective Teaching Practices
Experience the Depth and Excitement of Mathematics
Look Back and Move Forward: A Centennial View
Create Positive Change
Build Student Agency, Foster Student Identity, Promote Social Change
## Friday Afternoon Sessions

### 440 Increasing Access to Students’ Opportunities to Learn through Active Learning Environments

10–12 Session  
McCormick Place - Lakeside Center, E263  
Kara Teehan, Middletown High School North, Fair Haven, New Jersey  
@KLTeehan  
John Kerrigan, Middletown Township/Rutgers University, New Jersey

### 441 Recommendations for Statistics in the Secondary Curriculum: Implications for Teachers

10–12 Session  
McCormick Place - Lakeside Center, E352  
Gail Burrill, Past President, National Council of Teachers of Mathematics, Reston, Virginia; Michigan State University, East Lansing  
Christine Franklin, American Statistical Association, Watkinsville, Georgia

### 442 The Mathematics of Game Shows, Anniversary Edition

10–12 Session  
McCormick Place - Lakeside Center, D2 - E  
Bowen Kerins, Education Development Center Inc, Waltham, Massachusetts  
@bowenkerins

### 443 Coaching to Increase Cognitive Demand: Is It the Task, or How You Use It?

Coaches/Leaders/Teacher Educators Session  
McCormick Place - Lakeside Center, D2 - C  
Samatha Booth, Center for Education Policy Research at Harvard University, Cambridge, Massachusetts  
@sambooth  
Jackie Kearney, Catonsville, Maryland  
Claire Gogolen, Catonsville, Maryland

### 444 Constructing Goals for Student Learning: Let’s Have a Conversation!

Coaches/Leaders/Teacher Educators Session  
McCormick Place - Lakeside Center, E350  
Jessica Hunt, North Carolina State University, Raleigh  
Mary Kay Stein, University of Pittsburgh, Pennsylvania

### 445 Critical Classroom Considerations: Number Sense, Assessment, and Math Tasks—Your Time, Your Turn

Coaches/Leaders/Teacher Educators Session  
McCormick Place - Lakeside Center, E354B  
Francis (Skip) Fennell, Past President, National Council of Teachers of Mathematics, Reston, Virginia; McDaniel College, Westminster, Maryland  
@SkipFennell

### 446 Making the Most Out of Existing Structures for Math Teacher Professional Development

Coaches/Leaders/Teacher Educators Session  
McCormick Place - Lakeside Center, E267  
Emily Hare, University of North Carolina at Greensboro  
@EmilyBryantHare

### 447 Celebrating 100 Years with 100 Problems Involving 100

General Interest Session  
McCormick Place - Lakeside Center, E351  
Patrick Vennebush, Math Learning Center, Falls Church, Virginia  
@pvennebush

### 448 Classroom Norms and Routines for Building Student Agency and Equitable Mathematical Environments

General Interest Session  
McCormick Place - Lakeside Center, E262  
Kathy Ernst, Teacher, West Brattleboro, Vermont

### 449 Intersections: Indigenous Perspectives on Mathematics Teaching and Learning

General Interest Session  
McCormick Place - Lakeside Center, E270  
Florence Gianfield, University of Alberta, Edmonton, Canada  
@FGianfield

### 450 Lessons Learned by Mathematics Noyce Scholars from Launching Tasks

General Interest Session  
McCormick Place - South Building, S406B  
Christopher Parrish, University of South Alabama, Mobile  
Cindy Faith, Satsuma City Schools, Alabama  
John Cleverdon, University of South Alabama, Mobile
Friday Afternoon Sessions

451 Let’s Dispel the Myths about Women and Mathematics
General Interest Session
McCormick Place - South Building, S401D
Lorraine Howard, President, Women and Mathematics Education, Partner Affiliate of NCTM, NCSM & AMTE, Philadelphia, Pennsylvania

452 Practices, Practices, Practices: 8 for Teachers, 8 for Students—How Do They Relate?
General Interest Session
McCormick Place - Lakeside Center, D2 - D
Travis Lemon, Alpine School District, Lehi, Utah
@TravisLemon

453 President-Elect Address: Catalyzing Change in Middle School Mathematics: Initiating Critical Conversations
General Interest Session
McCormick Place - Lakeside Center, Arie Crown
Trena Wilkerson, President-Elect, National Council of Teachers of Mathematics, Reston, Virginia; Baylor University, Woodway, Texas
@TrenaWilkerson

454 Queering the Mathematics Classroom: Inclusive Mathematics for LGBTQ+ Youth
General Interest Session
McCormick Place - Lakeside Center, D2 - L
Brandie Waid, Drew University, Madison, New Jersey
@MathTeach_BEW
Benjamin Bailey, Teachers College Columbia University, New York, New York

454.1 Exploring the 3-Part Lesson: Reflecting on the Learning Experience
3–5 Exhibitor Workshop
McCormick Place - Lakeside Center, E253A
think! Mathematics

454.2 Driving on Mars: A Coding Problem
8–10 Exhibitor Workshop
McCormick Place - Lakeside Center, E253B
Texas Instruments Incorporated, Dallas, Texas

454.3 Let’s Get Messy! Mathematical Modeling: Engage Your Reluctant Learners (K-12)
3–5 Exhibitor Workshop
McCormick Place - Lakeside Center, E253D
Pearson K12 Learning

Notes
### Friday Afternoon Workshops

#### 1:00pm—2:15pm

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<th>Workshops</th>
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| **455** Analyzing and Adapting Online Resources: Increasing the Level of Cognitive Demand | Pre-K-2 Workshop McCormick Place - Lakeside Center, E271A  
Lara Dick, Montandon PSA, Milton, Pennsylvania  
Emily Shapiro, Lewisburg, Pennsylvania |
| **456** What If I Say the Wrong Thing? Coaches/Leaders/Teacher Educators Workshop | McCormick Place - South Building, S402  
Joseph Herbert, Richmond, California  
Hema Khodai, Brampton, Ontario, Canada  
Emily Shapiro, Lewisburg, Pennsylvania  
@herbertmath628 |
| **457** Get on the Right Track! Using the Rekenrek as a Double-Decker Train to Build Number Sense | Pre-K-2 Workshop McCormick Place - South Building, S402  
Patty King, Mathematics Consultant, Albuquerque, New Mexico  
Amy Hurley, Albuquerque Public Schools, New Mexico  
@PattyKingABQ |
| **458** Build Bridges among Representations by Writing for Structure | 3-5 Workshop McCormick Place - Lakeside Center, E271B  
Christy Pettis, University of Wisconsin-River Falls  
Terry Wyberg, University of Minnesota, St. Paul  
Aran Glancy, University of St. Thomas, St. Paul, Minnesota |
| **459** Intentional Equity Can Be Routine | 3-5 Workshop McCormick Place - South Building, S404A  
Kaneka Turner, Illustrative Mathematics, Charlotte, North Carolina  
@kanekaturner |
| **460** Math Teaching as Listening: Focus on Student Sense Making to Build Equity in the Classroom | 3-5 Workshop McCormick Place - Lakeside Center, E451B  
Heidi Fessenden, Cambridge Public Schools, Massachusetts  
Liz Vincent, Cambridge Public Schools, Massachusetts |
| **461** Access-orizing Ratio and Percentage with the Unitary Method | 6-8 Workshop McCormick Place - Lakeside Center, E265  
Cassandra Turner, Math Champions, PD, Fort Collins, Colorado  
@Cassyt  
Beth Curran, Consultant, Roanoke, Virginia |
| **462** It’s All about Connections: Let’s See Why Geometry & Algebra Belong Together! | 6-8 Workshop McCormick Place - Lakeside Center, E353A  
Karen Greenhaus, Drexel University, Philadelphia, Pennsylvania  
@vpigreenie |
| **463** Math Language Routines with Impact for ELL Students and Beyond | 6-8 Workshop McCormick Place - South Building, S404D  
Brooke Powers, Open Up Resources  
@lbrookepowers  
Morgan Stipe, Kuemper Catholic Schools, Carroll, Iowa |
| **464** Reasoning Talks: Creating Number Talk Reasoning Structures for Grades 6-8 | 6-8 Workshop McCormick Place - Lakeside Center, E450B  
Cory Bennett, Idaho State University, Pocatello  
@AlohaCory  
Marcy Reddish, Pocatello School District, Idaho  
Stephanie Moore, Idaho State University, Chubbuck |
| **465** Creating a Student-Centered Classroom: Where Every Student Is a Mathematician! | 8-10 Workshop McCormick Place - Lakeside Center, E451A  
Heather Vonada, Woodstock Union High School, Vermont |
| **466** Discover the Power of Instructional Routines to Create Engagement and Promote Lasting Learning | 8-10 Workshop McCormick Place - South Building, S405  
Jennifer Graziano, Sacramento City Unified School District, California  
Stephen Arndt, Sacramento City Unified School District, California |
Friday Afternoon Workshops

467 What the Heck Is a Story Table? The Algebraic Reasoning Tool You've Probably Never Heard Of
8–10 Workshop
McCormick Place - South Building, S401BC
Shira Helft, Desmos, San Francisco, California
@mshelft

468 Easing Students into Mathematical Modeling with Thought Tool Tasks
10–12 Workshop
McCormick Place - Lakeside Center, E450A
John Pelesko, University of Delaware, Newark
Michelle Cirillo, University of Delaware, Newark

469 Exploring Continuity, Limits, and One-Sided Limits through Hands-On Experience with Marble Run
10–12 Workshop
McCormick Place - Lakeside Center, E258
Inna Tokar, The Calhoun School, New York, New York

470 Making Sense of Inference for Sampling and Experiments
10–12 Workshop
McCormick Place - Lakeside Center, E353C
Daren Starnes, The Lawrenceville School, Hilton Head, South Carolina
Josh Tabor, Canyon del Oro High School, Oro Valley, Arizona

471 Where Do Those Trig Functions Get Their Names? Geometry, of Course!
10–12 Workshop
McCormick Place - South Building, S401A
Craig Cullen, Illinois State University, Normal
Tami Martin, Illinois State University, Normal
Roger Day, Illinois State University, Normal

472 More Joy, More Play: How Improv Theater Can Engage Teachers and Students in Mathematical Practices
Coaches/Leaders/Teacher Educators Workshop
McCormick Place - Lakeside Center, E353B
Andrea McCloskey, Penn State University, University Park, Pennsylvania
Jennifer Knudsen, Austin, Texas
Andrea Young, Ripon College, Austin, Texas

473 Public Math Pop-Up: Build Your Own Temporary Math Installation
Coaches/Leaders/Teacher Educators Workshop
McCormick Place - South Building, S404BC
Chris Nho, High Tech High School, Chicago, Illinois
Christopher Danielson, Desmos, Inc., Saint Paul, Minnesota
Molly Daley, Education Service District 112, Saint Paul, Minnesota

Notes
Friday Afternoon Sessions

2:30pm–3:30pm

474 Catalyzing Change in Middle School Mathematics: Broadening the Purposes of Learning Mathematics and Dismantling Inequitable Structures
   Session
   McCormick Place - Lakeside Center, E267
   Christa Jackson, Iowa State University, Ames
   George Roy, University of South Carolina, Columbia

475 Beyond a Timed Test... Assessing Addition and Subtraction Fact Fluency
   Pre-K-2 Session
   McCormick Place - Lakeside Center, E259
   Kristin Johnson, Troy CCSD 30-C, Plainfield, Illinois
   @kristinkdj
   Amy Deang, Troy CCSD 30-C, Plainfield, Illinois

476 Problem Solving—Not a Problem ... Moving from Word Problems to Problem Solving in the Centennial (K-2)
   Pre-K-2 Session
   McCormick Place - Lakeside Center, D2 - L
   Suzanne Hood, Hall County Schools, Flowery Branch, Georgia

477 Using Storytelling to Empower Our Students to Discover and Author Their Mathematical Identity
   Pre-K-2 Session
   McCormick Place - Lakeside Center, E260
   Lachanda Garrison, DoDEA, FPO, AE
   @educationoflife

478 Differentiation Adds Up in the Math Classroom
   3-5 Session
   McCormick Place - Lakeside Center, D2 - C
   Pamela Gruzynski, Hoffman Estates, Illinois

479 Emphasize the Thinking, not the Computation
   3-5 Session
   McCormick Place - Lakeside Center, E261
   Rob Nickerson, ORIGO Education, Lakewood, Colorado
   Andrea Kotowski, ORIGO Education, Earth City, Missouri
   Heather Monks, ORIGO Education, Earth City, Missouri

480 Guided Math That Works: Intensive, Short-Term, Targeted, Effective!
   3-5 Session
   McCormick Place - Lakeside Center, D2 - J
   Sandy Handrick, Leander ISD, Texas
   @SandyHandrick

481 Making Math Fun with Gamification
   3-5 Session
   McCormick Place - Lakeside Center, E262
   Kevin Smith, Dakota State University, Madison, South Dakota
   @KevinSmithSD

482 Teaching without Telling: Analyzing Tasks for Fractions
   3-5 Session
   McCormick Place - Lakeside Center, D2 - H
   Melike Kara, Towson University, Maryland

483 Hey! Teacher! Leave Them Kids Alone: Empowering Students through the Mathematics Teaching Practices
   6-8 Session
   McCormick Place - Lakeside Center, E351
   Kathryn Bingman, NYC DOE, Bronx, New York
   Byron Licari, Van Nest Academy, Bronx, New York

484 Integer Card Games: Moving Students from Concrete to Pictorial to Abstract
   6-8 Session
   McCormick Place - Lakeside Center, D2 - G
   Jana Stockstill, Great Minds, Bolivar, Missouri

485 All Are Invited! Creating a Culture of Learning for Each and Every Student
   8-10 Session
   McCormick Place - South Building, S406A
   Jacqui Lehmkuhl, Troy High School, Ohio
   @JacquiLehmkuhl
Friday Afternoon Sessions

486 Improving Mathematics Teachers’ Culturally Responsive Lesson Planning and Teaching Practices
8-10 Session
McCormick Place - Lakeside Center, D2 - D
Darryl Corey, Radford University, Virginia
Nikita Patterson, Georgia State University, Atlanta

487 Quadratic Quandary: Where and How Do Quadratic Functions and Equations Fit?
8-10 Session
McCormick Place - South Building, S406B
W. Gary Martin, Auburn University, Alabama
@wgarym

488 Rehumanizing the Mathematics Classroom for Students with Disabilities
8-10 Session
McCormick Place - Lakeside Center, D2 - K
Katie Westby, Brattleboro Union High School, Vermont
@katie_westby

489 Creating a Math Classroom of #DreamChasers
10-12 Session
McCormick Place - Lakeside Center, E263
Joanna Stevens, Garrard County High School, Lancaster, Kentucky
@MrsStevensMath

490 Elementary Mathematics Specialists: Connecting Math Teaching and Learning for Positive Change
Coaches/Leaders/Teacher Educators Session
McCormick Place - South Building, S401D
Marilyn Cannon, Raytown School District, Missouri
@m5cannon
Ann McCoy, University of Central Missouri, Warrensburg

491 Maximizing the Potential of Elementary Mathematics Coaches
Coaches/Leaders/Teacher Educators Session
McCormick Place - Lakeside Center, D2 - F
Patricia Campbell, University of Maryland, College Park

492 Wade in the Water: Engaging Tensions in Culturally Relevant and Responsive Mathematics Teaching
Coaches/Leaders/Teacher Educators Session
McCormick Place - Lakeside Center, E264
Lou Matthews, Urban Teachers, Washington, D.C.
@loumatthews3live
Emily Yanisko, Columbia, Maryland
Jessica Proffitt, Urban Teachers, Richmond, Virginia

493 100 Years of Mathematics: Our Achievements and Our Remaining Challenges
General Interest Session
McCormick Place - Lakeside Center, E350
Gregory Foley, Ohio University, Athens
Stephen Phelps, Hamilton County ESC, Cincinnati, Ohio

494 Combining Mathematics with Engineering to Enhance the Teaching of Data Science
General Interest Session
McCormick Place - Lakeside Center, E352
Talitha Washington, Howard University, Washington, D.C.
@doctor_talitha
Erick Jones, University of Texas Arlington

495 Empowering Your ELLs to Interact with Rich Mathematics
General Interest Session
McCormick Place - Lakeside Center, D2 - E
Victoria Peacock, Great Minds/Eureka Math, Lake View, New York
Lisa Gradney, Great Minds, Gonzales, California

496 Getting into Shape: Developing K-8 Spatial Abilities for STEM Expertise and Innovation
General Interest Session
McCormick Place - Lakeside Center, Arie Crown
Linda Sheffield, Northern Kentucky University, Emerita, Fort Thomas
Friday Afternoon Sessions

497  Guidelines for Teaching Statistics and Data Analysis in K-12
   General Interest Session
   McCormick Place - Lakeside Center, D2 - B
   Anna Bargagliotti, Loyola Marymount University, Los Angeles, California
   Christine Franklin, American Statistical Association, Watkinsville, Georgia

498  Leverage the Repeatable Nature of Reasoning Routines to Develop Effective Math Teaching Practices
   General Interest Session
   McCormick Place - Lakeside Center, E354B
   Grace Kelemanik, Fostering Math Practices, Natick, Massachusetts
   Amy Lucenta, BPE, Natick, Massachusetts

499  Toward a Powerful Mathematics Classroom: Listening to Bilingual Learners
   General Interest Session
   McCormick Place - Lakeside Center, E270
   Marta Civil, The University of Arizona, Tucson
   @MartaCivil

500  Video Game Mathematics: Translating Mathematics into Action
   General Interest Session
   McCormick Place - Lakeside Center, D2 - I
   Kurt Salisbury, Baylor University & Midway Middle School, Waco, Texas
   @kurt_salisbury

501  The Roles of Representations and Denominators in Prospective K-8 Teachers’ Fractional Understanding
   Research Session
   McCormick Place - Lakeside Center, D2 - A
   Richard Busi, James Madison University, Harrisonburg, Virginia
   Jennifer Gibson, James Madison University, Harrisonburg, Virginia
   Alexis Stevens, James Madison University, Harrisonburg, Virginia

501.1  Nspired Insights into Calculus
   10–12 Exhibitor Workshop
   McCormick Place - Lakeside Center, E253B
   Texas Instruments Incorporated, Dallas, Texas

501.2  The Trojan Horse of Mathematics
   6–8 Exhibitor Workshop
   McCormick Place - Lakeside Center, E253C
   Amplify

501.3  Two Great Options for On-Level Statistics
   10–12 Exhibitor Workshop
   McCormick Place - Lakeside Center, Presentation Pavilion
   Bedford, Freeman & Worth Publishers, Hamilton, New Jersey

Notes
Friday Afternoon Workshops

502 Addition and Subtraction Strategy Games That Promote Conceptual Understanding and Procedural Fluency
Pre-K-2 Workshop
McCormick Place - Lakeside Center, E258
Cynthia Cliche, Murfreesboro City Schools, Tennessee
Jeremy Winters, Middle Tennessee State University, Murfreesboro
Dovie Kimmins, Middle Tennessee State University, Murfreesboro

503 Engaging Discourse: The Power of Reflective Listening
Pre-K-2 Workshop
McCormick Place - Lakeside Center, E450B
Jessica Bobo, Curriculum Associates, Fort Worth, Texas

504 Guided Math for the Early Childhood Classroom
Pre-K-2 Workshop
McCormick Place - South Building, S405
Karie Gladis, Self-Employed, San Clemente, California
@kariegladis

505 Exploring and Implementing Mathematical Modeling in the Elementary Grades
3-5 Workshop
McCormick Place - South Building, S402
Megan Wickstrom, Montana State University, Bozeman
Amber Yates, Thompson Falls Elementary, Montana

506 Getting the Words Out: Explanation and Representation at the Center of Math Work in Urban Classrooms
3-5 Workshop
McCormick Place - South Building, S404D
Susan Jo Russell, Somerville, Massachusetts

507 Developing Mathematical Thinkers and the Teacher Moves to Get Them There
6-8 Workshop
McCormick Place - South Building, S401BC
Mandy Harvell, Ritenour School District, St. Louis, Missouri
@MandyH_79
Melissa Crowley, Ritenour School District, Saint Peters, Missouri

508 Discovering the Joy in Mathematics through Implementing a “Mathematician’s Workshop Lab!”
6-8 Workshop
McCormick Place - Lakeside Center, E451B
Alecia McGill, Bonita Unified Schools, San Dimas, California
@connectcoremath

509 Using Instructional Routines in Summer Math Camp to Create Student Confidence & Agency
6-8 Workshop
McCormick Place - Lakeside Center, E271B
Samantha Wuttig, Fairbanks North Star Borough School District, Alaska
@swuttig
Tara DeVaughn, Ben Eielson, Jr.-Sr. High School, North Pole, Alaska

510 Effective Teaching Strategies to Support Special Education Students in Mathematics
8-10 Workshop
McCormick Place - Lakeside Center, E353C
Heather McMillin, East Side Union High School District, San Jose, California
@HMcMillinTeach

511 Implementing Tasks That Promote Reasoning and Problem Solving
8-10 Workshop
McCormick Place - South Building, S403
Jeremy Zelkowski, The University of Alabama, Hoover
Daniel Ilaria, West Chester University, Chester Springs, Pennsylvania

512 We Run This: Building Agency through Student-Led Collectivist Discourse Strategies
8-10 Workshop
McCormick Place - South Building, S401A
Benjamin Walker, Walter Payton College Prep, Chicago, Illinois
@bwalkerq
Ginna Roach
Walter Payton College Prep, Chicago, Illinois

513 Assessment with Desmos
10-12 Workshop
McCormick Place - South Building, S404BC
Julie Reulbach, Cannon School, Mooresville, North Carolina
@jreulbach
Friday Afternoon Workshops

514 Enhancing Secondary Math Instruction with Scratch Coding
  10-12 Workshop
  McCormick Place - Lakeside Center, E353A
  Dan Shuster, Simi Valley USD, California
  @SimiCodeSquad

515 Sequences: Understanding and Discovering Patterns from Photos of a Pyramid
  10-12 Workshop
  McCormick Place - Lakeside Center, E353B
  Mike Koehler, Blue Valley North High School (Retired), Kansas City, Missouri

516 Squares, Circles, Sums, and Related Curiosities
  10-12 Workshop
  McCormick Place - Lakeside Center, E271A
  Albert Cuoco, Education Development Center Inc, Waltham, Massachusetts

517 5 Actions for Productive Struggle
  Coaches/Leaders/Teacher Educators Workshop
  McCormick Place - Lakeside Center, E450A
  John SanGiovanni, Howard County Public School System, Westminster, Maryland
  @JohnSanGiovanni

518 Effective Interventions for Students with Mathematics Learning Disabilities
  Coaches/Leaders/Teacher Educators Workshop
  McCormick Place - Lakeside Center, E451A
  Sridhar Nagubandi, Churchill School and Center, New York, New York
  Henry Vas Nunes, Churchill School and Center, New York, New York

519 Rough Drafts in Math Class: Going beyond Getting Correct Answers
  General Interest Workshop
  McCormick Place - Lakeside Center, E265
  Amanda Jansen, University of Delaware, Newark
  @MandyMathEd

520 The Art of Creating Examples and Non-Examples in Mathematics
  General Interest Workshop
  McCormick Place - South Building, S404A
  Zandra de Araujo, University of Missouri, Columbia
  Samuel Otten, University of Missouri, Columbia
  Jaepil Han, University of Missouri, Columbia

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FRIDAY
### Friday Afternoon Sessions

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<th>Session</th>
<th>Title</th>
<th>Time</th>
<th>Room</th>
<th>Speakers</th>
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<tbody>
<tr>
<td>521</td>
<td>Catalyzing Change in Middle School Mathematics: Implementing Equitable Instruction and Developing Deep Mathematical Understanding</td>
<td>4:00pm–5:00pm</td>
<td>McCormick Place - Lakeside Center, E267</td>
<td>Eric Milou, Rowan University, Glassboro, New Jersey; Sarah Bush, Board of Directors, National Council of Teachers of Mathematics, Reston, Virginia; University of Central Florida, Orlando</td>
</tr>
<tr>
<td>526</td>
<td>Formative Assessment: How Do Teachers Use Evidence of Student Thinking? What Is the Students’ Role?</td>
<td>4:00pm–5:00pm</td>
<td>McCormick Place - South Building, S401D</td>
<td>Beth Terry, Riffa Views International School; Dana Islas, Grijalva Elementary School, Tucson, Arizona</td>
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<tr>
<td>522</td>
<td>ShadowCon Centennial 2020</td>
<td>4:00pm–5:00pm</td>
<td>McCormick Place - Lakeside Center, Arie Crown</td>
<td>Elizabeth Venn, DreamBox Learning, Bellevue, Washington; Sara Hinsley, DreamBox Learning, Raleigh, North Carolina; David Woods, DreamBox, Bellevue, Washington</td>
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<tr>
<td>527</td>
<td>Harnessing the Power of Real-Time Assessment</td>
<td>4:00pm–5:00pm</td>
<td>McCormick Place - Lakeside Center, E260</td>
<td>John Silverthorne, Wauwatosa School District, Wisconsin; Jessica Hunt, North Carolina State University, Raleigh</td>
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<tr>
<td>523</td>
<td>Are You Getting the Most Out of Number Talks?</td>
<td>4:00pm–5:00pm</td>
<td>McCormick Place - South Building, S406B</td>
<td>Kathy Richardson, Math Perspectives Teacher Development Center, Bellingham, Washington; Lauren DelFavero, Great Minds, Washington, D.C.</td>
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<tr>
<td>528</td>
<td>I Know, You Know, We All Know—Access for All</td>
<td>4:00pm–5:00pm</td>
<td>McCormick Place - Lakeside Center, D2 - I</td>
<td>Karen Hicks, Chicago Public Schools, Illinois; Sharonda Thomas, Chicago Public Schools, Illinois</td>
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<td>524</td>
<td>Fostering a Positive Math Identity: How Student Self-Affirmations Can Counteract Stereotype Threat</td>
<td>4:00pm–5:00pm</td>
<td>McCormick Place - Lakeside Center, D2 - A</td>
<td>Jenny Ainslie, Orange County Public Schools, Cary, North Carolina; Valerie Faulkner, North Carolina State University, Raleigh; Jessica Hunt, North Carolina State University, Raleigh</td>
</tr>
<tr>
<td>529</td>
<td>Place-Value Understanding through the Lens of an Elementary Student: Seems So easy, but Is It?!</td>
<td>4:00pm–5:00pm</td>
<td>McCormick Place - Lakeside Center, D2 - G</td>
<td>John Silverthorne, Wauwatosa School District, Wisconsin; Lauren DelFavero, Great Minds, Washington, D.C.</td>
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<tr>
<td>530</td>
<td>4 Strategies to Help Students Start Math Problems and Stick with Them</td>
<td>4:00pm–5:00pm</td>
<td>McCormick Place - Lakeside Center, E260</td>
<td>Kyle Pearce, Greater Essex County District School Board, Belle River, Ontario, Canada; Jon Orr, Lambton Kent District School Board, Tilbury, Ontario, Canada</td>
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**Friday Afternoon Sessions**

Friday Afternoon Sessions are designed to provide teachers with practical, hands-on strategies that they can implement in their classrooms. These sessions are led by experienced educators and are aimed at enhancing student engagement, improving teaching practices, and fostering a positive learning environment.

**Attendees**

- **Math Educators**
- **School Administrators**
- **Special Educators**
- **Instructional Coaches**
- **Mentors**
- **Classroom Teachers**

**Speakers**

- **Educational Experts**
- **Leading Researchers**
- **Innovative Practitioners**

**Topics**

- **Classroom Management**
- **Instructional Strategies**
- **Student Engagement**
- **Curriculum Development**
- **Assessment Techniques**

**Format**

- **Workshops**
- ** Demonstrations**
- **Q&A Sessions**
- **Interactive Activities**

**Benefits**

- **Professional Development**
- **Networking Opportunities**
- **Inspiration for Classroom Improvement**
- **Growth Mindset Development**

**Location**

McCormick Place - Lakeside Center, Arie Crown

**Contact**

For more information, please contact:

- **Email**: support@nctm.org
- **Phone**: 1-800-235-7566

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**NCTM Centennial Annual Meeting & Exposition**

April 1–4, 2020 | Chicago
Friday Afternoon Sessions

531 How to Help Students Become Problem Solvers, not Math Robots
6–8 Session
McCormick Place - Lakeside Center, E354B
Robert Kaplinsky, Long Beach, California
@robertkaplinsky

532 Love of Numbers: Using Enjoyment to Build Confidence and Number Sense
6–8 Session
McCormick Place - Lakeside Center, D2 - D
William Lacefield, Mercer University, Macon, Georgia
Susie Morrissey, Mercer University, Macon, Georgia
Tonya Clarke, Clayton County Public Schools, Jonesboro, Georgia

533 Mathematics in Real Life: Open-Ended Problems Can Connect the Dots
6–8 Session
McCormick Place - Lakeside Center, D2 - L
Johan Koekemoer, Skoleondersteuningssentrum, Pretoria, South Africa
@TheKoek

534 Mathematics, Computational Thinking, and Spatial Reasoning through 3D Modeling and Printing
6–8 Session
McCormick Place - Lakeside Center, E263
Heejoon Kim, SRI International, Menlo Park, California
Jennifer Knudsen, SRI International, Austin, Texas
Ken Rafanan, SRI International, Menlo Park, California

535 Positioning Reluctant Students as Math Thinkers and Doers!
6–8 Session
McCormick Place - Lakeside Center, E261
Claudia Bertolone-Smith, California State University Chico
Lynda Wiest, University of Nevada, Reno
Heather Crawford, Nevada Department of Education, Carson City

536 Leveraging Mathematics to Affect Community Change
8–10 Session
McCormick Place - Lakeside Center, D2 - C
Hannah Lakin, Maine Mathematics and Science Alliance, Augusta
@HannahLLakin
Rhonda Tate, Maine Mathematics and Science Alliance, Augusta

537 Relational PBL Mathematics: Promoting Equity by Accessing Agency
8–10 Session
McCormick Place - Lakeside Center, E262
Carmel Schettino, Avenues: The World School, New York, New York
@SchettinoPBL

538 Best Teacher Choice I've Made: Written Assessments
10–12 Session
McCormick Place - Lakeside Center, D2 - J
Rachel Baker, Saint Paul Public Schools, Minnesota
@racquel21

539 Building Math Self-Efficacy
10–12 Session
McCormick Place - Lakeside Center, D2 - H
Jennifer Chirles, Trumbull Public Schools, Connecticut
@jchirles

540 Visualizing Complex Roots of a Quadratic Equation in Relation to the Associated Quadratic Function
10–12 Session
McCormick Place - Lakeside Center, D2 - E
Thomas Edwards, (Retired), Detroit, Michigan
S Asli Ozgun-Koca, Wayne State University, Detroit, Michigan
Angela Principato, South Lake High School, Detroit, Michigan

541 Developing a Mathematics Learning Culture: Cultivating Leaders in Professional Learning Communities
Coaches/Leaders/Teacher Educators Session
McCormick Place - Lakeside Center, E259
Nicole Rigelman, Portland State University, Oregon

542 The HeART of Coaching: Asking Purposeful Questions
Coaches/Leaders/Teacher Educators Session
McCormick Place - Lakeside Center, E264
Brenda Konicke, Math Solutions, New York, New York
@brendakonicke
Joel Leventhal, Math Solutions, Philadelphia, Pennsylvania
Friday Afternoon Sessions

543 Math and Mingle: Using Conferencing to Engage Elementary Students in Math Conversations
   General Interest Session
   McCormick Place - Lakeside Center, E351
   Matt Hayden, Monona Grove School District, Wisconsin
   Mark Esch, Monona Grove School District, Wisconsin

544 Mirror, Mirror on the Wall: How Is Your Classroom Culture & Instruction Responsive to All?
   General Interest Session
   McCormick Place - South Building, S406A
   Andrew Smith, Kent Intermediate School District, Grand Rapids, Michigan
   @smithand1015
   Rusty Anderson, Kent Intermediate School District, Grand Rapids, Michigan
   Marcus Deja, Kent Intermediate School District, Grand Rapids, Michigan

545 Sankofa: Looking Back to Honor 100 Years of Black Mathematicians, Moving Forward in the 21st Century
   General Interest Session
   McCormick Place - Lakeside Center, E352
   Shelly Jones, Central Connecticut State University, New Britain
   @ShellyMJones1

546 Sending Out an S.O.S.: Teacher Burnout
   General Interest Session
   McCormick Place - Lakeside Center, D2 - K
   Daniel Luevanos, San Marcos Unified School District, Escondido, California
   @danluevanos

547 The Mathematics Teacher: What Has (and Has Not) Changed in 100 Years?
   General Interest Session
   McCormick Place - Lakeside Center, E350
   Drew Corley, Amplify Education, Inc., Raleigh, North Carolina
   @Drew_Corley

548 Using Focused Questioning to Center on Student Thinking
   General Interest Session
   McCormick Place - Lakeside Center, D2 - B
   Edward Nolan, Towson University, Parkville, Maryland
   @ed_nolan
   Thomasenia Adams, University of Florida, Gainesville

Notes
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<th>Session</th>
<th>Title</th>
<th>Time</th>
<th>Location</th>
<th>Presenter(s)</th>
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<tbody>
<tr>
<td>549</td>
<td>Mathtical Author: To The Moon And Back - Using Math!</td>
<td>4:30pm–5:00pm</td>
<td>McCormick Place - South Building, S404A</td>
<td>Helaine Becker, Self-Employed, Toronto, Ontario, Canada @helainebecker</td>
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<tr>
<td>550</td>
<td>Mathtical Author: Math Has Feelings Too—Exposing Students to the Compassionate and Creative Side of Math</td>
<td></td>
<td>McCormick Place - Lakeside Center, E353B</td>
<td>Julia Mosca, Self Employed, Rocky River, Ohio @JFinleyMosca</td>
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<tr>
<td>551</td>
<td>Playing with Early Math to Build Access, Autonomy, and Attitude</td>
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<td>McCormick Place - Lakeside Center, E265</td>
<td>Jennifer McCray, Erikson Institute, Chicago, Illinois</td>
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<tr>
<td>552</td>
<td>Hands-On Geometry for Deeper Conceptual Understanding for All Learners in Grades 3-5</td>
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<td>McCormick Place - Lakeside Center, E271A</td>
<td>Margie Mason, William &amp; Mary, Williamsburg, Virginia Monica Grillo, William &amp; Mary, Williamsburg, Virginia</td>
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<tr>
<td>553</td>
<td>Mathtical Author: Which One Doesn’t Belong? and Other Mathematical Ambiguities</td>
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<td>McCormick Place - South Building, S402</td>
<td>Christopher Danielson, Desmos, Inc., Saint Paul, Minnesota @Trianglemancsd</td>
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<tr>
<td>555</td>
<td>Facilitating Equitable Classroom Discourse with Desmos</td>
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<td>McCormick Place - Lakeside Center, E258</td>
<td>Robert Janes, East Hartford, Connecticut Lisa Bejarano, DESMOS, San Francisco, California</td>
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<td>556</td>
<td>Playing with Water and Learning about What Graphs Represent</td>
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<td>McCormick Place - South Building, S404D</td>
<td>Teo Paoletti, Montclair State University, New Jersey @drtpaoletti Madhavi Vishnubhotla, Montclair State University, New Jersey Mustafa Mohamed, Montclair State University, New Jersey</td>
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<tr>
<td>557</td>
<td>Remedial Just Sounds Bad: Reimagining Math Electives</td>
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<td>McCormick Place - Lakeside Center, E450B</td>
<td>Emily Burkett, Sheffield Junior High School, Alabama @burkett_learn</td>
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<td>558</td>
<td>Going Deep: Engaging in Problem Solving with Great Depths of Knowledge</td>
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<td>McCormick Place - South Building, S401BC</td>
<td>Rachel Fruin, Educational Consultant, Chicago, Illinois @rachelfruin Kathleen Williams, NCUSD203, Naperville, Illinois</td>
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<tr>
<td>561</td>
<td>Error Bound: That Strange Lagrange</td>
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<td>McCormick Place - Lakeside Center, E353A</td>
<td>Kelly Orsi, Prairie Ridge HS, Crystal Lake, Illinois @orsipedia</td>
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<tr>
<td>562</td>
<td>To Infinity and Beyoncé: Mathematical Connections in Music</td>
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<td>McCormick Place - Lakeside Center, E451B</td>
<td>Martin Funk, New Trier High School, Winnetka, Illinois</td>
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### Friday Afternoon Bursts

<table>
<thead>
<tr>
<th>Burst</th>
<th>Title</th>
<th>Time</th>
<th>Room</th>
<th>Presenter(s)</th>
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<tbody>
<tr>
<td>563</td>
<td>How to Nurture Leadership in Your Building through Math Teams</td>
<td>4:30pm–5:00pm</td>
<td>McCormick Place - Lakeside Center, E271B</td>
<td>Meredith Stanley, Independent Math Specialist, Asheville, North Carolina</td>
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<td></td>
<td><strong>Coaches/Leaders/Teacher Educators Burst</strong></td>
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<td>@meredith4math</td>
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<td>564</td>
<td>Shape the Future for Your Students with the U.S. Census Bureau’s Statistics in Schools Program</td>
<td>4:30pm–5:00pm</td>
<td>McCormick Place - South Building, S403</td>
<td>Heidi Crawford, U.S. Census Bureau, Washington, D.C.</td>
</tr>
<tr>
<td>565</td>
<td>Unveiling the False Truth behind the Equation: Black + Boy = At Risk + Math</td>
<td>4:30pm–5:00pm</td>
<td>McCormick Place - South Building, S405</td>
<td>Sophia Gerrick-Stier, LilMathGirl, Douglassville, Pennsylvania</td>
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<td></td>
<td><strong>General Interest Burst</strong></td>
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<td>@lilmathgirl</td>
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### Friday Afternoon Workshop

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<th>Title</th>
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<th>Presenter(s)</th>
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<tbody>
<tr>
<td>566</td>
<td>New Teacher Celebration</td>
<td>4:30pm–6:00pm</td>
<td>McCormick Place - Lakeside Center, E450A</td>
<td>Dave Barnes, National Council of Teachers of Mathematics, Reston, Virginia</td>
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<td><strong>Workshop</strong></td>
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### Friday Afternoon Session

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<tr>
<td>566.1</td>
<td>Ignite! Looking Back and Moving Forward</td>
<td>5:30pm–6:30pm</td>
<td>McCormick Place - Lakeside Center, E354B</td>
<td>Matthew Larson, Past President, National Council of Teachers of Mathematics; Lincoln Public Schools, Nebraska</td>
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<td><strong>Session</strong></td>
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<td></td>
<td>Dwainna Sookboo, Academy for Young Writers, Brooklyn, New York</td>
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<td>@mathapprentice</td>
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<td>Mario Valdez, Oak Grove Elementary, Porterville, California</td>
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<td>Marian Dingle, DeKalb Public Schools, Georgia</td>
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<td>Hema Khodai, Brampton, Ontario, Canada</td>
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<td>Brian Shay, San Dieguito High School District, California</td>
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<td>Jamie Wong, Lorena Middle School, Texas</td>
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<td>Fred Dillon, Retired Teacher, Strongsville, Ohio</td>
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<td>Manju Connolly, George Washington High School, Chicago, Illinois</td>
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Guiding teachers through six specific actions—valuing, fostering, building, planning, supporting, and reflecting on struggle—this book provides an essential plan for embracing productive perseverance in mathematics. John J. Sangiovanni, Susie Katt, Kevin J. Dykema
Grades K–8

Encourage productive struggle by identifying teacher and student strengths, designing strengths-based instruction, discovering students’ points of power, and promoting strengths in the school community. Beth McCord Kobett, Karen S. Sharp
Grades K–6

Teach mathematics through the lens of social justice to connect content to students’ daily lives and fortify their mathematical understanding. Robert Q. Berry III, Basil M. Conway IV, Brian R. Lawler, John W. Staley
High School

Enhance your fluency in the five practices to bring powerful discussions of mathematical concepts to life in your classroom. Margaret (Peg) Smith, Victoria Bill, Miriam Gamo, Michael D. Steele
Elementary
Middle School
High School

Take the initial focus off specific numbers and computations and put it on the actions and relationships expressed in word problems. Kimberly Morrow-Leong, Sara Delano Moore, Linda M. Gojak
Grades K–2
Grades 3–5
Grades 6–8—Available Fall 2020

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Meet the authors! Thursday, April 2 • 2:15 p.m. – 3:00 p.m.
Meet the authors! Thursday, April 2 • 12:00 p.m. – 12:30 p.m.
Meet the authors! Friday, April 3 • 10:00 a.m. – 10:30 a.m.

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corwin.com/math
NCTM has meticulously designed workshops on a number of topics that we can bring to your district. Your teachers will gain strategies to engage students in mathematical thinking, reasoning, and sense making to significantly strengthen teaching and learning.

Topics include
- Productive Struggle
- Facilitating Discourse
- Algebra Readiness
- Making Mathematics Accessible
- Preparing Students for SAT Success

nctm.org/pd
Saturday Morning Sessions

567 Equity Begins in K-2 Mathematics: Learn the Fundamentals with Us!
   Pre-K-2 Session
   McCormick Place - Lakeside Center, E259
   Myrtle Davis, Prince George's County Public Schools, Oxon Hill, Maryland
   Jasmine Davis, Prince George's County Public Schools, Upper Marlboro, Maryland

568 Re-Envisioning Early Childhood Mathematics with Playful Problem Solving
   Pre-K-2 Session
   McCormick Place - Lakeside Center, E350
   Antonia Cameron, Metamorphosis Teaching Learning Communities, New York, New York
   Jennifer Costanzo, Metamorphosis Teaching Learning Communities, New York, New York
   Stephanie Slabic, Metamorphosis Teaching Learning Communities, Brooklyn, New York

569 Asking the Right Questions to Ensure Deeper Understanding
   3-5 Session
   McCormick Place - Lakeside Center, E260
   Kevin Larkin, Pinellas County Schools, Largo, Florida
   Adrienne DeLong, Pinellas County Schools, Largo, Florida

570 Cultural Capacity: Embracing Cultural Differences in K-12 Mathematics
   3-5 Session
   McCormick Place - Lakeside Center, E253A
   Kianga Thomas, Norfolk State University, Virginia

571 Gimme More Math! Turn Your Students into Raving Math Fans
   3-5 Session
   McCormick Place - Lakeside Center, E351
   Diana Pecina, Bedtime Math Foundation, Summit, New Jersey
   Shayna Sackett-Gable, Bedtime Math Foundation, Summit, New Jersey

572 Rich Tasks Transition Naturally from Percentages and Rates to Algebra in Grades 6-10
   6-8 Session
   McCormick Place - Lakeside Center, E253B
   Marianne Srock, Macomb Intermediate School District, Clinton Twp., Michigan

573 Who Is Teaching Financial Literacy to Our Students?
   6-8 Session
   McCormick Place - Lakeside Center, E263
   Jacqueline Scanlan, Math Specialist, Savannah, Georgia
   Elizabeth Korman, Middle School Math Teacher, Pasadena, California

574 Whose Down with S-B-G? The Ins and Outs of Standards-Based Grading
   8-10 Session
   McCormick Place - Lakeside Center, E352
   McKendry Marano, James River High School, Midlothian, Virginia

575 In Their Words: Helping Student Growth and Learning through Writing in Math
   10-12 Session
   McCormick Place - South Building, S406A
   Cindy Reagan, St. Ignatius High School, Cleveland, Ohio
   Chris Luzniak, The Archer School, West Hollywood, California

576 Polynomial Long Division: Why Do We Care?
   10-12 Session
   McCormick Place - Lakeside Center, E267
   Joseph Obrycki, Niles North High School, Skokie, Illinois

577 8 Ideas for Increasing the Critical Mass of Math Learners
   Coaches/Leaders/Teacher Educators Session
   McCormick Place - South Building, S401D
   Barbara Smith, University of Toronto (OISE), Ontario, Canada

578 How Will You Leave Your MARK?
   Coaches/Leaders/Teacher Educators Session
   McCormick Place - Lakeside Center, E264
   Christine Percy, School District of Palm Beach County, West Palm Beach, Florida
   Susanna Strickland, School District of Palm Beach County, West Palm Beach, Florida
   Jennifer Hataway, School District of Palm Beach County, West Palm Beach, Florida
Saturday Morning Sessions

579  Purposefully Prepping for Productive Perseverance
Coaches/Leaders/Teacher Educators Session
McCormick Place - Lakeside Center, E270
Janice Krouse, Illinois Mathematics & Science Academy, Aurora
Comfort Akwaji-Anderson, Waterloo Community School District, Iowa

580  5 Proven Tools for Engaging ELLs: Hope for Teachers!
General Interest Session
McCormick Place - Lakeside Center, E354B
James Ewing, Stephen F. Austin State University, Nacogdoches, Texas
@EwingLearning

581  How We Move From Equality to Equity and Justice in Mathematics Teaching
General Interest Session
McCormick Place - Lakeside Center, Arie Crown
Jose Vilson, TheJLV NYC Department of Education, New York, New York
Marian Dingel, DeKalb Public Schools, Georgia

582  The Global Schoolhouse: What We Can Learn from Teaching Mathematics in Impoverished Communities
General Interest Session
McCormick Place - South Building, S406B
Julie Jacob, The Global Schoolhouse Initiative, Chicago, Illinois
@tgschoolhouse
Haley Forsyth Ertel
The Global Schoolhouse Initiative, Montreal, Quebec, Canada

583  Unveiling “Math Milestones” for Grades K-8
General Interest Session
McCormick Place - Lakeside Center, E262
Jason Zimba, Student Achievement Partners, New York, New York

584  Helping Students to Write Proofs: Stumbling Blocks and Potential Solutions
Higher Education Session
McCormick Place - Lakeside Center, E261
Frank Forte, Raritan Valley Community College, Branchburg, New Jersey

Notes
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- Pick up a takeaway classroom activity kit.
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Attend one of our sessions:

**Thursday, 2:30 p.m. | Presentation Pavilion**
Fresh ideas for sparking and supporting student discourse in the blended classroom
Jaclyn Claiborne
Senior Managing Editor, 9–12 Math Curriculum at Amplify

**Friday, 2:30 p.m. | Room # E253c**
The Trojan horse of mathematics: Engaging students through narrative
Zach Wissner-Gross, Ph.D.
Vice President, Math Curriculum at Amplify

**Friday, 4 p.m. | Room # E350**
The mathematics teacher: What has (and has not) changed in 100 years?
Drew Corley
Senior Managing Editor, 3–5 Math Curriculum at Amplify

**Saturday, 9:30 a.m. | Room # E352**
Illuminating the history of mathematics through puzzles, lost games, and number exploration
Sunil Singh
Author and Amplify Consultant

To learn more about Amplify Math, visit amplify.com/math.

Reserve your spot for our math trivia night!

**Thursday, 6 p.m. | Vu Rooftop**
Join us to compete for prizes in our mathematical trivia night, hosted by Sunil Singh.
Register at amplify.com/nctm-2020. (Space is limited.)
Saturday Morning Workshops

8:00am–9:15am

585 Count Me In! Counting Collection Trajectories for Elementary Mathematics
Pre-K-2 Workshop
McCormick Place - Lakeside Center, E258
Kate Austin, Great Minds, Reston, Virginia
@kaustin320
Marianne Strayton, Clarkstown Central School District, New City, New York
Lisa Watts-Lawton, Los Angeles Unified School District, California

586 Subitizing Superpowers! Structuring as the Phonics of Mathematics
Pre-K-2 Workshop
McCormick Place - South Building, S405
Shelley Dickson, Fayette County Public Schools, Lexington, Kentucky
@shelley_math

587 Build It, Fold It, Draw It: Develop Understanding of the Attributes of Polygons
3-5 Workshop
McCormick Place - Lakeside Center, E450B
Laurie Boswell, Big Ideas Math, Franconia, New Hampshire
@laboswell
Tammy Hanlon, Great Minds/Eureka Math, Dade City, Florida

588 Size? Or Number? Knowing the Nuances of Word Problem Types Helps Students be Better Problem Solvers
3-5 Workshop
McCormick Place - Lakeside Center, E353A
Beth Barnes, Great Minds/Eureka Math, Niverville, New York
@barnesb31
Tammy Hanlon, Great Minds/Eureka Math, Dade City, Florida

589 A Routine for Reasoning to Ensure ALL Students Are Modeling with Mathematics
6-8 Workshop
McCormick Place - Lakeside Center, E353B
Amy Lucenta, Natick, Massachusetts
@AmyLucenta
Grace Kelemanik, Fostering Math Practices, Natick, Massachusetts

590 Engage and Empower All Students Using Interactive Simulations
6-8 Workshop
McCormick Place - South Building, S401BC
Amanda McGarry, University of Colorado Boulder
@McGarryMath

591 Making Meaning of Systems of Equations with Contexts and Representations
6-8 Workshop
McCormick Place - Lakeside Center, E271B
Raymond Johnson, Colorado Department of Education, Denver
@MathEdnet
Frederick Peck, University of Montana, Missoula
David Webb, University of Colorado Boulder

592 The Data Postcard Project: Engaging Student Choice, Self-Awareness, and Art through Statistics
6-8 Workshop
McCormick Place - South Building, S404BC
Elissa McAlvey, The Nueva School, San Francisco, California

593 The Most Misunderstood Standards in Grades 6-8: Are These Instructional Mistakes Happening in Your Class?
6-8 Workshop
McCormick Place - Lakeside Center, E451B
Brian Dean, Instruction Partners, New Port Richey, Florida
@FLMathNinja
Rebecca Few, Instruction Partners, New Port Richey, Florida

594 Using String Art to See the Functional Beauty in Math Runes
6-8 Workshop
McCormick Place - Lakeside Center, E450A
Maida Russell, Carver Middle School, Missouri State University, Springfield
@MaidaRussell1
Adam Harbaugh, Springfield, Missouri

595 Empowering Intervention Students to Love Math through Relationship Building and Positive Mindsets
8-10 Workshop
McCormick Place - South Building, S403
Lisa Amick, University of Kentucky, Lexington

596 Origami and Mathematics
8-10 Workshop
McCormick Place - South Building, S401A
Joy Hsiao, Brooklyn Technical High School, New York
Saturday Morning Workshops 8:00am–9:15am

597 Using Student Self-Assessment to Increase Mastery for All Learners
8–10 Workshop
McCormick Place - Lakeside Center, E265
Lizzy Skousen, Illustrative Mathematics, Corinth, Texas
Jennifer Wilson, Illustrative Mathematics, Black Mountain, North Carolina

598 Sharing Skepticism and Arguing Constructively in Math Class
10–12 Workshop
McCormick Place - South Building, S404A
David Wees, Dreambox Learning, Denman Island, British Columbia
Sara Hinsley, DreamBox Learning, Bellevue, Washington

599 The Six-Step Process of Conducting Statistical Investigations: Learning from Data
10–12 Workshop
McCormick Place - Lakeside Center, E353C
Ruth Carver, Germantown Academy, Fort Washington, Pennsylvania
Beth Chance, Cal Poly University, San Luis Obispo, California

600 Use Student-Created Videos to Elicit Excitement and Deep Understanding of Mathematics
10–12 Workshop
McCormick Place - South Building, S402
Linda Saeta, Claremont High School, California
@LindaSaeta
Maria Flores, Claremont Unified School District, California

601 Using Activities in AP Calculus to Link the Mathematical Practices with Differential Equations
10–12 Workshop
McCormick Place - Lakeside Center, E271A
Karen Hyers, Tartan High School, Oakdale, Minnesota
@keyhyers

602 Creating and Using Achievement Level Descriptors in the Mathematics Classroom
Coaches/Leaders/Teacher Educators Workshop
McCormick Place - South Building, S404D
Mary Veazey, NWEA, Austin, Texas
Kate Brien, NWEA, Austin, Texas
Molly Igoe, NWEA, Dover, New Hampshire

603 Developing Equity Agency among Mathematics Teachers
Coaches/Leaders/Teacher Educators Workshop
McCormick Place - Lakeside Center, E451A
Circe Stumbo, West Wind Education Policy Inc., Iowa City, Iowa
@CirceStumbo
Comfort Akwaji-Anderson, Waterloo Community School District, Iowa

Notes
Saturday Morning Sessions

604 Developing Early Number Sense
Pre-K–2 Session
McCormick Place - Lakeside Center, E351
Katie Flores, UChicago STEM Education, Illinois
Elizabet Spaepen, UChicago STEM Education, Illinois
Debbie Leslie, UChicago STEM Ed, The University of Chicago, Illinois

605 Exploring Written Discourse in Elementary Mathematics Classrooms
Pre-K–2 Session
McCormick Place - Lakeside Center, E262
Nicole Gearing, Utah Valley University, Orem

606 How to Put the “Productive” into the “Struggle” in Grades K-2
Pre-K–2 Session
McCormick Place - Lakeside Center, E253B
Carly Findley, Accelerate Learning, Houston, Texas @carlyrfindley
Bonnie Duhé, Accelerate Learning, Houston, Texas
Kelsey Toomey, Accelerate Learning, Houston, Texas

607 Discovering Precise Points of Struggle to Trace the Building Blocks of Elementary School Mathematics
3–5 Session
McCormick Place - Lakeside Center, E261
C. Kyle Falting, Zearn, New York, New York
Stephanie Ely, Zearn, New York, New York
Shalinee Sharma, Zearn, New York, New York

608 Reading the K-5 Math Standards for Rigor and Complexity & Designing Questions to Match
3–5 Session
McCormick Place - South Building, S406B
Shelbi Cole, Student Achievement Partners, Palm Harbor, Florida @ShelbiCole1
Ted Coe, Achieve Inc., Scottsdale, Arizona
Sarka Mraz, NWEA, Washington, D.C.

609 ARGO Math: A Problem/Project-Based Math Curriculum
6–8 Session
McCormick Place - Lakeside Center, E260
Justin Maffei, JASON Learning and Warren County Public Schools, Front Royal, Virginia @maffeimath

610 Fight Climate Change with Mathematics!
6–8 Session
McCormick Place - Lakeside Center, E267
Debasmita Basu, The New School, Bloomfield, New Jersey
Nicole Panokou, Montclair State University, New Jersey

611 Not Your Same Old Math Summer School: Empowering Reluctant and Struggling Math Students
6–8 Session
McCormick Place - Lakeside Center, E264
Dianne Gizowski, DCMO BOCES, Norwich, New York @DoMoreMath

612 Intervention Instructional Strategies for the Secondary Classroom
8–10 Session
McCormick Place - Lakeside Center, E263
Rachel Giesmann, Fremont County School District #1, Lander, Wyoming @giesmannr
Shawna Morgan, Fremont County School District #1, Lander, Wyoming

613 Game-Based Learning in Mathematics: Affordances and Pitfalls
10–12 Session
McCormick Place - Lakeside Center, E270
Thomas Dick, Oregon State University, Corvallis
Michael Renne, Oregon State University, Corvallis

614 Engaging, Empowering, and Retaining Mathematics Teacher Leaders
Coaches/Leaders/Teacher Educators Session
McCormick Place - Lakeside Center, E253A
Paula Jakupovic, University of Nebraska at Omaha
Kelly Gomez-Johnson, University of Nebraska at Omaha

615 Revitalizing Teachers through Evocative Coaching
Coaches/Leaders/Teacher Educators Session
McCormick Place - South Building, S401D
Allison Crisher, Virginia Beach City Public Schools @AllisonCrisher
Sam Rhodes, James Madison University, Harrisonburg, Virginia
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### Saturday Morning Sessions

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<th>Session</th>
<th>Title</th>
<th>Time</th>
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<td>616</td>
<td>Creating Interesting Ways for Students to Be Right AND Wrong</td>
<td>9:30am—10:30am</td>
<td>McCormick Place - Lakeside Center, Arie Crown</td>
<td>Eli Luberoff, Desmos, Inc., San Francisco, California</td>
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<td>617</td>
<td>Division to Functions: Using Student Thinking to Create a Through Line from Elementary to Algebra</td>
<td>9:30am—10:30am</td>
<td>McCormick Place - Lakeside Center, E350</td>
<td>Theodore Sagun, UCLA GSE&amp;IS, Whittier, California; @TSagun_Math; Kristine Ho, UCLA GSE&amp;IS, Los Angeles, California</td>
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<tr>
<td>618</td>
<td>Have You Read Any Good Math for Social Justice Lately?</td>
<td>9:30am—10:30am</td>
<td>McCormick Place - Lakeside Center, E354B</td>
<td>Enrique Ortiz, University of Central Florida, Orlando</td>
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<td>619</td>
<td>Illuminating the History of Mathematics through Puzzles, Lost Games, and Number Exploration</td>
<td>9:30am—10:30am</td>
<td>McCormick Place - Lakeside Center, E352</td>
<td>Sunil Singh, Buzzmath, Montreal, Quebec, Canada</td>
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<td>620</td>
<td>Inquiry as a Pathway to More Equitable Mathematics Instructional Practices</td>
<td>9:30am—10:30am</td>
<td>McCormick Place - South Building, S406A</td>
<td>Nancy Dana, University of Florida, Gainesville; @NancyFDana; Kristin Weller, PK Yonge Developmental Research School at the University of Florida, Gainesville</td>
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<tr>
<td>621</td>
<td>Textbooks One Hundred Years Ago</td>
<td>9:30am—10:30am</td>
<td>McCormick Place - Lakeside Center, E259</td>
<td>Mary Lindquist, Past President, National Council of Teachers of Mathematics, Reston, Virginia; Lewisburg, West Virginia</td>
</tr>
</tbody>
</table>

### Notes

- Implement the Effective Teaching Practices
- Experience the Depth and Excitement of Mathematics
- Look Back and Move Forward: A Centennial View
- Create Positive Change
- Build Student Agency, Foster Student Identity, Promote Social Change
Saturday Morning Workshops

9:45am–11:00am

622 Building K-2 Teachers’ Mathematical Content Knowledge by “Doing the Math”
Pre-K-2 Workshop
McCormick Place - South Building, S402
Gina Piero, Worthington City Schools, Powell, Ohio @ginacpiero

623 Focusing Interventions: Planning with Formative Assessments and High-Leverage Concepts
Pre-K-2 Workshop
McCormick Place - Lakeside Center, E265
Erica Moy, Essex Westford School District, Essex Jct, Vermont

624 Recognizing and Responding to Students’ Mathematical Potential
Pre-K-2 Workshop
McCormick Place - South Building, S404A
Janine Firmender, Saint Joseph’s University, Philadelphia, Pennsylvania
Catherine Little, University of Connecticut, Storrs

625 Tapping into Children’s Inner Math Guru: Teacher Interactions to Foster Student Agency and Learning
Pre-K-2 Workshop
McCormick Place - Lakeside Center, E450A
Alyssa Renie, Erikson Institute, Chicago, Illinois
Donna Johnson, Erikson Institute, Chicago, Illinois
Jill Sapoznick, Erikson Institute, Chicago, Illinois

626 An Approachable Method for Understanding and Making Sense Out of Fractions
3-5 Workshop
McCormick Place - South Building, S405
Nevels Nevels, Hazelwood School District, Florissant, Missouri @nnevelsphd
Teresa Wright-Fraser, Saint Louis Public Schools Board of Education, Missouri

627 Be Both Author and Illustrator of Mathematical Understanding
3-5 Workshop
McCormick Place - Lakeside Center, E258
Jill Gough, Trinity School, Atlanta, Georgia @jgough

628 Desmos for Elementary: Gamify Math Class & Amplify Learning
3-5 Workshop
McCormick Place - Lakeside Center, E451B
Jamie Garner, Stanislaus County Office of Education, Modesto, California @mavenofmath

629 Using Strategic Partnerships to Increase Learning
3-5 Workshop
McCormick Place - Lakeside Center, E271A
Danielle Moore, Teaching One Moore, Los Angeles, California @Teaching1Moore

630 Promoting STEM Engagement in Mathematics Classrooms: A Focus on Problems, Students, and Teachers
6-8 Workshop
McCormick Place - Lakeside Center, E450B
Kathryn Appenzeller, Michigan State University, East Lansing
Charles Fessler, Michigan State University, East Lansing
Sunyoung PARK, Michigan State University, East Lansing

631 Using Manipulatives to Assess Student Understanding of Geometry
6-8 Workshop
McCormick Place - South Building, S401BC
Barbara Post, California State University, Fullerton
Nita Walker, California State University, Fullerton

632 Experiencing Mathematics: Arts Integration to Build School Community
8-10 Workshop
McCormick Place - Lakeside Center, E271B
Ellie Balk, www.elliebalk.com, Brooklyn, New York @elliebalk
Tricia Stanley, Williamsburg High School of Arts and Technology, Brooklyn, New York
“This has totally energized my math class!”

Erin Sudakis
Grade 7 Teacher

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Saturday Morning Workshops 9:45am–11:00am

633 Making Space: Analyzing Student Discourse Actions in Mathematics to Promote Access to More Voices
8–10 Workshop
McCormick Place - Lakeside Center, E353A
Melissa Boston, Duquesne University, Pittsburgh, Pennsylvania @MBostonMath
Amber Candela, University of Missouri–St. Louis
Juli Dixon, University of Central Florida, Orlando

634 Studying the Desmos Activity Building Code: The 12 Desmos Design Principles
8–10 Workshop
McCormick Place - South Building, S403
Nico Rowinsky, Toronto District School Board, Ontario, Canada @rowmath
David Petro, Windsor Essex Catholic District School Board, Harrow, Ontario, Canada

635 Using Improvement Science to Continuously Improve Your Instruction
8–10 Workshop
McCormick Place - South Building, S404D
Toni Smith, American Institutes for Research, Washington, D.C.
Kirk Walters, WestEd, Washington, D.C.

636 What Have We Learned in 100 Years of Teaching Factoring?
8–10 Workshop
McCormick Place - Lakeside Center, E451A
Ralph Pantozzi, Kent Place School, Millington, New Jersey @mathillustrated

637 Mathematics + Social Justice = Opportunities and Purpose for Your Students
10–12 Workshop
McCormick Place - South Building, S401A
John Staley, Baltimore County Public Schools, Randallstown, Maryland @jstaley06
Basil Conway, Columbus State University, Georgia
Brian Lawler, Kennesaw State University, Georgia

638 Building Mathematics Equity: Creating a Love of Math with Our English Language Learners
Coaches/Leaders/Teacher Educators Workshop
McCormick Place - Lakeside Center, E353B
Andrea Kotowski, ORIGO Education, Placitas, New Mexico @ORIGOAPS
Heather Monks, ORIGO Education, Earth City, Missouri
Rob Nickerson, ORIGO Education, Earth City, Missouri

639 Courage to Coach: Changing Cultures
Coaches/Leaders/Teacher Educators Workshop
McCormick Place - Lakeside Center, E353C
Nanci Smith, Arizona Christian University, Peoria @DocNanci
Lori Everson, Everson Consulting, Anthem, Arizona

640 How Cool Is Mathematics? Designing a Drone Light Show Just Like the Olympics!
Coaches/Leaders/Teacher Educators Workshop
McCormick Place - South Building, S404BC
Kathleen Snook, COMAP, Bedford, Massachusetts
Solomon Garfunkel, COMAP, Bedford, Massachusetts

Notes
Saturday Morning Sessions

11:00am–12:00pm

641 Developing Fractional Thinking through Visualization and Modeling
   Pre-K-2 Session
   McCormick Place - Lakeside Center, E260
   Kathleen Courtney, LaGrange South District 105, Downers Grove, Illinois
   @katiecourtney74
   Maureen Demer, LaGrange South District 105, Evergreen Park, Illinois

642 Lost in Translation: From Writers’ Workshop to Leveled Math Groups
   Pre-K-2 Session
   McCormick Place - Lakeside Center, E354B
   Tracy Zager, Portland Public Schools, Maine
   @tracyjzager

643 The Number Core Leads Us to the Pathway of Number Sense
   Pre-K-2 Session
   McCormick Place - Lakeside Center, E263
   Lori Sponenburgh, Great Minds

644 Math Running Records: How One Assessment Changed the Math Culture in My District
   Pre-K-2 Session
   McCormick Place - South Building, S406B
   AnnElise Record, AnnElise Record Consulting LLC, Concord, New Hampshire

645 Building Fraction Understanding through Number Talks
   3-5 Session
   McCormick Place - Lakeside Center, E350
   Nicole Fletcher, Fairfield University, Connecticut
   @NicoleSFletcher

646 Equity-Based Mathematics Teaching Practices Embedded in a Math Workshop Task and Share.
   3-5 Session
   McCormick Place - Lakeside Center, E351
   Stephanie Sigmon, Fairfax County Public Schools, Alexandria, Virginia
   @MathOSSRegion5
   Tammy Kraft, Fairfax County Public Schools, Annandale, Virginia

647 You CAN Talk Your Way Out of It! Using Number Talks for Distributed Practice
   3-5 Session
   McCormick Place - South Building, S406A
   Melinda Griffin, American Institutes for Research, Waltham, Massachusetts
   Teri Marx, American Institutes for Research, Washington, D.C.
   Jenna Richard, American Institutes for Research, Coventry, Rhode Island

648 100 (or So) One Hundred Grid Activities for the Algebra Student
   6-8 Session
   McCormick Place - Lakeside Center, E352
   Elena Contreras Gullickson, University of Minnesota, Saint Paul
   Lesa Covington Clarkson, University of Minnesota, Saint Paul
   Jessica Forrester, University of Minnesota, Saint Paul

649 Planning for Voice and Agency While Addressing Misconceptions with Reluctant Learners
   6-8 Session
   McCormick Place - Lakeside Center, E267
   Janine Scott, Houghton Mifflin Harcourt, Fort Worth, Texas

650 What a Good Question!: Strategies for Enhancing Teachers’ Questioning Strategies
   6-8 Session
   McCormick Place - Lakeside Center, E259
   Nancy Anderson, MIT, Milton, Massachusetts
   @NAndersonMath

651 Alternative Assessments to Support Standards-Based Grading
   8-10 Session
   McCormick Place - Lakeside Center, E253B
   Barbara Swartz, McDaniel College, Westminster, Maryland
   @baswartz23
   Brad Swartz, Liberty High School, Syjessvukke, Maryland
Saturday Morning Sessions 11:00am–12:00pm

652 I Think, Therefore I Belong: Technology and Pedagogy That Affirms Mathematical Identity
8-10 Session
McCormick Place - Lakeside Center, E262
Faith Moynihan, Desmos, San Francisco, California
@_faithmoynihan
Lisa Bejarano, Desmos, Manitou Springs, Colorado

653 Using Technology to Bring the World of Multivariate Functions into Secondary Mathematics
10-12 Session
McCormick Place - Lakeside Center, E261
M Kathleen Heid, Pennsylvania State University, University Park
Matthew Black, Pennsylvania State University, University Park

654 Creating the Capacity for Change: Structures for Empowering Elementary Teachers
Coaches/Leaders/Teacher Educators Session
McCormick Place - Lakeside Center, E264
Melissa Pearson, West Windsor-Plainsboro Regional School District, Yardley, Pennsylvania
@pearsonwwp
Susan Totaro, West Windsor-Plainsboro Regional School District, Ewing, New Jersey
Maryann Carnevale, West Windsor-Plainsboro Regional School District, Princeton Junction, New Jersey

655 Supporting the Math-Anxious Beginning Teacher in an Era of Increased Rigor
Coaches/Leaders/Teacher Educators Session
McCormick Place - Lakeside Center, E270
Jillian Lederhouse, Wheaton College, Illinois
Julia Buckingham, Alexandria, Virginia

656 Developing Mathematical Identities: Practical Strategies to Empower Students
General Interest Session
McCormick Place - South Building, S401D
Anna Michelle LaMar, Opportunities For Learning, Santa Clarita, California
Leslie Banks, Opportunities For Learning, Santa Clarita, California

657 Everything You Want to Know about Thriving as a Teacher of Mathematics That No One Ever Told You
General Interest Session
McCormick Place - Lakeside Center, E253A
Sean Nank, California State University San Marcos, Carlsbad
@Sean_Nank

Notes
Saturday Morning Bursts

658 Embedding Problem Solving into Your Curriculum
Burst
McCormick Place - Lakeside Center, E265
Fawn Nguyen, Mesa Elem School, Oxnard, California

Looking at Data as a Team to Drive Your Math Vision
Pre-K-2 Burst
McCormick Place - Lakeside Center, E450A
Katie Horneland, Imagine Learning, Tampa, Florida
Jazmin Medrano, Imagine Learning, Lubbock, Texas
Adriane Harden, Imagine Learning, Provo, Utah

660 Modifying Executive Function and Mathematical Demands in Classroom Activities for Young Children
Pre-K-2 Burst
McCormick Place - Lakeside Center, E25B
Candace Joswick, University of Texas at Arlington

661 Where Are We and Where Can We Go from Here? Assessing Students’ Level of Geometric Reasoning
3-5 Burst
McCormick Place - South Building, S404A
Thomas Fox, University of Houston-Clear Lake, Texas

662 Bringing Math Enrichment to the Classroom
6-8 Burst
McCormick Place - Lakeside Center, E271B
Amanda Ruch, Chicago Public Schools/Chavez MAC, Illinois
@amanda235711
Sara Rezvi, Saga Education, Chicago, Illinois

663 Designing and Implementing a Middle School Summer STEM Camp: Possibilities and Tensions
6-8 Burst
McCormick Place - Lakeside Center, E353C
Allyson Hallman-Thrasher, Ohio University, Athens
Courtney Koestler, Ohio University OHIO Center for Equity in Math and Science, Athens
Danielle Dani, Ohio University, Athens

664 Focused Learning for All: Maximize Student Growth through Targeted Interventions at All Levels
6-8 Burst
McCormick Place - Lakeside Center, E353B
Amy Zuber Seguin, SDMA, Menomonie, Wisconsin
Kathy Forster, SDMA, Menomonie, Wisconsin

665 Mastering Skills-Based Grading
6-8 Burst
McCormick Place - South Building, S401BC
Tami Geurts, Olympia Middle School, Stanford, Illinois
@tami_geurts
Jennifer Love, Olympia Middle School, Stanford, Illinois
DeeDee Stine, Olympia Middle School, Stanford, Illinois

666 Fun with Flags: Algebra & Geometry Connections to Build Mathematical Knowledge & Global Awareness
8-10 Burst
McCormick Place - South Building, S404BC
Kelly Remijan, Independent STE(A)M Consultant, Presenter, and Professional Development & Curriculum Specialist, Belleville, Illinois
@Teachers4STEAM

667 Free Your Students’ Inner Mathematicians with Math Stories
10-12 Burst
McCormick Place - South Building, S404D
Susan D’Agostino, Johns Hopkins University, Baltimore, Maryland
@susan_dagostino

668 Getting Off on the Right Foot: Learning to Launch Cognitively Demanding Tasks
10-12 Burst
McCormick Place - Lakeside Center, E451A
Mark Creager, University of Southern Indiana, Evansville
Christopher Parrish, University of South Alabama, Mobile
Rachel Snider, The College of New Jersey, Ewing
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Building Research-Based Academic Language Practices into Your Math Lessons
Thurs April 2nd: 4:00PM  McCormick Place - Lakeside Center  Room: E253A

Ben Grimley  ben@speakagent.com

speakagent.com
### Saturday Morning Bursts

<table>
<thead>
<tr>
<th>Burst</th>
<th>Title</th>
<th>Time</th>
<th>Location</th>
<th>Speaker(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>670</td>
<td>Sports Statistics</td>
<td>10:30am</td>
<td>McCormick Place - Lakeside Center, E271A</td>
<td>Adam Bezinovich, Sycamore High School, Illinois</td>
</tr>
<tr>
<td>671</td>
<td>Math Is Service When Students Are the Teachers</td>
<td>10:30am</td>
<td>McCormick Place - Lakeside Center, E353A</td>
<td>Lauren Zarandona, Mississippi School for Math and Science, Columbus</td>
</tr>
<tr>
<td>672</td>
<td>Create a STEM Certificate to Encourage a Culture of Mathematics in Your Building</td>
<td>10:30am</td>
<td>McCormick Place - Lakeside Center, E450B</td>
<td>David Berger, Menomonie High School, Wisconsin</td>
</tr>
<tr>
<td>673</td>
<td>How Do Teachers Address Cultural Linguistic Diversity in Their Instruction Design?</td>
<td>10:30am</td>
<td>McCormick Place - South Building, S403</td>
<td>Hea-Jin Lee, The Ohio State University at Lima&lt;br&gt;Leah Herner-Patnode, The Ohio State University at Lima&lt;br&gt;Seonhee Cho, Mount Saint Vincent, Lima, Ohio</td>
</tr>
<tr>
<td>674</td>
<td>Opening Your Students’ Conceptual Engagement Using Open Middle Resources</td>
<td>10:30am</td>
<td>McCormick Place - South Building, S402</td>
<td>Amanda Meiners, University of Iowa, Iowa City&lt;br&gt;Alana Tholen, University of Iowa, Iowa City&lt;br&gt;Anna Payne, Baylor University, Waco, Texas</td>
</tr>
<tr>
<td>675</td>
<td>Reclaiming Their Time: Removing the Barriers to Ensure Student Learning</td>
<td>10:30am</td>
<td>McCormick Place - South Building, S401A</td>
<td>Natalie Holliman, GIRLSwSTEAM, Little Rock, Arkansas&lt;br&gt;@N_Holliman&lt;br&gt;Kelli Mack, Houston ISD, Texas&lt;br&gt;Kendra Nwosu, Houston ISD, Texas</td>
</tr>
<tr>
<td>676</td>
<td>Techno-Mathematical Discourse: Encouraging Math Talk with Virtual Manipulatives</td>
<td>10:30am</td>
<td>McCormick Place - South Building, S405</td>
<td>Katie Anderson-Pence, University of Colorado, Colorado Springs&lt;br&gt;@DrAndersonPence</td>
</tr>
</tbody>
</table>

### Saturday Afternoon Session

<table>
<thead>
<tr>
<th>Burst</th>
<th>Title</th>
<th>Time</th>
<th>Location</th>
<th>Speaker(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>677</td>
<td>Closing Session: Inclusion-Exclusion in Mathematics and Beyond</td>
<td>12:30pm</td>
<td>McCormick Place - Lakeside Center, Arie Crown</td>
<td>Eugenia Cheng, School of the Art Institute of Chicago, Illinois&lt;br&gt;Dr. Eugenia Cheng is Scientist-in-Residence at the School of the Art Institute of Chicago. She won tenure in Pure Mathematics at the University of Sheffield, UK, and has a PhD in Pure Mathematics from the University of Cambridge. Eugenia was an early pioneer of math on YouTube, and her videos have been viewed over 15 million times. In addition to teaching undergraduates, she has assisted with mathematics in elementary, middle and high schools for 20 years. She is the author of the popular math books <em>How to Bake Pi, Beyond Infinity, The Art of Logic,</em> and <em>x + y: A Mathematician’s Manifesto for Rethinking Gender</em> (due out in 2020). Eugenia is also a columnist for the <em>Wall Street Journal</em> and a concert pianist.</td>
</tr>
</tbody>
</table>

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**Implement the Effective Teaching Practices**<br>**Experience the Depth and Excitement of Mathematics**<br>**Look Back and Move Forward: A Centennial View**<br>**Create Positive Change**<br>**Build Student Agency, Foster Student Identity, Promote Social Change**
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Submissions should be 1,000 to 1,500 words and should focus on a narrow grade band (PK–2, 3–5, 6–8, 9–12). This tier allows authors to share a single, well-developed idea. When submitting, choose the grade-band category that fits your article.

Access https://mc04.manuscriptcentral.com/mltpk12 to submit manuscripts. Limit your article or submission to the word count listed above, excluding references and figures, where applicable. You are encouraged to include such digital components as a video clip, audio file, Livescribe™ file, SMART Board™ file, or other form of multimedia to enhance the submission.

Mathematics Teacher: Learning and Teaching PK–12 (MTLT) is an exciting new NCTM journal with a unique point of view—your view as a practicing teacher of mathematics. MTLT offers readers a plethora of relevant, enriching articles that have been enhanced with digital content when possible. The journal spans PK–12 but continues to provide focused grade-band-specific articles.

Detailed information about article types can be found at https://www.nctm.org/Publications/MTLT
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The Host Affiliates for this conference and the Affiliates-at-Large appears below. To join one of these organizations, email 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, visit the Affiliate Directory at nctm.org/Affiliates/Directory.

About the Host Organizations

The Illinois Council of Teachers of Mathematics (ICTM) is the premier organization in the state working to promote equitable, high-quality mathematics teaching and learning for all children. Organized in 1949 by a small group of interested mathematics teachers, ICTM’s members now include mathematics educators living in every corner of the state and working with students at all grade levels, from early childhood to university. ICTM’s various leadership, collaboration, advocacy, and professional development activities—including a dynamic annual conference, a vibrant program of mathematics contests for middle and high school students, online professional development and networking activities, and support of affiliates throughout the state—aim to create and foster greater interest in the teaching of mathematics, and greater learning opportunities for all students.

The Metropolitan Mathematics Club of Chicago (MMC) is a major professional organization of mathematics educators in the greater Chicago area. Founded in 1914 as the Men’s Mathematics Club of Chicago, the MMC was instrumental in the founding of the National Council of Teachers of Mathematics six years later. For this reason, the MMC was given NCTM affiliate charter #1. The MMC changed its name (but not its initials) after it admitted women in 1972. (A separate Women’s Mathematics Club [WMC] existed from 1916, the organizations resisted mergers, and the WMC ceased existence later in the 1970s.) The MMC hosts dinners featuring high-quality speakers monthly throughout the school year, a conference of workshops each winter, and biennial summer workshops.

Affiliates-at-Large

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   Pam Mender, mdr151@aol.com

Association of Mathematics Teacher Educators
   Maggie McGatha, maggiemcgatha87@gmail.com

Association of State Supervisors of Mathematics
   Paula Moeller, paulam@camtonline.org

Benjamin Banneker Association, Inc.
   Shelly Jones, jonessem@ccsu.edu

Council of Presidential Awardees in Mathematics
   Donald Scheuer, mathguy1@verizon.net

NCSM
   Kristine Cunningham, kcunningham@phoenixunion.org

North American Study Group on Ethnomathematics
   Chadd McGlone, cwmcglone@yahoo.com

Society of Elementary Presidential Awardees
   Conni Crittenden, crittec@gmail.com

TODOS: Mathematics for ALL
   Susie Hakansson, shakans@g.ucla.edu

Women and Mathematics Education
   Jill Drake, jdrake@westga.edu
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Floor Plans

McCormick Place
(McCormick Square)
McCormick Place Lakeside Center Level 3
Floor Plans

McCormick Place Lakeside Center Level 4

Arie Crown Theater

E450a
7,212 sq. ft.

E450b
7,338 sq. ft.

Stage House

E451a
5,228 sq. ft.

E451b
6,884 sq. ft.
Exhibit Hall Floor Plan

1444
Infinity Bar

836
Wellness Workshops

932
STEMscopes

440
Presentation Pavilion

536
Pearson K12 Learning

532
TI

243
Mathical Reading Room

HALL D1

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Booth 511
Erie, Pennsylvania www.bigideaslearning.com

Big Ideas Math is a complete and continuous solution built for student success, with programs available from kindergarten through algebra 2. Big Ideas Math was written by renowned authors Dr. Ron Larson and Dr. Laurie Boswell and features cutting-edge technology to support and enhance the curriculum. Big Ideas Math’s complete and innovative technology package includes additional resources, customizable online assessments, virtual tools and manipulatives, skills practice, and much more. Resources are available to help teachers with RTI, differentiation, ELL support, and extension to truly achieve a Universal Design for Learning. Students have access to an interactive textbook, online homework, games, manipulatives, graphic organizers, and vocabulary cards. Big Ideas Math provides teachers the power to effectively reach every student, parents the opportunity to be involved in their student’s education, and students the tools they need to succeed!

Borenson and Associates, Inc.

Booth 1402
Allentown, Pennsylvania www.borenson.com

Borenson Math provides the Hands-On Equations and Developing Fractions Sense products and training. Since 1990, more than 50,000 teachers have attended the Making Algebra Child’s Play workshop. Our hands-on instructional programs enable conceptual learning by focusing on the key, foundational concepts, such as the meaning of a unit fraction.

Buzzmath

Booth 840
Newark, Delaware www.buzzmath.com

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CanFigureIt

Booth 530
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Want to be a Proof Ninja? Our FREE web-based resource enables high school students to work through geometric proofs independently and interactively by offering continuous feedback and relevant hints. CanFigureIt Geometry facilitates problem-solving by breaking down complex proofs into manageable chunks, reinforces theorems visually, and fosters forward and backward reasoning.

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Casio America, Inc.
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Dover, New Jersey

Catherine Fosnot & Associates: New Perspectives
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The company offers a math workshop K-5 core curriculum of 54 units covering all strands designed to turn classes into vibrant math communities. The curriculum is supported with a personalized professional support system including video and PD modules on every unit and a web-based formative assessment package with teaching implications.

Center for Mathematics and Teaching
Booth 1223
Redondo Beach, California
www.mathandteaching.org
Center for Mathematics and Teaching provides cognitively demanding and engaging materials that are accessible to all learners, and delivers content-driven professional development to teachers.

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Super-economical and effective adhesive grid and graph products for mathematics education. Since 1999, students and teachers have loved using them! Made in the USA.

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CPM Educational Program
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www.cpm.org/cpminfo
Grades 6-12 math texts using problem-based learning in student-centered classrooms. New teachers are supported with eight days of no-cost professional development by experienced classroom teachers.

Curriculum Associates
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www.CurriculumAssociates.com
Founded in 1969, Curriculum Associates, LLC, designs research-based print and online instructional materials, screens and assessments, and data management tools. The company’s products and outstanding customer service provide teachers and administrators with the resources necessary for teaching diverse student populations and fostering learning for all students. Learn more at www.curriculumassociates.com.

Desmos
Booth 1124
San Francisco, California
www.Desmos.com
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Booth 1012
Rowley, Massachusetts
www.didax.com
Didax is a publisher of hands-on math resources for educators in pre-K-grade 12. We are proud to be the source for Unifix Cubes! In addition we partner with Great Minds as the exclusive provider of custom-made math resources and manipulative kits for Eureka Math. Each year we develop new books, hands-on manipulatives, games and more for math educators.

Disney Youth Programs
Booth 843
Kissimmee, Florida
www.disneyyouth.com
There is nothing more magical than inspiring a child to follow their passions, fulfill their dreams, and celebrate their accomplishments. Whether you are leading a robotics club, math team, biology lesson, or algebra class, there is a Disney Youth Education Series experience that will enrich your students and spark their creativity.

Dreambox Learning
Booth 429
Bellevue, Washington

EAI Education
Booth 332
Oakland, New Jersey
www.eaieducation.com
EAI Education is a leading manufacturer of hands-on learning materials for math and STEM, pre-K-grade 12. Our innovative products to promote mathematical fluency and conceptual understanding include Bar Models, Visual Area Modelers, and Exploragons®. We offer custom kits designed to meet curriculum needs. Stop by our booth for demos and giveaways!

Edulastic
Booth 108
Fremont, California
https://edulastic.com/
Edulastic is a platform for personalized formative assessment for K-12 students, teachers, and school districts that provides a highly interactive, cloud-based learning environment for publishers.

eGrove Education, Inc.
Booth 942
San Diego, California
https://egrove.education/
Drawn2Math is a new touchscreen app by eGrove Education Inc., where students draw visual representations to solve fractions assignments. Personalized hints are based upon submitted sketches, and students build persistence by retrying assignments until they are correct. Come see our Spatial Visualization sketching app as well.
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Washington, D.C.  
www.eureka-math.org  

Eureka Math (EngageNY Math) builds conceptual understanding to reduce gaps in learning and instill persistence in problem solving, preparing students to understand advanced math and apply it in the real world. Eureka Math is a full solution—a comprehensive PK-12 curriculum, professional development, print materials, digital tools, and support.

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www.familymathnight.com  

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www.firstinmath.com  

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https://getmoremath.com  

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Cincinnati, OH  
www.geyerinstructional.com  

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GradeCam  
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GradeCam is a web application that works with web and document cameras to grade tests and provide teachers and students with immediate in-the-classroom feedback. It is the most affordable and powerful formative assessment tool that exists. GradeCam also automates data entry for all student work into the grade book. Our shared assessment feature makes collecting, aggregating, and analyzing student data in real-time easy and affordable.

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Based in Denver, Colorado, Great Work is committed to supporting the quality, stability and expansion of learner-centered education through high fidelity Montessori teacher training and professional development with an emphasis on adolescent years. Great Work assists in the cultivation of tools, curriculum and resources that will better support educators and education institutions to serve the needs of students.

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Booth 722  
Vernon Hills, Illinois  

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Imagine Learning
Booth 726
Provo, Utah
www.imaginelearning.com

Imagine Learning partners with educators, providing supplemental digital literacy, math, and assessment programs for students in pre-K-grade 8. Educators love Imagine Learning’s educational programs because they are research- and evidence-based, data driven, instructionally differentiated, and help students become stronger, more confident learners. Learn more about Imagine Learning at www.imaginelearning.com.

IXL Learning
Booth 1232
San Mateo, California
www.ixl.com

IXL’s K-12 personalized learning platform is used by eight million students. Our comprehensive, standards-aligned curriculum adapts to each student and provides guidance that targets their needs. With the Continuous Diagnostic and IXL Analytics, teachers have the insights they need to boost student performance in the classroom and on high-stakes assessments.

Japan Math Corp.
Booth 524
Dubuque, Iowa
www.japan-math.com

Japan Math is an elementary mathematics curriculum developed with the knowledge and wisdom that Japanese educators have accumulated over decades. We provide powerful tools for learning and succeeding, with three unique features: efficient and effective topic arrangement, problem solving for deeper understanding, and developing the desire to use math.

JLB Investments
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Desmoines, Washington

Kendall Hunt
Publishing Company
Booth 529
Chicago, Illinois
https://k12.kendallhunt.com/

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

Knowre Math
Booth 1042
New York, NY

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KP Creations LLC
Booth 1338
Austin, Texas

Authorized distributor for hair styling tools and products.

Mangahigh
Booth 424
London, England, UK
www.mangahigh.com

Mangahigh is one of the most engaging learning platforms for K-10 math and K-5 coding, helping students learn more effectively using an active game-based pedagogical approach. Built by a team of education experts, Mangahigh supports teachers in providing a unique learning experience for each student through AI and standards-aligned content.

Marshall Cavendish Education
Booth 622
Rye Brook, New York
www.mceducation.us

Marshall Cavendish Education is the publisher of Singapore Math® textbooks Math in Focus® and Primary Mathematics, as well as a respected provider of professional development. We worked with the Ministry of Education in Singapore to develop the world-class program. Our materials have been adopted and embraced in over 50 countries.

Math Books by Dan
Booth 526
Bixby, Oklahoma
www.calculusbook.net

Math explained with pedagogical sensitivity: lead-ins (anticipatory sets), extensions (building on previous concepts), hooks and whimsy, emphasizing readiness, pre-teaching vocabulary, use of analogies, sequential patterns, encouragement and motivation, creative/innovative organization and presentation, showing not telling (visuals), parallel teaching, color coding, etc.

Math Teachers Press, Inc.
Booth 110
Minneapolis, Minnesota
www.movingwithmath.com

The Moving with Math Learning System for pre-K-12 offers a blended learning approach. Using the C-R-A Model (Concrete-Representational-Abstract), all lessons include embedded professional development, assessments to monitor and measure progress, and instructional strategies to easily differentiate instruction. All programs are supported by scientific research.
Math Teachers’ Circle
Booth 825
San Jose, California
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. The Math Teachers’ Circle Network organizes Math Teachers’ Circles around the country and provides support and resources to new and established Circles. There are currently 125 Math Teachers’ Circles and six regional MTC networks across the U.S. Find a Circle in your area, or learn how to start a new Circle.

Math U See
Booth 1224
Lititz, PA
This K-12 math curriculum uses a unique instructional approach and colorful manipulatives to build understanding for abstract concepts.

MATHCOUNTS Foundation
Booth 427
Alexandria, Virginia
www.mathcounts.org

Some students love math. Other students fear math. MATHCOUNTS is the place for both. We provide engaging math programs to U.S. middle school students of all ability levels to build confidence and improve attitudes towards math and problem solving.

Mathical Reading Room
Booth 240
Berkeley, CA
www.msri.org

MathRack
Booth 428
Rice Lake, Wisconsin
www.mathrack.com

MathRack products are teaching tools designed to support and stretch primary students’ mathematical thinking strategies and, in turn, their understanding of number to promote fact automaticity through understanding not memorization. MathRack’s mission is to provide quality products at affordable prices and to serve educators and students through their math journey. MathRack is made in the USA and is veteran owned! How can we help? What can MathRack do for YOU?

Mathspace
Booth 624
New York, New York

Michigan State University
Booth 830
East Lansing, Michigan
prime.natsci.msu.edu

The doctoral program in mathematics education at Michigan State University 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!

Minitab
Booth 225
State College, Pennsylvania
www.minitab.com

Minitab® is the leading software for statistics education worldwide. 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.

MOEMS
Booth 425
Bellmore, New York
www.moems.org

MOEMS is a not-for-profit organization 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. Worldwide participation.

MQI Coaching
Booth 625
Cambridge, Massachusetts
www.mqicoaching.org

MQI Coaching offers training for math coaches as well as video-based coaching for teachers. The MQI Coaching model uses the Mathematical Quality of Instruction (MQI) rubric, a math-specific, observation instrument, to guide teachers in reflecting on their own practice.

Nasco
Booth 1321
Fort Atkinson, Wisconsin

Improve College & Career Readiness by engaging students in hands-on learning experiences. Nasco Education partners with schools to create impactful learning environments, prepare and equip teachers to be successful, and provide hands-on learning tools to engage students. Visit us at NascoEducation.com/K-CareerSolutions or contact us at Solutions@NascoEducation.com to learn more.

NASGEm North American Study Group on Ethnomathematics
Booth 930
Monument, Colorado

NAME
The National Assessment of Educational Progress (NAEP), often called The Nation's Report Card, is the largest nationally representative and continuing assessment of what students in public and private schools in the United States know and are able to do in various subjects. Since 1969, NAEP has been a common measure of student achievement across the country in mathematics, reading, science, and many other subjects.

The National Museum of Mathematics (MoMath)
Booth 725
New York, New York

NCSM: Leadership in Mathematics Education
Booth 929
Auroro, Colorado

Origo Education
Booth 1216
Earth City, Missouri
origoeducation.com

ORIGO Education provides pre-K to grade 6 mathematics instruction with our core program ORIGO Stepping Stones, printed and digital supplemental resources, and professional learning.

Pearson K12 Learning
Booth 536
Hoboken, New Jersey
PearsonSchool.com

Pearson K12 Learning is a global K-12 learning company with expertise in digital and print core curriculum, supplemental content, and professional services. Our educational solutions are powered by innovative technology to advance personalized learning experiences and to achieve successful teaching results. For more information visit our booth or PearsonSchool.com.

Personal Finance Lab
Booth 426
Laurent, Canada

PersonalFinanceLab.com is a financial literacy platform for high school students. This site includes a personal budgeting game, a customizable stock market game, and an integrated curriculum with built-in assessments. In the personal budgeting game students take on the role of a young adult with their first job and manage a budget. Rent, car loans, utilities, groceries, and many unexpected expenses challenge them to stay on budget. The stock market game is a real-time, real-data stock game, which includes live streaming portfolios and class rankings, instant order execution, integrated research, and reporting. Quotes, charts, news and analyst ratings help students research and learn to invest. Our site also has integrated accounting, finance economics, and business curriculum that meets National Standards that can be blended into our game.

Presidential Awards for Excellence in Mathematics and Science Teaching
Booth 842
Alexandria, Virginia

Renaissance
Booth 221
Wisconsin Rapids, Wisconsin
www.renaissance.com

As a leader in assessment, reading, and math solutions for pre-K-12, Renaissance is committed to providing educators with insights and resources to accelerate growth.

Rockford Public Schools District 205
Booth 1141
Rockford, Illinois
rps205.com

Rockford Public Schools is one of the largest school districts in Illinois, educating more than 28,800 students, with 48 schools in the district and 4,890 employees. The school district is also the second-largest employer in the region. In addition to traditional neighborhood zone schools, Rockford Public Schools offers its students special programs designed to provide educational opportunities tailored to their learning needs and abilities, such as the Gifted Academy the Creative and Performing Arts Program (CAPA), Maria Montessori program, Two-Way Language Immersion program, STEAM Academy, a K-5 special program that integrates science and technology, interpreted through engineering and the arts, all based in mathematical elements, College and Career Academies.

Search Associates
Booth 338
Dallas, Pennsylvania
www.searchassociates.com

Search Associates is a leading recruiting agency in international education. Since 1990, we have assisted over 40,000 administrators, teachers, counselors, librarians, and interns to find jobs in top K-12 international schools. Our 20+ global offices and 14 global job fairs worldwide ensure a more personalized service throughout the overseas hiring process.

SIAM presents MathWorks Math Modeling (M3) Challenge
Booth 325
Philadelphia, Pennsylvania
https://m3challenge@siam.org

M3 Challenge is an Internet-based applied math competition for juniors and seniors. Working in teams, participants solve an open-ended problem in 14 hours. Extra credit awards for teams that employ technical computing/code in their solutions. The free contest will award top teams $100,000 in scholarships in 2020. M3 Challenge has given more than $1.1 million in scholarships to date.
Singapore Math Inc  
Booth 1211  
Tualatin, Oregon  
www.singaporemath.com

We believe the highest quality math education should be accessible to all. Our commitment to this mission began over twenty years ago when we introduced the world to Singapore math, and it remains our guiding principle as we develop new and affordable Singapore Math® programs.

Solution Tree  
Booth 812  
Bloomington, Indiana  
www.solutiontree.com

At Solution Tree, we share your vision to transform education to ensure learning for all, and we can help you make this vision a reality. We promise that no other professional learning company provides our unique blend of research-based, results-driven services that improve learning outcomes for students.

Speak Agent  
Booth 1225  
Rockville, Maryland  
www.speakagent.com

Speak Agent is a research-based digital teaching platform that accelerates learning for students in K-8 by more than 200% with just 30 minutes of use per week. Speak Agent does this by integrating tailored interactive activities directly to your curriculum that are proven to accelerate mastery of STEM concepts.

STEMscopes Math  
Booth 932  
Houston, Texas  
https://www.stemscopes.com/math/

STEMscopes is the national leader in STEM education, inspiring pre-K-12th grade STEM learning across the globe. Born in the lab at Rice University, STEMscopes was developed by teachers, for teachers.

ST Math, Created by MIND Research Institute  
Booth 724  
Irvine, California

MIND Research Institute is a nonprofit, social impact organization committed to transforming education and closing the experience gap for all learners. MIND’s flagship program, ST Math, is a PreK-8 visual instructional program that leverages the brain’s innate spatial-temporal reasoning ability to solve mathematical problems. ST Math’s unique, patented approach provides students with more equitable access to deep conceptual learning.

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Booth 327  
Philadelphia, Pennsylvania  
www.taylorandfrancis.com

Taylor & Francis partners with researchers, scholarly societies, universities, and libraries worldwide to bring knowledge to life. As one of the world’s leading publishers of scholarly journals, books, ebooks, and reference works our content spans all areas of the humanities, social sciences, behavioural sciences, science, technology, and medicine.

Texas Instruments  
Booth 532  
Dallas, Texas  
education.ti.com

For more than 30 years, Texas Instruments has been an active member of classrooms around the world, empowering teachers and inspiring students to succeed in mathematics. Through our award-winning products, engaging lessons, and top-notch professional development, TI is transforming the way teachers teach and students learn STEM subjects. Visit us at education.ti.com

The BACH Company  
Booth 330  
Palo Alto, California  
www.BachCompany.com

Math, Science, STEM—we have you covered! Here at The BACH Company, we’ve been serving the education community since 1973. We are one of the largest education dealers in the U.S., with some of the most personally attentive customer service around. Our success is built on having quality products and unbeatable prices! We sell calculators, classroom software, data collection tools, probes and sensors, and a wide range of calculator accessories that includes everything from connectivity cables and batteries to docking stations and transportable storage. Other classroom supplies include locks and headphones.

The College Board  
Booth 1126  
New York, New York  
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 Markerboard People  
Booth 322  
Lansing, Michigan  
https://dryerase.com

Non-porous student dry erase double-sided markerboards and response boards in class sets. Great for instant response and instant assessment. Unbeatable prices! Perfect for math, science, language arts, graphing, handwriting, and more. Long-lasting, non-toxic, ultra-low odor markers and durable student erasers too!
The Math Learning Center
Booth 1021
Salem, Oregon
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.

think! Mathematics
Booth 324
Neptune Beach, Florida

TODOS: Mathematics for ALL
Booth 829
Tempe, Arizona
www.todos-math.org

TODOS advocates for equity and high-quality mathematics education for all students—in particular, Latina/o students. One of TODOS’ goals is to advance educators’ knowledge and ability that lead to implementing an equitable, rigorous, and coherent mathematics program that incorporates the role language and culture play in teaching and learning mathematics.

TouchMath
Booth 233
Colorado Springs, Colorado
www.TouchMath.com

See It, Say It, Hear It, and Touch It! TouchMath’s multisensory approach gives students of all abilities and learning styles equal access to standards-based curricula. Educators across the country and around the world rely on TouchMath’s proven strategies to maximize student potential, prepare for state tests, and achieve AYP benchmarks. Celebrate our 43rd Anniversary and learn more about our expanded family of products at our NCTM booth.

UChicago STEM Education
Booth 628
Chicago, Illinois
http://stemed.uchicago.edu

UChicago STEM Education is a center devoted to research, development, and direct supports for educators, families, and children. The center resides within the Physical Sciences Division of the University of Chicago. The mission of UChicago STEM Education is to connect research and practice to improve education for all.

WeDu Communications
Booth 334
Rowland Heights, California
http://www.wedugroup.com

WeDu Communications: a Global Educational Content company that strives to become a global figure in the mathematics educational business. “Ryan’s Math Adventure” is a global cartoon where math creates magic. This comic book is a fantasy-adventure series where kids learn both basic math concepts and how to solve problems in everyday situations. Paperback and Kindie versions are both available on Amazon. We have also created a 3D animation of the book series as well. Currently, we are in the midst of developing an online education website called OLL KIDS/MATH. This is a globally curated education service based on learning analysis that can utilize content effectively for fun, engaging education. Kids are able to play games, watch videos, and complete math-related tasks in order to upgrade their personal avatars. Parents and teachers are also able to track their kids’ progress and see what they are learning.

Wendy Pye Publishing Ltd
Booth 1238
Auckland, New Zealand
www.sunshine.co.nz

Wendy Pye Publishing is an educational literacy publisher specializing in reading and math for K-2 in both print and digital under the successful Sunshine branding. The range includes teaching resources for whole class, small group and independent learning. Math program includes number, algebra, measurement, geometry, data, and chance.

Wiris
Booth 326
Long Beach, California
www.wiris.com

With our leading handwriting recognition software, you can type and handwrite mathematical notations with MathType. Instructors can save time grading exams and students can show their work using Wiris Quizzes. Wiris Quizzes offers computer-based grading of math and science questions that enhance your LMS with mathematical features that make it easier for the quiz creator and quiz taker.

Wolfram
Booth 109
Champaign, Illinois
www.wolfram.com

Best known for Mathematica and Wolfram|Alpha, Wolfram Research has been innovating in STEM education worldwide for over three decades with knowledge-based applications, repositories and initiatives. The new Wolfram|Alpha Notebook Edition combines natural language input, advanced computation, and dynamic visualization into a single, unified tool perfect for teaching and learning.
Women and Mathematics Education
Booth 828
Philadelphia, Pennsylvania
The purpose of Women and Mathematics Education is to encourage and promote equal opportunity and treatment for girls and women to study and have a sustaining academic and career interests 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 and professional development in the area of women and mathematics.

Z-kai Inc.
Booth 215
Shizuoka, Japan
https://zkaibooks.com
Z-kai has provided educational services in Japan since 1931, particularly focused on developing challenging material for top level PreK-12 students. Zoom-Up Workbook that we published in the US also contains a lot of good math problems that helps students develop mathematical thinking skills for success in the future. Visit https://zkaibooks.com.

Zearn
Booth 224
New York, New York
www.zearn.org
Zearn is a nonprofit curriculum publisher on a mission to ensure all children love learning math. Zearn publishes Zearn Math, a top-rated K-5 (and soon to also be 6-8) curriculum that unites hands-on teaching and digital learning to support teachers in making math accessible and engaging for all students. Zearn also offers Intervention, PD, and Implementation tools to support district- and school-wide learning.
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Note: PD time earned should be the time actually spent in sessions and/or workshops.

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TOTAL Professional Development Hours Accrued:

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Ken Krehbiel
Executive Director, NCTM

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