LET’S GET INTO LEARNING!

INTRODUCING...

A NEW Vision for Student Growth

Into Learning™ offers comprehensive, intentional solutions developed to support students in becoming fearless problem solvers.

Visit Booth 233 for an exclusive preview.

HMHC0.COM/INTOLEARNING
The publications and programs of the National Council of Teachers of 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 20191-1502; Telephone (703) 620-9840; Fax (703) 476-2970; E-mail nctm@nctm.org; Web nctm.org

Printed in the U.S.A.
Welcome to Hartford!

Welcome to the NCTM Regional Conference and Exposition in Hartford, Connecticut! We invite you to enjoy all that Hartford has to offer. While at the conference you will have many opportunities to learn and share new ideas designed to improve the mathematics learning of all students. We hope you will meet colleagues, new and old, and leave the conference continuing the conversations you began here in Hartford as you implement innovative ideas in your classrooms, schools, and districts.

The Program Committee has been working very hard to make this an exciting and valuable program for you. You will find more than 200 presentations that address our seven themes:

- Technology and Tools
- Teaching Practices That Promote Learning
- Assessment
- Increasing English Learners’ and Emerging Bilinguals’ Access to Mathematics
- The Intersection of Language and Discourse in the Mathematics Classroom
- Reaching Each and Every Learner: Student Agency, Ownership, and Identity
- Curriculum: Making Connections

We are excited to open our conference on Thursday night with a keynote presentation from Grace Kelemanik and Amy Lucenta, who will share instructional resources to meet the needs of all students based upon their groundbreaking book *Routines for Reasoning*.

While you are in Hartford, we hope you find time to enjoy this great capital city. Hartford is home to the Mark Twain House and Museum, an 1874 mansion that contains thousands of artifacts, including the desk at which Twain wrote his best-known works. The Harriet Beecher Stowe Center includes the author’s Victorian house and many period furnishings, plus a garden. The broad collection of the Wadsworth Atheneum Museum of Art includes Renaissance and Impressionist works.

On behalf of the Program Committee, the NCTM staff, the Volunteer Committee, and the many volunteers from the Associated Teachers of Mathematics in Connecticut (your conference co-hosts, who have worked numerous hours to bring this meeting to fruition), we hope you enjoy this Regional Conference & Exposition!

Lyn Channey  
Volunteer Committee Chair  
ATOMIC Board Member

Kyndall Brown  
Program Committee Chair  
California Math Project

Lyn Channey  
Volunteer Committee Chair  
ATOMIC Board Member
Program Information

The NCTM 2018 Regional Conference & Exposition officially begins on Thursday with the Opening Session at 5:30 p.m. Presentations on Friday and Saturday begin at 8:00 a.m. and are scheduled concurrently throughout the day.

We have made every attempt to provide adequate seating for attendees. The room capacity for each presentation is listed on all meeting room signs. For your safety and due to fire regulations, only those with seats will be allowed to stay in meeting rooms.

Please remember:

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

New and Preservice Teachers Workshop

Wondering how to manage your classroom, work with parents, find engaging lessons, and handle homework—all while keeping your sanity? You’re not alone! A must for every new teacher, this interactive workshop is your chance to ask questions on topics of your choice. Plus, you will connect with other new and early-career teachers. If you are in the first five years of teaching or are seeking certification, come get resources, materials, and fun prizes to encourage you and give you insight along your journey.

Friday
10:45 a.m.–12:00 p.m.
Meeting Room 16

Saturday
8:00 a.m.–9:15 a.m.
Meeting Room 16

Overview & Orientation

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

Friday and Saturday
7:15 a.m.–7:45 a.m.
Meeting Room 21 & 22

Types of Presentations

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

Sessions (60 minutes) represent a common format where the speaker relates his or her ideas to an audience. Rooms are either theater style or classroom style and vary in size.

Workshops (75 minutes) are rooms set with round tables for hands-on work.

Bursts (30 minutes) are presentations that focus on a specific topic or idea. Rooms are set with round tables. The goal is information sharing, conveyed quickly and succinctly.

Exhibitor Workshops (60 minutes) are opportunities for exhibitors to showcase their products and services away from the Exhibit Hall. Look for the symbol indicating exhibitor workshops in the program book.

Grade Bands

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

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

Program Updates

Visit nctm.org/Hartford for program updates including all the latest changes, cancellations, and additions. You can also follow along with the conference app to view event alerts and up-to-the-minute information.
Focus Strands

TECHNOLOGY AND TOOLS

Presentations in this strand will emphasize ways in which tools and technology enhance meaningful instructional experiences. Sessions in this strand introduce ways to engage students in creating, comparing, conjecturing, generalizing, and reasoning in mathematics. This strand will highlight opportunities for the use of technology and appropriate tools to support students’ increased discourse, strategic thinking, and engagement with important mathematical ideas.

TEACHING PRACTICES THAT PROMOTE LEARNING

Presentations in this strand will explore research-informed instructional strategies that foster student engagement, reasoning and sense making, and discourse around mathematical ideas. Presentations highlight teaching practices that engage each and every learner both individually and collaboratively in rigorous mathematics. Presentations reinforce effective ways to leverage professional collaborations promoting growth and shared accountability for student learning.

ASSESSMENT

The word “assessment” comes from the Latin word meaning “to sit by” which provides the image of educators sitting beside their students listening to their ideas. Presentations in this strand focus on assessment practices that provide and make use of evidence of student learning. Presentations demonstrate ways in which teachers use data to inform the design of future learning experiences based on evidence from a variety of sources.

INCREASING ENGLISH LEARNERS’ AND EMERGING BILINGUALS’ ACCESS TO MATHEMATICS

Mathematical understandings and language competence develop interdependently. Presentations in this strand focus on instructional strategies that build on the valuable knowledge English learners bring to the classroom to promote meaningful mathematical engagement while developing language skills. The approaches shared in this strand support mathematical and linguistic sense making, focus on receptive and productive language functions, and support constructive mathematical conversation.

THE INTERSECTION OF LANGUAGE AND DISCOURSE IN THE MATHEMATICS CLASSROOM

The sessions in this strand raise teachers’ awareness about language, provide teachers with ways to talk explicitly about language, and model ways to respond to students. Presentations will highlight ways to effectively build on students’ everyday language as well as develop their academic mathematical language. These sessions show how to provide opportunities for interaction, scaffolding, and other supports for learning academic mathematical language. Also, they illustrate how to make judgments about defining terms, use informal language in mathematics classrooms, and decide when imprecise or ambiguous language might be pedagogically preferable.

REACHING EACH AND EVERY LEARNER: STUDENT AGENCY, OWNERSHIP, AND IDENTITY

Each and every student deserves to be mathematically empowered. Negative stereotypes limit perceptions of who can be successful in learning mathematics. Students should have the opportunity to engage in mathematics in ways that develop their agency (the capacity and willingness to engage academically), foster ownership over the content, and encourage them to see themselves as doers of mathematics. Presentations in this strand focus on attending to agency and identity to promote positive student identities as sense makers, problem solvers, and creators of ideas and to create more inclusive mathematics communities for students who have been historically marginalized.

CURRICULUM: MAKING CONNECTIONS

Curriculum should reflect inherent connections to students’ prior knowledge, personal experiences, previous mathematics learning, and other content areas. Presentations in this strand prioritize curricular materials that support teaching mathematics for sense making, develop greater understanding, and engage students in learning through the mathematical practices. Purposeful connections are highlighted and explicitly demonstrated in ways that mathematical concepts and practices are discussed and explored in further depth within and across grade bands.

Visit NCTM Central—connect with peers in the Networking Lounge, renew your membership, and shop the latest titles at the Bookstore.
Insightful Education Sessions, Dynamic Exhibits

NCTM Regional Conferences & Expositions are an opportunity to share knowledge and learn with leaders in mathematics education. Gain new strategies to unleash the mathematical mind of each and every student.

- Improve your knowledge and skills with high-quality professional development and hands-on activities
- Connect and share with peers from throughout the region
- Collect free activities to engage and excite your students
- Explore an exhibit hall packed with exciting learning and giveaways
- Learn from education leaders and test the latest educational resources

What you’ll walk away with:

- Innovative ideas you can immediately use
- Updates on classroom best practices from recognized innovators
- In-depth discussions about the latest education resources
- Knowledge-sharing with like-minded peers
- Interaction with the latest tools and products in the Exhibit Hall

Tips for a Rewarding Regional Conference & Exposition

- Get available speaker handouts at nctm.org/planHartford.
- Keep the conversations going, connect with other attendees and speakers, access and share session resources, ask questions, and more in the MyNCTM online community at my.nctm.org/Hartford18.
- If you’re experiencing the conference with your colleagues, attend different presentations and share your learnings with one another after the conference.
- Silence your cell phone during presentations.
- Be safe! Remove your name badge when you leave the conference facilities.

Registration and Access to Presentations

You must wear your badge to attend all presentations and to enter the NCTM Exhibit Hall. Please be aware that the fee for a replacement badge is $10 and you will need to present a photo ID.

By registering and attending an NCTM conference, meeting, or other activity, participants grant NCTM the right to use their likeness or voice as recorded on, or transferred to, video, social media, photographs, websites, electronic reproductions, audio files, and/or other media of such events and activities.

For Your Child’s Safety

Due to the size and 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.

Information Booth

The Information Booth will be in the Connecticut Convention Center. Staff can answer your questions about Hartford and assist you with directions and local information, from transportation and historical sites to shopping and entertainment. In addition, you may retrieve or turn in lost-and-found items at the Information Booth. Unclaimed items will be turned over to Connecticut Convention Center Security.

First-Aid Station

There will be a first-aid station at the Connecticut Convention Center during the conference. If you need medical services while in Hartford, please check with the hotel concierge for the closest medical facilities. For any medical emergency, call 911 without hesitation.

Presentation Handouts

Attendees can access available electronic presentation handouts through the conference app and online planner.

Exhibits

Make time to visit the Exhibit Hall. The hours allow ample opportunity to explore, test, and purchase resources for your classroom. You’ll also be able to meet product specialists, get fresh ideas, and watch demonstrations on how products will help you in your classroom. We’ve provided dedicated time to visit the exhibits; no presentations will take place from 12:00 p.m. to 1:30 p.m. on Friday and Saturday. Check out the map of the Exhibit Hall on page 66 and the list of exhibitors on pages 67–69.

Exhibitor Workshops

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

Start planning early and stay connected throughout the event with the NCTM mobile app. Whether you have an iPhone, iPad, Android, or tablet, the app is your onsite sidekick! Get the app and select your event to access these features and more.

- **Notifications**—View event alerts and up-to-the-minute information
- **Schedule**—Search sessions and speakers, create your own itinerary, download handouts, take notes, and make personal appointments
- **Timeline**—View and swap ideas, photos, and lessons with other attendees
- **Exhibitors**—Search, filter, take notes, and contact and mark exhibitors to visit
- **Directory**—Create your own profile and search for and message other attendees
- **Local Weather**—Get the forecast and current weather for the event city
- **Maps**—View floor plans and maps
- **Twitter**—Follow all the activity in the event stream

Visit [nctm.org/confapp](http://nctm.org/confapp) for more information.

Online Conference Planner

The Online Conference Planner is a great way for you to search the conference program book, set up your personal schedule, and download available presentation handouts. The Online Conference Planner is continually updated with the latest presentation changes and information. Visit [nctm.org/planHartford](http://nctm.org/planHartford) to check it out.

Wi-Fi

There will be complimentary wi-fi for NCTM Regional Conference & Exposition attendees.

Username: NCTM
Password: NCTM2018

Bookstore

Browse the NCTM Bookstore and save **25% off the list price** on all purchases! View firsthand all the publications that NCTM has to offer. You will also find a variety of specialty products that you can use as gifts, prizes, and incentives to spread the word about the importance of mathematics. Start your wish list today by previewing NCTM’s wealth of resources at [nctm.org/store](http://nctm.org/store).

The Bookstore is not equipped to handle shipping; the business center can assist you with your shipping needs.

*Note on sales tax exemptions: To be considered exempt from sales tax in the NCTM Bookstore, you must provide a copy of an Connecticut tax exemption certificate at the time of purchase.*

NCTM Central

Make your meeting experience complete with a visit to NCTM Central in the Exhibit Hall during exhibit hours.

**Thursday** 4:00 p.m.–6:00 p.m.
**Friday** 9:00 a.m.–5:00 p.m.
**Saturday** 9:00 a.m.–2:00 p.m

Learn how NCTM supports you and the field of mathematics education:

- Get free take-home activities, sample journals, and more at Member Services. Take the opportunity to update your membership information and learn about your benefits.
- Discover available funding and resources to support you in your career and professional development through the Mathematics Education Trust (MET).
- Check out Classroom Resources and learn about NCTM’s collection of lesson plans, problems, and more.
- The Networking Lounge is a prime location to meet up with colleagues between presentations! Whether you want to make connections with fellow conference goers, exchange teaching tips, or catch up with friends, you’ll find a comfortable spot in the Networking Lounge. Relax and Recharge—make use of charging stations while you reflect with colleagues.
- Learn about NCTM’s Professional Development offerings. Information will be available about NCTM’s new Professional Learning Services and upcoming Regional Conferences and Annual Meetings.

Learning Lounge

The Learning Lounge, located in Exhibit Hall B of the Connecticut Convention Center, includes three areas designed to provide new and unique learning experiences.

**Infinity Bar:** Experts will be available to talk to individuals or groups of teachers about issues related to mathematics education. You will be able to sign up in advance to speak to an expert at a designated time.

**Math Circles:** Teachers get a chance to work on rich mathematics problems together, allowing them to enrich their own mathematical knowledge.

**Book Talks:** Participate in interactive and highly engaging discussions around popular publications.
HIGHLIGHTS
Opening Session: Making Equitable Practices Routine, 1

GET SOCIAL
Stay informed and get connected with attendees by using #NCTMregionals on social media.

Conference App
nctm.org/confapp

Twitter
@NCTM

Instagram
@NCTM.math

Facebook
facebook.com/TeachersofMathematics

REGISTRATION HOURS
3:00 p.m.–7:00 p.m.

EXHIBIT & NCTM CENTRAL HOURS
4:00 p.m.–6:00 p.m.

FIRE CODES
We have made every attempt to provide adequate seating for participants at the conference, but for your safety and because of fire regulations, only those with seats will be allowed in meeting rooms. To comply with fire codes, we will have to ask persons sitting on the floor or standing to leave the room.
1

Opening Session: Making Equitable Practices Routine

General Interest Session

Students face a constantly changing, data-drenched world, filled with fake news and powerful technologies. Learning concepts and skills will not suffice, and leaving students behind is not an option. Every student needs to develop mathematical thinking and reasoning. This can only happen when students are talking together to make sense of important mathematics and each and every student is contributing to the conversation. So, how do we ensure that all students develop as mathematical thinkers and communicators? Leverage the predictable nature and uniform design of instructional routines to support students and teachers alike.

Grace Kelemanik
Twitter: @GraceKelemanik
Fostering Math Practices, Natick, Massachusetts

Amy Lucenta
Twitter: @amylucenta
Fostering Math Practices, Natick, Massachusetts

Thursday
5:30 P.M.–7:00 P.M.

Ballroom ABC, Connecticut Convention Center

CPM EDUCATIONAL PROGRAM

Empowering mathematics students and teachers for 28 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 Regional Conference in Hartford. Stop by booth #412 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
GET SOCIAL
Stay informed and get connected with attendees by using #NCTMregionals on social media.

Conference App
nctm.org/confapp
Twitter
@NCTM
Instagram
@NCTM.math
Facebook
facebook.com/TeachersofMathematics

HIGHLIGHTS
Regional Conference Overview & Orientation, 2
Content, Language, Agency, and Identity—All Essential for Learning Mathematics, 3
Number Talks: Moving beyond Telling, 4
The Big Picture!, 5
Opening a Window into Mathematically Powerful Classrooms—Making Student Thinking Visible, 5.1
Going beyond Groupwork: Teaching Students to Be Mathematical Colleagues, 18
Catalyzing Change in High School Mathematics: Initiating Critical Conversations, 22
New and Preservice Teachers Workshop, 30
President’s Address: Catalyzing Change: Identity, Agency, Positionality, and Equitable Instructional Practices, 39
Mathematics in the Crosshairs of Social Change, 48
Making Meaning for Addition and Subtraction—More Than Just “Add to” and “Take Away,” 57
Accessing and Assessing Emerging Bilinguals’ Mathematical Knowledge, 63
Instructional Strategies and Practices to Strengthen Problem Solving, 85

REGISTRATION HOURS
7:00 a.m.–3:00 p.m.

EXHIBIT & NCTM CENTRAL HOURS
9:00 a.m.–5:00 p.m.

FIRE CODES
We have made every attempt to provide adequate seating for participants at the conference, but for your safety and because of fire regulations, only those with seats will be allowed in meeting rooms. To comply with fire codes, we will have to ask persons sitting on the floor or standing to leave the room.
7:15 A.M.–7:45 A.M.

2 Regional Conference Overview & Orientation
General Interest Session
Whether you are new to NCTM or a seasoned veteran, every conference has something new for everyone! Hosted by members of the Board of Directors, this session will help you to maximize your overall conference experience. Learn what’s new or discover something you’ve missed in the past, find out how to navigate presentations, use the Conference App, and network with other attendees. Meet other first-time attendees and join up with conference mentors who share your particular interests!

Gina Kilday
Board of Directors, National Council of Teachers of Mathematics, Reston, Virginia; Metcalf Elementary School, Exeter, Rhode Island
Meeting Room 21 & 22, Connecticut Convention Center

8:00 A.M.–9:15 A.M.

Rotating Keynotes
Choose any Keynote room. Presenters will rotate through the three rooms.

3 Rotating Keynote:
Content, Language, Agency, and Identity—All Essential for Learning Mathematics
General Interest Session
Students need to communicate their own thinking and understand each other’s way of thinking. They bring influences from their homes and cultures. We must reflect on how their multiple identities influence their mathematics learning. In this session, we will discuss how to support students’ communication and their development of a positive mathematical identity.

Harold Asturias
University of California, Berkeley
Ballroom A, Connecticut Convention Center

4 Rotating Keynote:
Number Talks: Moving beyond Telling
General Interest Session
Recent research highlights that the lowest performers in mathematics are students who memorize. How do we shift our teaching practice to move beyond telling and provide opportunities for students to look for and make numerical relationships? Join me as we investigate Number Talks as a change agent to support mathematical reasoning and fluency.

Sherry Parrish
Twitter: @numbertalks
Parrish and Associates, Inc., Birmingham, Alabama
Ballroom B, Connecticut Convention Center

5 Rotating Keynote:
The Big Picture!
General Interest Session
Some teachers and some in the public only see a choice between heavy text contextual questions or “no words—just numbers and letters” math. I think there’s not only an in-between, but a great in-between. Let’s use visuals—whether drawings, photos, or videos—with very little to read and not much oral language either to engage learners and really help them “see” and talk about important math concepts. We will look at a variety of examples covering lots of age/grade levels. Not only will we allow students with language or reading problems to access concept-rich math, but we will also strengthen the critical and creative thinking skills of all learners.

Marian Small
Twitter: marian_small
University of New Brunswick, Fredericton, Canada
Ballroom C, Connecticut Convention Center

Hear what’s new from exhibitors—attend an exhibitor workshop. Look for the symbol throughout the program book.
5.1 Opening a Window into Mathematically Powerful Classrooms—Making Student Thinking Visible
Instructional Leaders Session

PRE-REGISTRATION IS REQUIRED. This workshop will provide school leaders with tools and strategies for establishing a relationship with, and having a social-emotional connection to, their teachers in order to create a safe professional space for learning. By having a common understanding of what a mathematically powerful classroom looks like, both classroom teachers and their instructional leaders can join forces to create and support a coherent learning experience for each and every one of their students where those students become knowledgeable, flexible, and resourceful mathematical thinkers.

Harold Asturias
University of California, Berkeley

9:45 A.M.–5:00 P.M.

6.1 Cold, Warmer, HOT: A Dynamic Digital Lesson Strategy for Precalculus and Calculus
10–12 Burst

Graphs programmed with adaptive “Cold, Warmer, HOT” hints allow students to play hide-and-seek in precalculus and calculus. These dynamic interactive graphs, created with Desmos, purposefully guide students as they explore concepts, make conjectures, and build intuition. Many graphs will be shared. Stop in to check it out—you’re getting warmer!

Dave Cesa
Twitter: @davecasa
Charlotte Latin School, North Carolina

7.1 Exploring Mathematics Identity: An Intervention of Early Childhood Preservice Teachers
Research Burst

Explore results from a study that investigated the influence of an intervention on preservice teachers’ math identities during an algebra course to provide insight into the patterns of change in identity and motivation. A framework on promoting identity exploration and role identity was used to design identity-exploration activities for use in math classrooms.

Kayla Heffernan
University of Pittsburgh at Greensburg, Pennsylvania

8.1 EZ Tangrams: Area, Perimeter, and Vocabulary
3–5 Burst

These simple tangrams have only two pieces and are easy to create, yet they can be used to analyze perimeter and area in engaging and enriching ways. Students use these pieces to compose, identify, and name other geometric shapes and then to analyze and compare their perimeters and areas.

Robert Mann
Western Illinois University, Macomb
Anita Reid
Lewistown High School, Illinois

Coaches/Leaders/Teacher Educators Burst

While contemporary standards aim to keep the “content” current and relevant, we also need to remain true to the “intent” of those standards by honestly addressing the way we teach the math. This session will draw from studies, and from what we know works in English-speaking countries that outperform the U.S., to rationalize a change for good!

James Burnett
Twitter: @jamesburnett69
ORIGO Education, Brendale, Queensland, Australia

Meeting Room 24, Connecticut Convention Center
10  
**Modeling Student Academic Practices and Performance in STEM and Non-STEM Freshman Math Courses**

Higher Education Burst

The Math Foundations Program at Eastern Connecticut State University seeks to increase the number of students who successfully complete their first year of college through coordinating course content, homework, and student support services. We present a real-world analytics investigation to model student academic practices and performance in these courses.

Kim Ward  
Eastern Connecticut State University, Willimantic

Chantal Larose  
Eastern Connecticut State University, Willimantic

Meeting Room 14, Connecticut Convention Center

11  
**Taking Pi Day a Slice Further**

3–5 Burst

Come find out how to incorporate Pi across your day in different ways. Not only to enjoy pie but also to help your students better understand how to use Pi. Lessons will include pie recipes, working with circles, memorizing Pi, and looking for patterns (or lack of patterns). These include hands-on activities and exploration with technology.

Abbye Cornfield  
Twitter: @abbyesita
Perelman Jewish Day School, Wynnewood, Pennsylvania

Mindy Civan  
Perelman Jewish Day School, Wynnewood, Pennsylvania

Marriott Ballroom A, Marriott Hartford

12  
**The Financial Life Cycle: Using Math to Teach Financial Understanding**

10–12 Burst

Do you want to incorporate personal finance in your math lessons, but don’t know where to start? This session shows how you can create a coherent high school math elective that covers the central precepts of personal finance. It is based on the Nobel Prize–winning Life Cycle Hypothesis.

Andrew Davidson  
FiCycle, New York, New York

Jack Marley-Payne  
FiCycle, New York, New York

Meeting Room 21 & 22, Connecticut Convention Center

13  
**Using a Dynamic Scatterplot Tool for Interdisciplinary Explorations**

General Interest Burst

Gapminder is a free online dynamic scatterplot tool that allows students to observe patterns over time between different variables for over 200 countries. Students look for data trends that they would like to study further, and they conduct research regarding the historical, environmental, or cultural explanations for the trends they observe.

James O’Keefe  
Lesley University, Cambridge, Massachusetts

Meeting Room 27, Connecticut Convention Center

14  
**Using Student Voice to Justify More Deeply**

8–10 Burst

Are you having difficulty getting all your students to justify their reasoning? Me too! After using improvement science to test my ideas of how to get all students to justify more deeply, I have a few strategies that may help. Using a partner talk protocol, you can get all students to justify more deeply and to critique the work of others.

Heather Vonada  
Woodstock Union High School, Vermont

Meeting Room 11 & 12, Connecticut Convention Center
9:45 A.M.–10:45 A.M.

15 **PRAC**
Add a Dash of Differentiation to Engage Your Mathematicians
3–5 Session
Have your students think like mathematicians! Come hear a brief overview of differentiation, and add strategies to your teacher toolbox to help increase student engagement and address the various readiness levels of your students. Discover ways to vary instruction to help your students make sense of math through whole-group and small-group instruction.

Pamela Gruzynski
Bloomingdale District 13, Illinois

Ballroom A, Connecticut Convention Center

16 **REACH**
Better Math Students through Non-Routine Problems
6–8 Session
Participants will receive a packet of several challenging problems that have proven effective at winning student interest, developing persistence, and encouraging creativity. They will learn from the experiences of one school about how to best introduce these problems to students and about the research that supports this teaching practice.

Hoyun Cho
Capital University, Columbus, Ohio
Gary Lawrence
Mustard Seed School, Hoboken, New Jersey

Marriott Ballroom B, Marriott Hartford

17 **ASSESS**
Get Smarter and Take the (New) SAT! aka When Will You Take the New SAT—October, March, or May?
10–12 Session
Taking the SAT can help you to relive studying and test taking, fill gaps in your education, and relate better to students’ experiences. Studying helps students learn content to complete high school and avoid remediation.

Robin Schwartz
Twitter: @mathconfidence
College of Mount Saint Vincent/Math Confidence, Bronx, New York

Meeting Room 17, Connecticut Convention Center

18 **PRAC**
Going beyond Groupwork: Teaching Students to Be Mathematical Colleagues
General Interest Session
Mathematicians often work together, seeking colleagues when they need to think aloud, gather new ideas, argue productively, and receive constructive feedback. Let’s model classroom collaborations on these genuine mathematical interactions. We’ll analyze rich classroom examples where teachers equip students to be good mathematical colleagues.

Tracy Zager
Twitter: @tracyzager
Portland Public Schools, Maine

Ballroom C, Connecticut Convention Center

19 **PRAC**
Implementation of Guided Math and Professional Learning Communities in K–5
Coaches/Leaders/Teacher Educators Session
Learn about the process used to implement guided math and professional learning communities to increase student achievement. You will hear about our journey from an administrator’s and a math coach’s point of view. We will share resources we used, the rollout timeline, data to support this model, and reflections from staff and students.

Georgina Rivera
Twitter: @mathcoachrivera
Greene Hills School, Bristol, Connecticut
Scott Gaudet
Greene Hills School, Bristol, Connecticut

Meeting Room 26, Connecticut Convention Center

Membership questions?
We’ve got answers! Visit Member Services in NCTM Central.
NCTM has designed a series of workshops to help you incorporate the best instructional practices into your mathematics teaching. The workshops are based on extensive research about student learning outcomes. These workshops come to you and can be customized to address the needs of your school or district.

**Current Workshops:**
- Facilitating Meaningful Mathematical Discourse (Pre-K–Grade 12)
- Supporting Students’ Productive Struggle (Pre-K–Grade 12)
- Algebra Readiness for All Students (Grades 6–8)
- Making Mathematics Accessible (Grades 4–8)

**Coming Soon:** Professional development around the publications Catalyzing Change and 5 Practices for Orchestrating Productive Mathematics Discussions

**Optional Add-Ons:**
- Membership
- Customized webinars
- Bulk publications
- MyNCTM
- Book study

Visit nctm.org/professionalservices to start building your community of practice.
20  TOOLS
Interactive Tools for Learning R: Preparation for Statistics Projects
Higher Education Session
Tools that are being developed to support collaboration among data scientists can be an important addition to the statistics classroom. Jupyter Notebooks support students’ learning R, a statistical programming language, while they apply statistical techniques to tease out information from data. Students can progress to statistics projects using RStudio.

Marsha Davis
Eastern Connecticut State University, Willimantic
Pete Johnson
Eastern Connecticut State University, Willimantic
Meeting Room 25, Connecticut Convention Center

21  PRAC
Math Games: No Seriously . . . These Are Games—with Winners and Learners
6–8 Session
Connecting the eight Math Practices to learning through playing games is the object and design of this session. These teacher-created games are made to be used in a large classroom setting that will provide all students with a fun and creative way to review and reinforce math concepts previously taught. Each game focuses on one of the Math Practices.

Susan Chadaz
Box Elder School District, Tremonton, Utah
Meeting Room 15, Connecticut Convention Center

22  REACH
Catalyzing Change in High School Mathematics: Initiating Critical Conversations
General Interest Session
Catalyzing Change in High School Mathematics: Initiating Critical Conversations identifies and addresses critical challenges in high school mathematics to ensure that each and every student has the mathematical experiences necessary for his or her future personal and professional success. This session provides an overview of Catalyzing Change and initiates critical conversations centering on the following serious challenges: explicitly broadening the purposes for teaching high school mathematics beyond a focus on college and career readiness; dismantling structural obstacles that stand in the way of mathematics working for each and every student; implementing equitable instructional practices; identifying Essential Concepts that all high school students should learn and understand at a deep level; and organizing the high school curriculum around these Essential Concepts in order to support students’ future personal and professional goals. Catalyzing Change is written to engage all individuals with a stake in high school mathematics in the serious conversations that must take place to bring about and give support to necessary changes in high school mathematics.

Robert Q. Berry III
President, National Council of Teachers of Mathematics, Reston, Virginia; University of Virginia, Charlottesville
Ballroom B, Connecticut Convention Center

23  REACH
The Power of Ideas
Pre-K–2 Session
Do your students believe that they have important mathematical ideas? Do they believe that mathematics makes sense and is about more than answers? We’ll explore routines and strategies for eliciting, valuing, and leveraging students’ ideas in the pre-K–2 classroom (and beyond!), and we’ll discuss why monitoring for sense making is your most important job.

Annie Fetter
Twitter: @MFAnnie
Consultant, Rutledge, Pennsylvania
Marriott Ballroom C, Marriott Hartford
24 CURRIC
What’s Going On in This Graph? Free, Online Discussion of New York Times Graphs with Moderation
10–12 Session
Build “graph” literacy in grades 7–12 in math, science, and humanities with the free, online “What’s Going On in This Graph?” tool. The New York Times, in partnership with the American Statistical Association, offers a timely graph and asks “What do you notice?”, “What do you wonder?”, and “What’s up?” Students reply online and teachers moderate. Stat Nuggets are used to explain statistics.

Sharon Hessney
Mass Insight Education, Boston, Massachusetts

Marriott Ballroom D, Marriott Hartford

24.1 EW CURRIC
Using Financial Algebra to Help Your Students in a 3rd/4th Year Advanced Algebra Course
10–12 Exhibitor Workshop
Hear the authors Rob Gerver and Rich Sgroi speak about the new 2nd Edition of Financial Algebra. Topics from algebra 2, trig, stats, precalculus, probability, and geometry are used to explore banking, credit, taxes, investing, mortgages, budgeting, and more, all with only an algebra 1 prerequisite.

National Geographic Learning / Cengage Learning
Boston, Massachusetts

Meeting Room 23, Connecticut Convention Center

24.2 EW TOOLS
What Happens When Adaptive Learning Meets Interactive Storytelling? Students Conquer FRACTIONS!
3–5 Exhibitor Workshop
See how to finally close the fractions gap with Amplify Fractions! Quirky stories provide instruction with purpose AND humor, adapting to individual student need via a patented digital tutor. With unlimited practice, teachers confirm it: Amplify Fractions keeps students “super-engaged” and takes their fractions understanding to the next level!

Amplify Education
Brooklyn, New York

Meeting Room 13, Connecticut Convention Center

25 CURRIC
A Clear Vision for Utilizing Number Lines
Pre-K–2 Workshop
Research shows a strong relationship between students’ understanding of number lines and math achievement. In this interactive session for K–5 educators, participants will explore the progression from number tracks to number lines and engage in games and activities to improve understanding of relative position, magnitude, and operations.

Debi DePaul
Twitter: @debi_depaull
ORIGO Education, Gig Harbor, Washington

Marriott Ballroom A, Marriott Hartford

26 CURRIC
A Likely (or Unlikely?) Story
6–8 Workshop
Stories invite students into journeys of learning at any age. Our story involves candies and combinations, and pennies, pizza, and polynomials, connecting six years of math and science (and a bit of dance, art, and history). Each year, students are eager to find out what happens next, learning that they CAN find out (sort of) by using probability.

Ralph Pantozzi
Twitter: @mathillustrated
Kent Place School, Summit, New Jersey

Marriott Ballroom E, Marriott Hartford
10:45 A.M.–12:00 P.M.

27  **TOOLS**  
**Geometry Explorations: From Drawings to Constructions, Discovery at Your Fingertips**  
6–8 Workshop  
Experience the power of exploring geometry concepts hands-on, starting from simple drawings of geometric objects and going right into manipulating their attributes, testing conjectures, and developing geometric properties. Participants will participate in a hands-on workshop working with technology and geometric problem-solving activities.  
Karen Greenhaus  
Twitter: @vpigreenie  
Drexel University, Philadelphia, Pennsylvania  
Meeting Room 27, Connecticut Convention Center

28  **PRAC**  
**Innovate to Learn. Collaborate to Learn. Learn to Learn.**  
Pre-K–2 Workshop  
Mathematics is FUNdamental to learning! Join us in the Hands On, Minds On workshop incorporating the Mathematical Practices at the primary level.  
Elizabeth Erickson  
Kearsarge Regional School District (retired), New London, New Hampshire  
Meeting Room 24, Connecticut Convention Center

29  **PRAC**  
**Mathematical Thinkers Are Problem Solvers: An Activity Complete with Students**  
3–5 Workshop  
Problem-solving strategies will be presented with examples of how they can be introduced within a classroom. The session will also include examples of how classroom lessons involving numeration and geometry can be enhanced by utilizing these strategies. An elementary or middle school student (or perhaps two) will join you at each of the tables.  
Brian Schad  
Ann Arbor Public Schools (retired), Chelsea, Michigan  
Joan Fox  
King’s Academy, Madaba-Manja, Jordan  
Joe Georgeson  
University School of Milwaukee (retired), Wisconsin  
Meeting Room 14, Connecticut Convention Center

30  **PRAC**  
**New and Preservice Teachers Workshop**  
Workshop  
Find answers to your questions on topics such as classroom management, parents, motivation, and keeping your sanity. Connect with other new teachers, learn from experienced professionals, and find resources to engage you and your students. You might even win a prize!  
David Barnes  
National Council of Teachers of Mathematics, Reston, Virginia  
Meeting Room 16, Connecticut Convention Center

Gain more from your conference experience—continue the conversation in the NCTM app! Learn more at nctm.org/confapp.
10:45 A.M.–12:00 P.M.

31 **PRAC**
Purposeful, Productive, and Powerful Discourse
8–10 Workshop
We focus on a subset of the Effective Mathematics Teaching Practices related to tasks, problem solving, and meaningful mathematical discourse through the exploration of two cases of mathematics teaching. Particular research-based moves for facilitating rich discourse as well as the kinds of tasks that foster meaningful discourse will be considered.

Michelle Cirillo
Twitter: UDmichy
University of Delaware, Newark
Beth Herbel-Eisenmann
Michigan State University, East Lansing
Jillian Cavanna
University of Connecticut, Storrs

Meeting Room 11 & 12, Connecticut Convention Center

33 **LANG**
You’re Write, Math Is a Language Too!
3–5 Workshop
Calling all teachers who realize the value of discourse! You may have noticed the benefit of having students use mathematical language when talking, but what about with writing? Come learn the connection between mathematical talk and writing and discuss what uniquely can be conveyed in writing. Walk away with strategies to use with your students.

Tutita Casa
University of Connecticut, Storrs
Madelyn Colonnese
University of North Carolina at Charlotte

Marriott Capital Room 1 & 2, Marriott Hartford

11:15 A.M.–12:15 P.M.

34 **TOOLS**
A Dynamic Approach to Precalculus Using GeoGebra
10–12 Session
In this session, participants will use GeoGebra to create and explore dynamic demonstrations of precalculus concepts including the reflective property of a parabola, an animation of the unit circle, transformations of sine and cosine graphs, acoustic beats and more. Be sure to bring a GeoGebra enabled device.

Joseph Manthey
University of Saint Joseph, West Hartford, Connecticut

Meeting Room 26, Connecticut Convention Center

35 **CURRIC**
Fraction Challenges for Your Classroom and Beyond
8–10 Session
Explore advanced fractions-related concepts that make for great lessons and projects in middle school and high school. Learn about alternative notations for rational numbers, operations, geometric series, countability, fractals, and more! You are guaranteed to see fractions in new and exciting ways that you can bring back to the classroom.

Zachary Wissner-Gross
Twitter: xaqwg
Amplify Education, Brookline, Massachusetts

Marriott Ballroom B, Marriott Hartford

Stop by NCTM Central to ask questions and learn about the new NCTM journal!
11:15 A.M.–12:15 P.M.

36 **ASSESS**
**Identification to Implementation: Effective Interventions in the Elementary Mathematics Classroom**

*Coaches/Leaders/Teacher Educators Session*

Do you have students who struggle with math in your classroom? Of course you do—it’s not hard to spot them! The challenge is deciding on the best course of action to help them, and then monitoring their progress once you do. Come find out how we are using data-based individualization (DBI) to make this happen in our work with Rhode Island elementary schools.

Melinda Griffin  
American Institutes for Research, Waltham, Massachusetts  
Christopher Castilierro  
Rhode Island Department of Education, Providence  
Cara Banspach  
Washington Oak Elementary School, Coventry, Rhode Island  

**Meeting Room 25, Connecticut Convention Center**

37 **ESL**
**Leverage the Connecting Representations Routine to Foster Structural Thinking in English Learners**

*6–8 Session*

Math makes sense when structural connections are clear, and thinking and language are developed interdependently. Experience and unpack an instructional routine that leverages multiple representations to make structural connections clear to ALL, with specific designs to support English learners and emerging bilinguals. Leave ready to support ALL learners!

Amy Lucenta  
Twitter: @amylucenta  
Fostering Math Practices, Natick, Massachusetts  
Grace Kelemanik  
Fostering Math Practices, Natick, Massachusetts  

**Ballroom C, Connecticut Convention Center**

38 **REACH**
**Make Room for Math Talk: Instructional Design and Tech Tools to Promote Mathematical Discourse**

*6–8 Session*

Mathematical discourse is key to student comprehension of math. Providing every student access to quality grade-level instruction is achievable with meticulous instructional design and the use of technology integration. Gain back instructional time, and foster a learning community of articulate, creative, and accountable mathematicians!

Angela Boratko  
Twitter: @msboratko  
R.J. Kinsella Magnet School, Hartford, Connecticut  
Briana Bernabucci  
Hartford Public Schools, Connecticut  

**Ballroom A, Connecticut Convention Center**

39 **ESL**
**President’s Address: Catalyzing Change: Identity, Agency, Positionality, and Equitable Instructional Practices**

*General Interest Session*

This session makes connections between equitable instructional practices and identity, agency, and positionality. Specifically, the session uses a vignette to examine how high cognitively demanding tasks provide opportunities to engage learners in meaningful discourse positioning learners as mathematically competent. The session uses the mathematical discourse community as a framework for connecting mathematical norms of discourse to identity and agency. While this session highlights Catalyzing Change in High School Mathematics, the discussions of teaching practices that cultivate identity, agency, and positionality are appropriate for all educators.

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

**Ballroom B, Connecticut Convention Center**
11:15 A.M.–12:15 P.M.

40 ASSESS
**Single-Digit Computation: Targeted Teaching and Effective Activities Lead to Student Mastery**

**Pre-K–2 Session**

Students need to be fluent with single-digit computation by the end of second grade, according to CCSSM. How can we scaffold this standard to help our students reach this goal? Participants will examine a kindergarten through second grade progression of benchmarks, activities, and assessments that they can use immediately in class.

Victoria Cohen  
Twitter: @vjcohen18  
W.G. Mallett School, Farmington, Maine

**Meeting Room 17, Connecticut Convention Center**

41 TOOLS
**Stats Trumps Hate: Teaching Statistics through Social Justice**

**10–12 Session**

We will explore how to engage the statistics learners in activities focused on social justice. Learn how to find resources, discuss strategies for having conversations with your students, and discover how to incorporate these ideas of justice into the classroom and curriculum without losing a focus on meeting state standards in statistics.

Megan Schmidt  
Twitter: veganmathbeagle  
University of Minnesota, Minneapolis  
Carl Oliver  
City-As-School High School, New York, New York

**Meeting Room 15, Connecticut Convention Center**

42 REACH
**Strategies for Cultivating Mathematical Thinking in All Learners**

**3–5 Session**

All students need opportunities to think deeply about mathematics, including—and especially—those who struggle with it. Using examples from our classrooms, we will name what mathematicians do in student-friendly language and explore instructional strategies that build agency and empower all students to identify as mathematical thinkers.

Heidi Fessenden  
Twitter: @heidifessenden  
Boston Public Schools, Massachusetts  
Jenna Laib  
Brookline Public Schools, Massachusetts

**Meeting Room 15, Connecticut Convention Center**

43 PRAC
**Take the Number Sense Journey**

**Pre-K–2 Session**

Participants will identify, experience, assess, and reflect the interrelated aspects of early numerical knowledge, the learning trajectory for counting, and the number relationships that will establish a strong foundation for number operations through deep understanding and not memorization.

Lynn Rule  
Twitter: MathRack20  
Math Consultant, Wheaton, Illinois

**Marriott Ballroom C, Marriott Hartford**

43.1 EW TOOLS
**Rate of Change: Algebra to Calculus**

**8–10 Exhibitor Workshop**

What if you could help students see slope not as an equation to memorize, but as a representation of real events? Get out of your seats to model relationships between position and time using hands-on data collection. Learn some surprising things about teaching rate of change from algebra through calculus.

Texas Instruments  
Dallas, Texas

**Meeting Room 23, Connecticut Convention Center**

Download Speaker Handouts!

View sessions in the mobile app or visit nctm.org/planhartford to access available presentation handouts.
**11:15 A.M.–12:15 P.M.**

**43.2  CURRIC**

### How Student Learning Progresses with Coherent Curricula

**General Interest Exhibitor Workshop**

What does a coherent curriculum really feel like? Join Great Minds as we discuss how students and teachers benefit from the expertly crafted learning experiences found in the comprehensive pre-K–12 Eureka Math curriculum. Participants will discover how instruction and student learning progress from number sense, to fractions, to algebra, and beyond.

*Eureka Math by Great Minds*

Washington, D.C.

Meeting Room 13, Connecticut Convention Center

---

**1:30 P.M.–2:30 P.M.**

**44  PRAC**

### Build Conceptual Understanding through Engaging Games

**Pre-K–2 Session**

Does your math center need new games? Experience class activities and games that help students develop understanding of some big concepts in K–2 math. Activities will focus on subitizing, counting, addition and subtraction strategies, and developing fact fluency. Activities and website materials will be available.

*Laurie Boswell*

Big Ideas Math, Franconia, New Hampshire

Ballroom A, Connecticut Convention Center

---

**45  REACH**

### Differentiating Mathematics for Economically Disadvantaged Students: Strategies and Activities

**3–5 Session**

Because a solid understanding of operation sense is essential for developing reasoning and computational skills, economically disadvantaged students often struggle with conceptual learning. This session will focus on how to differentiate mathematics instruction for teaching basic operations explicitly to elementary school students who are at-risk.

*Jennifer Bond*

Ferguson-Florissant School District, St. Louis, Missouri

*Joseph Sencibaugh*

Webster University, St. Louis, Missouri

Meeting Room 15, Connecticut Convention Center

---

**46  REACH**

### Evoking Creativity, Interest, and Discourse in the Math Classroom for ALL Students

**General Interest Session**

This presentation exposes participants to effective instructional strategies that engages ALL students, elicits collaborative mathematical discourse, and self-discovery by using the five interrelated strands of mathematics for mathematical proficiency by using visually rich video math tasks designed to promote discourse and make math connections.

*Darlyne de Haan*

Egg Harbor Township School District, New Jersey

Meeting Room 26, Connecticut Convention Center

---

**47  TOOLS**

### Exploring the Connection between Recursive Sequences and Composition of Functions

**10–12 Session**

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

*David Kapolka*

Consultant, Alto, Michigan

Marriott Ballroom B, Marriott Hartford

---

**48  REACH**

### Mathematics in the Crosshairs of Social Change

**General Interest Session**

Our country is changing. The structure of school and education is constantly changing. Families, society and the needs of students and teachers are constantly changing. Facing the reality of the shift should lead us to being more reflective about our practice as educators, and our beliefs about the teaching and learning of mathematics.

*Brea Ratliff*

Twitter: brea_ratliff

Benjamin Banneker Association, Inc., Heartland, Texas

Ballroom B, Connecticut Convention Center
51 **ASSESS**
Using Performance Tasks to Integrate Mathematical Practices
8–10 Session
In this session we will look at how performance tasks (DOK 3) can be successfully integrated in instruction and assessment, especially to explicitly address the Standards for Mathematical Practice. What is a good task? How is it best used in the classroom with diverse learners? How can tasks be differentiated to address the different learning needs of students?

Cornelis de Groot
University of Rhode Island, Kingston

Meeting Room 25, Connecticut Convention Center

52 **TOOLS**
Using Technology to Increase Conceptual Understanding in Algebra and Geometry
8–10 Session
Many topics in algebra and geometry are difficult to address conceptually and tend to be taught procedurally. We’ll explore tech tools that let students “notice and wonder,” talk about mathematical situations, and develop conceptual understanding of triangle properties, linear equations, systems of equations, and factoring trinomials. BYOD.

Annie Fetter
Twitter: @MFAnnie
Consultant, Rutledge, Pennsylvania

Marriott Ballroom C, Marriott Hartford

53 **REACH**
You Math Like a GIRL!
3–5 Session
Have you ever been asked who your favorite mathematician is? Do you have a favorite mathematician? Do your students? Come to this session to find out what you can do to make sure your students (yes, even girls) see themselves as mathematicians!

Stephanie Diehl
Twitter: @MathDiehls
Upper Perkiomen School District, Hereford, Pennsylvania

Marriott Ballroom D, Marriott Hartford
1:30 P.M.–2:45 P.M.

54 PRAC
Developing a Conceptual Understanding of Early Whole-Number and Place-Value Concepts
Pre-K–2 Workshop
Are you ready to take your instruction to the next level? Explore essential activities that promote number sense. Engage in hands-on, differentiated strategies that can be integrated into whole-class or small-group experiences. Specific attention will be paid to facilitating conversations and providing scaffolds to support learning at all levels.

Courtney Baker
Twitter: @PiBaker18
George Mason University, Fairfax, Virginia

Meeting Room 16, Connecticut Convention Center

55 TOOLS
Doing More with Desmos: Learn How the Desmos Activity Builder Promotes Discussion through Discovery
10–12 Workshop
Come play with Desmos Activity Builder! Learn how to provide opportunities for student discovery and facilitate conversations. Engaging activities help students understand concepts and vocabulary. Use of teacher tools and dashboard will be modeled. Bring your laptop or tablet to participate. All Desmos activities are free.

Jennifer Fairbanks
Twitter: HHSmath
Hopkinton High School, Massachusetts
Heather Kohn
Marlborough High School, Massachusetts

Marriott Capital Room 1 & 2, Marriott Hartford

BIG IDEAS MATH
BY RON LARSON AND LAURIE BOSWELL

Big Ideas Math: Modeling Real Life incorporates the latest in educational research!

- Learning Targets and Success Criteria
- Self-Assessment
- Spaced Practice
- In-Class Problem Solving

Visit us at Booth #129 to learn more!
888-915-3276 • NGL.Cengage.com/BigIdeas

"National Geographic", "National Geographic Society" and the Yellow Border Design are registered trademarks of the National Geographic Society ® Marcas Registradas

Distributed exclusively by National Geographic Learning

ESL Increasing English Learners’ and Emerging Bilinguals’ Access to Mathematics
LANG The Intersection of Language and Discourse in the Mathematics Classroom
REACH Reaching Each and Every Learner: Student Agency, Ownership, and Identity
56 **CURRIC**

**Handling the Foundations of Statistics**

6–8 Workshop

At the foundations of statistics, students must develop rich understanding of measures of center and spread. What does the “mean” really mean? Why find the “standard” deviation and not the “average” deviation? Why so many statistics? And how are they related? We’ll do hands-on activities to explore these questions.

Dan Ross
Maryville College, Tennessee

Marriott Ballroom A, Marriott Hartford

57 **PRAC**

**Making Meaning for Addition and Subtraction—More Than Just “Add to” and “Take Away”**

Pre-K–2 Workshop

What are the various problem types expected in K–2? How do we support students beyond basic problem types? We’ll identify and distinguish between problem types, observe videos of students, and explore strategies to support explicit instruction. Participants will leave with lesson ideas, planning suggestions, and resources for problems of varied types.

Regina Kilday
Twitter: @MathLadyRI
Board of Directors, National Council of Teachers of Mathematics, Reston, Virginia; Exeter-West Greenwich Regional School District, Rhode Island

Meeting Room 21 & 22, Connecticut Convention Center

58 **PRAC**

**Making Space for Argumentation**

8–10 Workshop

The Common Core State Standards suggest students need to “Construct viable arguments and critique the reasoning of others.” Here we share and practice quick classroom routines to engage students in argumentation. We also explore small shifts to open up tasks to include argumentation and reasoning.

Jillian Cavanna
University of Connecticut, Storrs

Catherine Mazzotta
Manchester High School, Connecticut

Belinda Perez
Bulkeley High School, Hartford, Connecticut

Marriott Ballroom E, Marriott Hartford

59 **PRAC**

**Nix the Tricks: Teaching Conceptually for Lasting Learning**

8–10 Workshop

Tired of procedural approaches to instruction that leave your students memorizing steps instead of truly understanding the mathematics? This session will explore opportunities to build deep conceptual understandings within middle and high school students through rich, hands-on activities that encourage exploration and inquiry.

Adam Krupa
East Hartford Public Schools, Connecticut

Meeting Room 24, Connecticut Convention Center

60 **PRAC**

**Rich Tasks + Optimism + Perseverance = Growth Mindset in the Mathematics Classroom**

6–8 Workshop

Do your students have a growth mindset? Participants will learn about the brain science that supports growth mindset as well as taking part in fun and engaging rich tasks that will help them convert their classroom to one that is filled with growth mindsets. Take home activities that you can use next week!

Sandra Miller
Twitter: @sandra5461
Pennridge School District, Doylestown, Pennsylvania

Meeting Room 14, Connecticut Convention Center

61 **LANG**

**Scaffolding Student Language through Attention to Communication Context**

Coaches/Leaders/Teacher Educators Workshop

By considering the ways in which students use language in various “communication contexts,” teachers can notice which students may need more support and set micro- and macro-level goals for helping students develop formal mathematical discourse. We introduce a framework for thinking about how to scaffold students’ facility with math discourse.

Beth Herbel Eisenmann
Twitter: @MathEdBeth
Michigan State University, East Lansing

Michelle Cirillo
University of Delaware, Newark

Meeting Room 27, Connecticut Convention Center
1:30 P.M.–2:45 P.M.

62 Assess
Using Evidence in Elementary Mathematics
3–5 Workshop
This session helps teachers, coaches, and administrators use evidence of understanding. The session is designed to provide insight into how evidence impacts broader performance data. It offers a practical process for shaping daily instruction by merging planning and assessment. Instructional resources for K–2 and 3–5 mathematics will be provided.

John SanGiovanni
Twitter: @JohnSanGiovanni
Howard County Public School System, Ellicott City, Maryland
Meeting Room 11 & 12, Connecticut Convention Center

62.1 Tools
BYOD: Mathspace—Why You’ll Never Grade Math Assignments Again. Seriously
Coaches/Leaders/Teacher Educators Exhibitor Workshop
Meet Mathspace. You’ve seen it all, right? Adaptive learning? Yep. Handwriting recognition? Hmm. Every math question graded line-by-line? Whoa, that’s new! Students can finally show their work and get feedback at every step, all auto-graded for you. Bring your own device to try the award-winning Mathspace live, and ask about a free classroom trial.

Mathspace
New York, New York
Meeting Room 13, Connecticut Convention Center

62.2 Prac
Teaching Math Through Problem Solving Using the Japanese Approach to Collaborative Learning
Pre-K–2 Exhibitor Workshop
Discover how to teach K–grade 2 math using the Japanese approach to collaborative lesson planning. In this workshop, you will learn about the program architecture of Japan Math’s Primary Math International and how it compares and aligns to CCSSM. Understand how teaching less topics but more deeply creates engaged problem solvers.

Japan Math Corp.
Chicago, Illinois
Meeting Room 23, Connecticut Convention Center

3:00 P.M.–4:00 P.M.

63 Assess
Accessing and Assessing Emerging Bilinguals’ Mathematical Knowledge
General Interest Session
Teachers learn strategies to engage emergent bilinguals in mathematics learning. Using examples from grades 3–8, we explore how the language of mathematics influence students’ ability to learn mathematics, and we consider approaches and accommodations that can be used to make math instruction accessible to students.

Gladis Kersaint
Twitter: @gkersaint
University of Connecticut, Storrs
Ballroom B, Connecticut Convention Center

64 Tools
Algebra Task Makeover with Desmos Activity Builder
8–10 Session
Transform your classroom lessons and encourage rich discussion of algebra concepts. I will share best practices for building effective, ongoing math experiences. Whether you’ve used Activity Builder many times, or you’re new to the game, there will be something for everyone!

Robert Lochel
Twitter: @bobloch
Hatboro-Horsham High School, Pennsylvania
Ballroom A, Connecticut Convention Center

65 Prac
Developing Multiplication and Division with Manipulatives
3–5 Session
How can I help my students better understand multiplication and division, rather than trying to memorize a series of steps? See how using manipulatives can help your students better understand these important concepts. Discover why manipulatives are a powerful tool in developing conceptual understanding, which leads to procedural fluency.

Kevin Dykema
Twitter: @kdykema
Mattawan Consolidated Schools, Michigan
Ballroom C, Connecticut Convention Center
3:00 P.M.–4:00 P.M.

66 PRAC  
**Flipping Your Secondary Math Class**  
10–12 Session  
This session will describe ways to implement the flipped learning model into a secondary math classroom. Moving direct instruction to the individual space will provide the time to create a dynamic group space in which the teacher can provide students with engaging tasks that enable them to frequently practice higher-level reasoning and discourse.

Peter Wisniewski  
Villa Joseph Marie High School, Southampton, Pennsylvania  
**Meeting Room 26, Connecticut Convention Center**

67  
**Let’s Apply for Scholarships and Grants! NCTM’s Mathematics Education Trust Funding Opportunities**

General Interest Session  
Join us for an exciting and interactive session. Participants will identify the scholarship or grant that best fits their needs and engage in a mock exercise to apply for it (we’ll give good tips!). The Mathematics Education Trust (MET) supports teachers and preservice teachers with funds for resource, lesson development, conferences, coursework, and action research projects.

M. Alejandra Sorto  
MET Board of Trustees; Texas State University, San Marcos  
**Meeting Room 15, Connecticut Convention Center**

68 PRAC  
**Let’s Give Them Something to Talk About**  
3–5 Session  
Can you hear a pin drop when you ask your students a math question? Learn how to implement the Notice & Wonder protocol to initiate inquiry-based lessons. Discover how to incorporate math congresses into your weekly lessons, as well as Low Floor High Ceiling and 3-Act tasks, in order to increase student engagement and discussion.

Stacey Daly  
Madison Public Schools, Connecticut  
Jennifer Maxwell  
Madison Public Schools, Connecticut  
**Marriott Ballroom B, Marriott Hartford**

69 CURRIC  
**Statistical Literacy: Why Is It Important and What Does It Mean for What We Teach?**  
10–12 Session  
Our students will be consumers of statistical information whatever their future. Let’s look at what we can do to make them critical consumers, as suggested in NCTM’s *Catalyzing Change in High School Mathematics*, who are able to process information, ask the right questions, and make informed decisions. We’ll also explore how technology can help in the process.

Gail Burrill  
Past President, National Council of Teachers of Mathematics, Reston, Virginia; Michigan State University, East Lansing  
**Marriott Ballroom C, Marriott Hartford**

70 PRAC  
**The Teacher’s Role: Facilitating Meaningful Mathematical Discourse**  
6–8 Session  
Join us to focus in on the teacher's role in facilitating meaningful mathematical discourse—one of the eight Teaching Principles in *Principles to Actions* (NCTM 2014). We often hear what teachers should NOT do during discussions. Come and examine what teachers DO do to support discussion. A framework and examples are shared and discussed.

Megan Staples  
University of Connecticut, Storrs  
Sherryl King  
Ellington Public Schools, Connecticut  
**Meeting Room 17, Connecticut Convention Center**
Understanding the Fractions Progression: Making Connections across Grade Levels

3–5 Session

In this session, participants will develop a deep understanding of the progression of fractions in the Common Core State Standards for Mathematics. We will take an in-depth look at connections across grade levels, and we will share a variety of activities and resources to support students’ conceptual understanding of fractions.

Kara Watson
Berlin Public Schools, Connecticut
Debbie Vitale
Bristol Public Schools, Connecticut

Meeting Room 25, Connecticut Convention Center

Writing Strategies, Projects, and Activities That Increase Understanding and Achievement

10–12 Session

Seven levels of note-taking projects, field-tested and revised over the past 30+ years, will be presented, along with dozens of writing and oral expression activities and strategies. Student sample work will be shown, along with student oral presentations on their work. A worthwhile, rich enhancement to every math class in grades 7–12.

Robert Gerver
North Shore Schools (retired), Kings Park, New York

Marriott Ballroom D, Marriott Hartford

MEET YOUR CANDIDATES FOR THE
NCTM 2018 Board of Directors Election

The Nominations and Elections Committee is pleased to announce the candidates for this year’s election:

Candidates for President-Elect (one will be elected)
John Carter, New Trier High School, Highland Park, IL
Trena Wilkerson, Baylor University, Waco, TX

Candidates for Director, Middle School Level (one will be elected)
Travis Lemon, American Fork Junior High, Lehi, UT
Jennifer Outzs, Seminole Middle School, Indian Shores, FL

Candidates for Director, Elementary School Level (one will be elected)
Lorie Huff, Asbell Elementary School, Fayetteville, AR
Susie Katt, Lincoln Public Schools, Lincoln, NE

Candidates for Director, Canadian Region (one will be elected)
Carol Matsumoto, Independent Consultant, Winnipeg, MB, Canada
Marian Small, Independent Consultant, Ottawa, ON, Canada

Candidates for Director, At-Large (one will be elected)
Sarah Bush, University of Central Florida, Winter Park, FL
Beverly Ferrucci, Keene State College, Milford, MA

Visit nctm.org/election to learn more.
3:15 P.M.–4:30 P.M.

73 **PRAC**
**Be Fluent: Strategies, Models, and Games to Promote Flexible Fact Fluency**

**Pre-K–2 Workshop**
Students learn addition and subtraction strategies to tackle a variety of computation situations. These strategies assist them in being flexible, accurate, and efficient during their process. Come explore the steps necessary to move students from counting in kindergarten to reasoning by the end of grade 2.

Gretchen Presley  
ORIGO Education, Earth City, Missouri  
Marriott Capital Room 1 & 2, Marriott Hartford

74 **ASSESS**
**Building a Flexible Standards-Based Classroom within a Traditional School Setting**

**8–10 Workshop**
Moving to a standards-based grading system in a school that uses a traditional model can be difficult. This session will explore ways to smoothly transition your students, parents, and perhaps even a few colleagues to a standards-based system while still working within your curriculum and school policies.

Robert Janes  
Twitter: @MrJanesMath  
Capitol Region Education Council (CREC), Hartford, Connecticut  
Marriott Ballroom A, Marriott Hartford

75 **CURRIC**
**Empower ALL Students! Explore Resources That Build Math Practices and Connect Big Ideas**

**8–10 Workshop**
Learn about a free curriculum that builds student capacity to think algebraically through rich, meaningful conversations. Experience resources that develop Math Practices and deepen connections across mathematical big ideas. See how these resources support ambitious teaching and provide access points for all students.

Sara Toguchi  
New Visions for Public Schools, New York, New York  
Jennifer Kim  
New Visions for Public Schools, New York, New York  
Elizabeth Ramirez  
New Visions for Public Schools, New York, New York  
Meeting Room 16, Connecticut Convention Center

76 **CURRIC**
**Engaging in STEM Integration with Model-Eliciting Activities (MEAs): Empowering Young Mathematicians**

**Pre-K–2 Workshop**
STEM initiatives can leave teachers wondering how to integrate meaningful math experiences and content standards. MEAs respond to this dilemma by engaging students in the engineering design process to solve a real-life, client-driven problem. Participants will learn about MEA design principles and discuss modifications to sample mathematics tasks.

Courtney Baker  
Twitter: @PiBaker18  
George Mason University, Fairfax, Virginia  
Terrie Galanti  
George Mason University, Fairfax, Virginia  
Meeting Room 14, Connecticut Convention Center

77 **ESL**
**Functional Language Awareness for Teaching English Learners in Math**

**6–8 Workshop**
In this interactive workshop, participants will be introduced to the notions of language functions and language awareness, and will learn how discourse analysis can be used to facilitate use of academic language and literacy in mathematics classes with English language learners.

Juliet Langman  
University of Texas at San Antonio  
Meeting Room 11 & 12, Connecticut Convention Center

Get social! Stay informed and get connected with attendees by following #NCTMregionals on social media.
3:15 P.M.–4:30 P.M.

78 **ESL**
Make Discourse Supports for English Learners and Emerging Bilinguals Routine
3–5 Workshop

Deep understanding happens when students talk together to make sense of important mathematics. It is critical that no student voice is left out. Learn an instructional routine that leverages deliberate supports to ensure ELs and emerging bilinguals understand and are contributing their math ideas during constructive classroom conversations.

Grace Kelemanik
Twitter: @GraceKelemanik
Fostering Math Practices, Natick, Massachusetts
Amy Lucenta
Fostering Math Practices, Natick, Massachusetts
Meeting Room 21 & 22, Connecticut Convention Center

79 **CURRIC**
Should I Insure My Phone? Games and Mathematics for Modelling Risk
10–12 Workshop

When facing risk, we need to use math to make good decisions by calculating expected value. In this workshop, play a series of dice games to model decisions around purchasing different kinds of insurance, and take a look at how using expected value informs these questions. Participants will receive classroom-ready activities they can use in their teaching.

Philip Dituri
Fordham University, New York, New York
Jack Marley-Payne
FiCycle, New York, New York
Marriott Ballroom E, Marriott Hartford

80 **PRAC**
The Magical Power of Creative Experiences Leading to Success in AP Calculus
10–12 Workshop

Experience creative activities using sand, wiki sticks, candy, and so on, to explore AP Calculus concepts. Major ideas become natural conclusions when students “discover” them as active partners in the learning process. A playful approach illustrates serious mathematics. Come to listen and share ideas, and leave with dynamic projects for your classroom!

Gail Kaplan
Towson University, Maryland
Meeting Room 27, Connecticut Convention Center

81 **CURRIC**
What’s the Angle (Measure)? Appreciating the Protractor
3–5 Workshop

This hands-on session will engage participants in several activities for measuring angles with non-standard and standard units of measure. We will create and use a wax paper angle measuring tool along with a standard protractor. Participants will then estimate, measure, sketch and construct angles on paper and with objects.

Susan Hamilton
Carnegie Learning, Inc., Ellsworth, Maine
Meeting Room 24, Connecticut Convention Center

4:30 P.M.–5:30 P.M.

82 **PRAC**
Connecting Big Ideas for Young Mathematicians: When Rigor & Relevance Meet Collaboration
3–5 Session

We must provide students with opportunities to creatively explore mathematical ideas, build conceptual understanding, and solve engaging, relevant problems! We will focus on fostering deep mathematical thinking through collaborative problem solving, discourse, and engagement with the mathematical practices. Leave with strategies you can easily implement!

Kelsea Whittemore
Big Ideas Learning, Erie, Pennsylvania
Ballroom A, Connecticut Convention Center
4:30 P.M.–5:30 P.M.

83 CURRIC
Facilitating Rich Tasks for Explorations with Rigid Motions in the Plane
8–10 Session
Explore rich tasks designed to engage students in investigations that scaffold learning of rigid motions in the coordinate plane using manipulatives and handheld technology. In this session, you will develop and use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure.

Christine D. Thomas
Georgia State University, Atlanta
Marriott Ballroom C, Marriott Hartford

84 PRAC
Healthy and Effective Mathematics Conferences
3–5 Session
Conferring in mathematics should not be about funneling students toward correct answers. We will unpack the components of effective math conferences that build student confidence while reducing math anxiety. We will share tools for recording conferring notes as well as action steps to analyze the data for future instruction.

Gina Picha
Twitter: @ginapicha
Round Rock Independent School District, Austin, Texas
Marriott Ballroom D, Marriott Hartford

85 PRAC
Instructional Strategies and Practices to Strengthen Problem Solving
General Interest Session
Ready to improve how students problem solve? Learn how to transform students from reporters of answers to understanders and communicators of mathematics through word problems and other mathematical situations. Leave with ideas for practices and instructional strategies that you can bring back to your classroom, school, and/or district.

Robin Moore
Twitter: @mooreintomath
Regional School District 6, Litchfield, Connecticut
Ballroom B, Connecticut Convention Center

86 PRAC
Making High-Yield Routines Work in Pre-K-Grade 2
Pre-K–2 Session
Are your daily routines helping your students to make sense of important mathematics? Explore routines that promise more bang for your buck—growth in the realms of math practices, numeracy, and computational fluency in small chunks of time. Number Talks, Clothesline Math, and Which One Doesn’t Belong are among those explored in this session.

Trish Kepler
Twitter: @KeplerTrish
The Greenwich Country Day School, Connecticut
Marriott Ballroom B, Marriott Hartford

87 CURRIC
Making the Most of Meaningful Math Models
Coaches/Leaders/Teacher Educators Session
Versatile models and tools support the coherent progression of content as they are used across many elementary grades. This session will examine the models of whole number and of fractions and decimals that are used to develop deep conceptual understanding.

James Burnett
Twitter: @jamesburnett69
ORIGO Education, Brendale, Alabama
Meeting Room 26, Connecticut Convention Center

88 PRAC
Starting Proof Off Right: Engaging Students with Research-Based Strategies in Geometry
8–10 Session
A pedagogical framework for introducing proof in secondary geometry will be shared. This framework includes a targeted, research-based list of sub-goals aimed at preparing students to productively engage with proof. Findings related to student outcomes in classrooms where lessons guided by this framework were taught will be shared.

Michelle Cirillo
Twitter: UDmichy
University of Delaware, Newark
Meeting Room 25, Connecticut Convention Center
89  PRAC
Strategies, Models, and Games That Promote Fact Fluency in Multiplication and Division
3–5 Session
Students will gain greater understanding of basic multiplication facts when they conceptualize them using real-world examples, visual models, and connecting them through practice and games. Participants will use key strategies and powerful visual models coupled with effective games to solidify multiplication and division facts.

Andrea Kotowski  
Twitter: @ORIGOAPS  
ORIGO Education, Placitas, New Mexico

Meeting Room 17, Connecticut Convention Center

90  ASSESS
What Does the Mistake Tell You?  
6–8 Session
Mistakes are opportunities to learn. This session will illustrate how teachers can look at assessments to see what the given answers tell them about general and individual misconceptions in order to drive instruction. It will also show how students can look at the same assessment answers and use them to goal set and progress monitor.

Jennifer Trueman  
Coventry Public Schools, Connecticut  
Karyn Deptula  
Coventry Public Schools, Connecticut  
Elizabeth Carroll  
Coventry Public Schools, Connecticut

Meeting Room 15, Connecticut Convention Center

91  CURRIC
When Will I Use This? Some Precalculus (and Modifications) Everyone Needs for Real Life  
10–12 Session
An element missing from many high schools is basic financial literacy. I will share how I teach my students to complete a W-4 and understand its connection to developing a long-term savings plan. This work involves interpreting percentages with decimals, exponential growth, and sigma notation, and it can be modified for prealgebra to precalculus.

Amy Bigelow  
Franklin Academy, East Haddam, Connecticut

Ballroom C, Connecticut Convention Center

Shop and save at the NCTM Bookstore in NCTM Central!
Empowering the Mathematics Community

It’s never too early to plan ahead for the leading math education event of the year. Network with thousands of your peers and fellow math education professionals to exchange ideas, engage with innovation in the field, and discover new learning practices that will drive student success.

The latest teaching trends and topics will include:

- **Assessment**: Eliciting and Using Student Thinking
- **Building on Students’ Strengths**: Practices That Challenge, Engage, and Empower
- **Professionalism and Advocacy**
- **Beyond the Classroom Walls**: Empowerment, Access, and Equity
- **Creating Inclusive Classrooms**: Meeting the Needs of Each and Every Student
- **Building Mathematical Knowledge for Teaching**
- **Enhancing Mathematical Thinking** through Reading, Writing, Speaking, and Listening
- **For the Love and Joy of Mathematics**

The NCTM Annual Meeting & Exposition is ideal for:

- PRE-K–12 TEACHERS
- MATH TEACHER EDUCATORS
- NEW AND PROSPECTIVE TEACHERS
- MATH COACHES AND SPECIALISTS
- MATH RESEARCHERS
- SCHOOL AND DISTRICT ADMINISTRATORS

Learn more at [nctm.org/annual](http://nctm.org/annual) and follow us on [Facebook](https://www.facebook.com/NCTM), [Instagram](https://www.instagram.com/NCTM), [LinkedIn](https://www.linkedin.com/NCTM), [Pinterest](https://www.pinterest.com/NCTM), [Twitter](https://twitter.com/NCTM), [YouTube](https://www.youtube.com/NCTM) #NCTMannual
HIGHLIGHTS
Regional Conference Overview & Orientation, 92
Rich Tasks + Just the Right Questions = Classroom Magic, 100
New and Preservice Teachers Workshop, 109
Assessing to Inform: Using Interviews and Hinge Questions—Providing Feedback, Informing Instruction, 111
Discursive Gaps in the Mathematics Classroom—For Better and For Worse, 113
Growth Mindset in (Taking) Action, 132
Using Data Activities to Inspire Math Learning in K–3, 139
At the Intersection of Culturally Relevant Pedagogy, Social Justice Pedagogy, and Student Identity, 152

GET SOCIAL
Stay informed and get connected with attendees by using #NCTMregionals on social media.

Conference App
tctm.org/confapp
Twitter
@NCTM
Instagram
@NCTM.math
Facebook
facebook.com/TeachersofMathematics

REGISTRATION HOURS
7:00 a.m.–12:00 p.m.

EXHIBIT & NCTM CENTRAL HOURS
9:00 a.m.–2:00 p.m.

FIRE CODES
We have made every attempt to provide adequate seating for participants at the conference, but for your safety and because of fire regulations, only those with seats will be allowed in meeting rooms. To comply with fire codes, we will have to ask persons sitting on the floor or standing to leave the room.
The NCTM Annual Meeting & Exposition is coming up!

San Diego, CA | April 3–6, 2019
8:00 A.M.–9:00 A.M.

96 **PRAC**

**Finger Multiplication to Open Arrays: How Children Develop Concepts and Procedural Fluency**

3–5 Session

This presentation will focus on how various multiplication strategies used throughout the history of mathematics help elementary school children, particularly third and fourth graders, to develop conceptual understanding and procedural fluency. Activities and assessment data that showed significant growth in children’s learning will be shared.

Hari Koirala
Eastern Connecticut State University, Willimantic
Shannon Piatak
Horace Porter School, Columbia, Connecticut
Lauren Konicki
Killingly Memorial School, Connecticut

Exhibit Hall A2, Connecticut Convention Center

97 **TOOLS**

**Give Flipping a Chance: How to Flip Your Classroom**

Higher Education Session

Are you unsure if flipping is for you and your students? Uncertain where to begin flipping? Using online tools that are readily available, this session will focus on strategies to implement a flipped math classroom. Video examples will be shared that engage students during the learning process. You will leave the session ready to flip your class.

Michael Broome
University of Louisiana at Monroe
Kathie Smart
University of Louisiana at Monroe
Pamela Martin
University of Louisiana at Monroe

Meeting Room 17, Connecticut Convention Center

98 **ESL**

**Language Objectives: Enabling English Learners Access to Mathematics for Equitable Student Discourse**

3–5 Session

Participants will examine ways to support English learners’ mathematical understanding and language development while building confidence and a productive disposition toward solving problems. Participants will have the opportunity to collaborate with peers and use provided resources to create language objectives with discourse scaffolds.

Estela Tice
Arlington Public Schools, Virginia
Martha-Alice Rademacher
Arlington Public Schools, Virginia
Amy Sherman
Arlington Public Schools, Virginia

Meeting Room 15, Connecticut Convention Center

99 **PRAC**

**Less Is More: Building Comprehension in Math with Numberless Word Problems**

3–5 Session

Most word problem strategies involve circling numbers or identifying key words. By focusing on the details, students lose sight of the big picture. Removing the distraction and temptation of numbers allows students to leverage reading comprehension skills and focus on the relationships between quantities rather than the quantities themselves.

Alison Wells
Twitter: @mswellsmath
Dale St. School, Medfield, Massachusetts

Meeting Room 17, Connecticut Convention Center
8:00 A.M.—9:00 A.M.

100  CURRIC
Rich Tasks + Just the Right Questions = Classroom Magic
General Interest Session
Most of us struggle to craft and implement effective mathematics lesson that live up to the high expectations of the eight Mathematics Teaching Practices found in Principles to Actions. We’ll take a look at how great tasks without the right questions are as limited as great questions about narrow tasks as a straw man to model a range of great lessons

Steven Leinwand
Twitter: @steve_leinwand
American Institutes for Research, Washington, D.C.
Ballroom B, Connecticut Convention Center

101  TOOLS
Using Physical and Virtual Manipulatives to Teach Multiplication, Division, and Fractions to Students
6–8 Session
Physical and virtual manipulatives significantly affect the development of problem-solving skills and conceptual understanding for students with learning problems, who require a greater level of support at Tier II or Tier III. Participants attending this session will learn how to use physical and virtual manipulatives as instructional interventions.

Dan Sinclair
Teach4Mastery, Fallbrook, California
Joseph Sencibaugh
Webster University, St. Louis, Missouri
Jennifer Bond
Ferguson-Florissant School District, St. Louis, Missouri

Exhibit Hall A3, Connecticut Convention Center

8:00 A.M.—9:15 A.M.

102  PRAC
Data-Driven Math Workstations
Pre-K–2 Workshop
In this session, teachers will be guided through a detailed process for creating small groups using data from summative and interim testing. They will be shown how to set up, rotate, and assess students using math stations. Teachers will leave the session with station ideas and strategies to readily implement in their classrooms.

Carrie Manning
Twitter: Ms.Mathemagical
North Little Rock School District, Arkansas
Meeting Room 11 & 12, Connecticut Convention Center

103  TOOLS
D³: Discourse, Differentiation & Desmos: A Deeper Look at Technology through an Equity Lens
6–8 Workshop
This workshop will explore how to integrate Desmos with your curriculum to deepen discourse, differentiation, and formative assessment. You’ll experience several strategies for more robust mathematical engagement with Desmos including using word banks, sentence frames, and supporting students to do error analysis on common misconceptions.

Allison Krasnow
Twitter: allison_krasnow
Berkeley Unified School District, California
Exhibit Hall A5, Connecticut Convention Center

104  PRAC
Great Combinatorial Reasoning Activities for AP Calculus, Statistics, and Discrete Math
10–12 Workshop
The Locker Game is one of the most astonishing math activities your students will ever experience. We will develop strategies for “winning” the game and then use probability, combinatorial reasoning, and calculus to analyze these strategies. The results are stunning! This two- or three-day activity is great anytime but especially after an AP exam.

James Matthews
Siena College, Loudonville, New York
Marriott Capital Room 1 & 2, Marriott Hartford
105 **TOOLS**
**Hands-On Activities + Technology = Mathematical Understanding through Authentic Modeling**
8–10 Workshop

Inquiry-based learning coupled with handheld technology empowers students to apply linear, quadratic, and exponential functions to real-world situations. Participants are provided with classroom-ready lessons that connect multiple mathematical representations and synthesize the Statistics, Functions, and Modeling strands of CCSSM.

**Thomas Beatini**
Union City Board of Education, New Jersey

*Meeting Room 27, Connecticut Convention Center*

106 **PRAC**
**Integer Operations That Matter**
6–8 Workshop

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

**Katelyn Devine**
Twitter: @KateDevine515
Virginia Beach City Public Schools, Virginia

*Meeting Room 24, Connecticut Convention Center*

107 **PRAC**
**Learning from Others’ Teaching: Supporting Students in Learning to Critique Mathematical Arguments**
3–5 Workshop

Participants will participate in a brief professional development focused on supporting students in constructing and critiquing mathematical arguments. The professional development uses classroom observation. A wrap around structure, including pre-briefing and debriefing, enables teachers to engage in the work of teaching.

**Meghan Shaughnessy**
University of Michigan, Ann Arbor

**Nicole Garcia**
University of Michigan, Ann Arbor

*Exhibit Hall A4, Connecticut Convention Center*

108 **CURRIC**
**Math Facts 2.0: Moving beyond Memorization by Connecting Fluency to Understanding**
3–5 Workshop

Mastery of math facts is not about fluency alone. Related standards challenge our students to understand operations, interpret equations, apply properties, and understand inverses. Discover simple tasks and investigations that blend these skills into your math facts instruction to deepen students’ understanding and move them toward fluency.

**Susan O’Connell**
Twitter: @SueOConnellMath
Quality Teacher Development, Millersville, Maryland

*Meeting Room 14, Connecticut Convention Center*

109 **Tools**
**New and Preservice Teachers Workshop**
Workshop

Find answers to your questions on topics such as classroom management, parents, motivation, and keeping your sanity. Connect with other new teachers, learn from experienced professionals, and find resources to engage you and your students. You might even win a prize!

**David Barnes**
National Council of Teachers of Mathematics, Reston, Virginia

*Meeting Room 16, Connecticut Convention Center*
8:00 A.M.—9:15 A.M.

**110 CURRIC**
So I've Got a Traditional Textbook . . . Now What?
8–10 Workshop
We will introduce curricular strategies that leverage common features of traditional textbooks to support teaching that reflects current research with an emphasis on reasoning and problem solving. Participants will use guiding questions to collaborate on ways to repurpose textual elements into opportunities for student exploration and sense making.

Leslie Dietiker
Twitter: lesliedietiker
Boston University School of Education, Massachusetts

Meghan Riling
Boston University, Massachusetts

Meeting Room 21 & 22, Connecticut Convention Center

9:30 A.M.—10:30 A.M.

**111 ASSESS**
Assessing to Inform: Using Interviews and Hinge Questions—Providing Feedback, Informing Instruction
Coaches/Leaders/Teacher Educators Session
Participants will be engaged in considering interviews and hinge questions as formative assessment techniques. They will analyze responses to interview prompts and hinge questions and discuss the importance of feedback in both informing instruction and advancing student learning.

Francis (Skip) Fennell
Twitter: @SkipFennell
Past President, National Council of Teachers of Mathematics, Reston, Virginia; McDaniel College, Westminster, Maryland

Beth Kobett
Stevenson University, Maryland

Jon Wray
Howard County Public School System, Ellicott City, Maryland

Meeting Room 26, Connecticut Convention Center

112 ASSESS
Connecting Learning Targets, Success Criteria, Feedback, and Reflection to Enhance Learning
6–8 Session
Formative assessment is important not only in providing teachers with information about their students’ learning, but also in developing student self-regulation. Come learn strategies that are used to demonstrate how learning targets, success criteria, feedback, and reflection work together to build understanding and critical thinking.

Jack Burke
Oyster Bay-East Norwich Central School District, New York

David Lazar
Oyster Bay High School, New York

Meeting Room 17, Connecticut Convention Center

113 LANG
Discursive Gaps in the Mathematics Classroom—For Better and For Worse
General Interest Session
Communication in mathematics classroom is challenged by numerous discursive gaps, most of them invisible, some of them necessary, and some potentially harmful. In this talk, we will reflect on how to sensitize ourselves to such gaps, how to benefit from those that are indispensable for learning, and how to cope with those that may hinder the process.

Anna Sfard
University of Haifa, Israel

Ballroom B, Connecticut Convention Center

114 REACH
Innovative and Collaborative Problem Solving Helps Your Students to Really Learn Math
3–5 Session
Generate excitement for, and interest in mathematical problem solving among your students. Energize and enrich your curriculum by encouraging your students to take risks and even question one another in problem solving while reminding them that a REAL problem is not the same as a practice exercise.

Nicholas Restivo
MOEMS®, Bellmore, New York

Meeting Room 15, Connecticut Convention Center
Influencers and educators play a vital role in how high school students experience, understand, and relate to mathematics. Now, more than ever, students face a future where mathematical comprehension, confidence, and skill are vital to their student success.

NCTM has published Catalyzing Change in High School Mathematics: Initiating Critical Conversations. This book will help leaders, administrators, counselors, teachers, and other stakeholders in student success to do the following:

- Examine the purpose of teaching math beyond college and career readiness
- Identify barriers to high school student learning
- Define equitable teaching practices that equip students with the confidence and comprehension that is needed for the future

Catalyzing Change in High School Mathematics: Initiating Critical Conversations is available now through NCTM’s online bookstore. Order your copy today at nctm.org/catalyzing!

“'A must-read for anyone with a stake in students' high school mathematics’

Professional Development Your Way! NCTM also provides customizable professional development related to Catalyzing Change for leaders, schools, and districts.
**Saturday**

*9:30 A.M.–10:30 A.M.*

**115**  
**Reach**  
**Let’s Work Together to Make Math Class Matter for ALL of Our Students**  
**Pre-K–2 Session**  
When supporting students in math class, let’s amplify instruction, curriculum, and community. Through collaborative teaching and planning, we can promote high level thinking and discourse without compromising inquiry and engagement. Come explore how to use rich tasks and routines to scaffold learning for struggling students.

Abby Winslow Shink  
Twitter: @abby_shink  
RSU 38, Readfield, Maine  
Sarah Caban  
RSU 38, Readfield, Maine

*Exhibit Hall A2, Connecticut Convention Center*

**116**  
**Prac**  
**Making Mistakes Intentional: Analyzing Student Understanding with Low-Entry, High-Ceiling Problems**  
**6–8 Session**  
Would you rather have questions that students struggle to answer or answers that students struggle to question? Using depth of knowledge as our lens, we will ask open-ended problems to analyze student errors, differentiate misconceptions, moving beyond a limiting correct/incorrect mindset, all while discussing how student thinking informs our teaching.

Jennifer McAleer  
Twitter: @jennifuhs4  
Carroll School, Lincoln, Massachusetts  
Peter Morris  
Carroll School, Waltham, Massachusetts

*Exhibit Hall A2, Connecticut Convention Center*

**117**  
**Prac**  
**Making Sense of Solving Equations**  
**8–10 Session**  
Finding the solution to an equation or system of equations is central in algebra. The “what is the first” approach emphasizes rote procedures and does not help students develop flexible procedures for solving equations. Thinking about the mathematical structure of an equation aided by dynamic interactive visualization can make a difference.

Gail Burrill  
Past President, National Council of Teachers of Mathematics, Reston, Virginia; Michigan State University, East Lansing  
*Ballroom A, Connecticut Convention Center*

**118**  
**EsL**  
**Teaching Computation and Developing Strategic Competence for ELL Students Using the Model Method**  
**3–5 Session**  
The model method for problem solving derives from the CRA (concrete-representational-abstract) technique for teaching math. Participants will learn how to improve student fluency in adding, subtracting, multiplying, and dividing whole numbers along with fractions by using visual models to connect different representations to support relational understanding and strategic competence.

Michelle Sencibaugh  
Valley Park School District, Missouri  
Joseph Sencibaugh  
Webster University, St. Louis, Missouri

*Exhibit Hall A1, Connecticut Convention Center*

**119**  
**Prac**  
**Unpacking Mathematical Operations: Addition and Subtraction**  
**Pre-K–2 Session**  
I don’t get what they want me to do! Support students solving word problems by exploring the meanings of addition and subtraction as operations. As students learn the “jobs” of each operation, they recognize situations and create representations. Students are empowered to better understand word problems and to mathematize real-world situations.

Sara Delano Moore  
Twitter: @saradelanomoore  
ORIGO Education, Kent, Ohio  
Kimberly Morrow-Leong  
George Mason University, Fairfax, Virginia

*Exhibit Hall A3, Connecticut Convention Center*
9:30 A.M.–10:30 A.M.

120 PRAC

You've Lost Those Boring Problems

10–12 Session

Learn three effective techniques to adapt tasks in order to increase access for all students and to enable students to acquire and demonstrate conceptual understanding. Practice using Reversibility, Flexibility, and Generalization on our tasks, and then use them in rewriting a task of your own.

Frederick Dillon
Twitter: fdizzle1955
Institute for Learning, Strongsville, Ohio

Ballroom C, Connecticut Convention Center

120.1 EW TOOLS

Driving On Mars: A Coding Problem

8–10 Exhibitor Workshop

Have your students wondered how driverless cars work? Have you considered the math that it takes for vehicles to drive on Mars? In this session, we will code robotic vehicles using mathematics to drive, make turns, and complete a challenge. Best part: no coding experience needed!

Texas Instruments
Dallas, Texas

Meeting Room 23, Connecticut Convention Center

120.2 EW CURRIC

Bridges Intervention—Delivering Clear and Systematic Instruction

General Interest Exhibitor Workshop

Searching for an effective K–5 intervention resource with built-in assessments and frequent progress monitoring? Discover how Bridges Intervention uses the power of visual models to reach struggling students. Organized by content rather than grade, each session includes warm-ups, lessons, and practice pages focused on key standards.

The Math Learning Center
Salem, Oregon

Meeting Room 13, Connecticut Convention Center

9:45 A.M.–11:00 A.M.

121 REACH

Authentic STEAM Instruction to Support and Challenge Each and Every Learner

3–5 Workshop

Not all STEAM inquiries are created equal! Learn about strategies to engage students in meaningful mathematics (and science) through the context of STEAM focused on the three E’s: Equity, Empathy, and Experience. Join us in a rich discussion acknowledging your own STEAM experiences, dive into an example, and plan next steps!

Sarah Bush
Twitter: @sarahbbush
University of Central Florida, Orlando

Marriott Capital Room 1 & 2, Marriott Hartford

122 PRAC

Building Procedural Fluency from Conceptual Understanding: Implications for Lesson and Unit Design

8–10 Workshop

Building procedural fluency from conceptual understanding suggests that teachers move away from the traditional instructional sequence of skills first, application later. Breaking this cycle requires both changes in beliefs and changes to lessons and units within courses. I unpack what we mean by this practice and implications for task sequencing.

Mike Steele
Twitter: @mdsteele47
University of Wisconsin–Milwaukee

Exhibit Hall A5, Connecticut Convention Center

Thank you to all of the volunteers who have helped make this conference a success!
123  PRAC
Early Geometry Concepts: Making Connections to the Real World
Pre-K–2 Workshop
Young children are active investigators of their world. Learning about space and shape helps them make sense of the world around them and lays the foundation for understanding geometry. Children develop this knowledge through experiences with playful hands-on activities and being immersed in a language-rich environment. Come join in on the fun!

Gretchen Presley
ORIGO Education, Inc., Earth City, Missouri
Debi DePaul
ORIGO Education, Inc., Earth City, Missouri
Meeting Room 16, Connecticut Convention Center

124  PRAC
Modeling with Mathematics in Science Class: Maximizing Opportunities to Enrich the STEM Experience
3–5 Workshop
In this highly interactive workshop, we will explore what modeling with mathematics looks like through each of the four levels of inquiry: Confirmation, structured inquiry, guided inquiry, and open inquiry. Participants will learn how to mathematize hands-on experiences as they explore hands-on tasks like launching rockets and firing slingshots.

Mike Flynn
Twitter: @MikeFlynn55
Mount Holyoke College, South Hadley, Massachusetts
Meeting Room 21 & 22, Connecticut Convention Center

125  TOOLS
Programming—Not Just for STEM 10–12 Workshop
Coding is an essential 21st-century skill. Coding can spark students’ interest in programming and help them become better problem solvers. Tap into the world of computer programming using the TI-84 Family graphing calculators already in your classroom. Attendees will learn important programming commands and will write a few programs of your own.

Fred Decovsky
Teachers Teaching with Technology, Bradley Beach, New Jersey
Karen Campe
Teachers Teaching with Technology, New Canaan, Connecticut
Meeting Room 11 & 12, Connecticut Convention Center

126  CURRIC
Rethinking Differentiation: Modifying Lessons for Increased Engagement, Support, and Challenge
3–5 Workshop
Differentiation is one way to make lessons more accessible. However, when we differentiate, we usually think about modifying lessons for student ability rather than about modifying to improve connections across math content and practices. This workshop will explore ways to make lessons more engaging and rigorous by changing what we differentiate.

Marcy Wood
University of Arizona, Tucson
Meeting Room 24, Connecticut Convention Center

127  PRAC
Select and Sequence: Empower Students through Discourse 6–8 Workshop
We will model how to facilitate low-floor, high-ceiling tasks to optimize productive mathematical discussions in order for students to learn from each other through the practice of selecting and sequencing student work.

Genevieve Esmende
Twitter: @MsGenebieb
San Diego Unified School District, California
Exhibit Hall A4, Connecticut Convention Center

Looking for lessons, activities, and teacher resources? Check out nctm.org/crcc.
9:45 A.M.–11:00 A.M.

128 **PRAC**
Stop the Torture! Make Meaning of Math and Engage Learners
6–8 Workshop
Too often we give students problems with no context. Authentic, relevant math problems are essential for students, especially those that struggle with math. Participants will look at typical math problems and how they are modified to provide meaning. Strategies for using these tasks and providing support to struggling students will be provided.

Katelyn Devine
Twitter: @KateDevine515
Virginia Beach City Public Schools, Virginia

Meeting Room 14, Connecticut Convention Center

129 **PRAC**
The Coach, The Novice, and The Expert
Coaches/Leaders/Teacher Educators Workshop
NCTM’s *Principles to Actions* advocates for teachers to understand what students know and need to learn and then challenge and support them to learn it well. Coaches apply this principle to teachers. In this session, participants will explore the different philosophies of coaching and determine ways to promote the expert and train the novice.

Barbara Everhart
Twitter: @berealcoach
BeRealCoach, Minneapolis, Minnesota

Meeting Room 27, Connecticut Convention Center

11:00 A.M.–12:00 P.M.

130 **REACH**
Developing Students’ Spatial and Geometric Reasoning: Rotation and Reflection Tasks
8–10 Session
Tasks that support students’ individual thinking about mathematics have the potential to increase student agency in mathematics. Using the topics of rotations and reflections, this session will model ways of analyzing student thinking and methods of task design that can help secondary students develop more sophisticated ways of reasoning.

Leah Frazee
Central Connecticut State University, New Britain

Exhibit Hall A2, Connecticut Convention Center

131 **REACH**
Engaging Community through the Integration of Art and Mathematics
8–10 Session
Stemming from a seven-year partnership working with high school students, teacher Tricia Stanley and artist Ellie Balk (www.elliebalk.com) will share their work in engaging school and local community through visualizing mathematics and guide participants in creating projects that can be introduced to their curriculum.

Ellie Balk
www.elliebalk.com, Brooklyn, New York

Tricia Stanley
New York City Department of Education, Brooklyn, New York

Ballroom A, Connecticut Convention Center

132 **PRAC**
Growth Mindset in (Taking) Action
General Interest Session
Merging two hot topics together, this session will focus on how mathematics teachers can cultivate growth mindsets while implementing research-based teaching practices. Teachers will leave with practical growth mindset interventions that correlate with the teaching practices highlighted in NCTM’s Taking Action book series.

Amy Nebesniak
University of Nebraska at Kearney

Ballroom B, Connecticut Convention Center
11:00 A.M.–12:00 P.M.

133  PRAC  Numbers Are NOT Letters! Narrowing the Math Achievement Gap Before It Starts  
Pre-K–2 Session  
As with reading, if students do not master key foundational skills and concepts in mathematics by the end of grade 3, they will be at risk in subsequent grades. But how we learn math is not the same as how we learn to read. This presentation will focus on the critical components and effective best practices for K–3 math education.  
Jan Scott  
Houghton Mifflin Harcourt, Fort Worth, Texas  
Exhibit Hall A1, Connecticut Convention Center

134  CURRIC  Pictorial Progressions: Utilizing Coherent Models to Promote Fraction Mastery  
3–5 Session  
The consistent use of familiar models helps learners connect the topics from one grade level to the next. When learners develop these connections, they are able to learn new concepts quickly and develop a deeper understanding of those concepts.  
Briana Bernabucci  
R.J. Kinsella Magnet School, Hartford, Connecticut  
Angela Boratko  
R.J. Kinsella Magnet School, Hartford, Connecticut  
Exhibit Hall A3, Connecticut Convention Center

135  CURRIC  Sciatics: An Interdisciplinary Approach to Developing Sustainable Math Practices through Science  
6–8 Session  
Sciatics is an interdisciplinary course designed to increase student engagement. Math and science connections grounded in literacy practices generate relevance and eliminate the age-old question, “Why do I have to learn this?” Each student creates a yearlong project and must design and teach multiple lessons to demonstrate understanding.  
Jamilah Seifullah  
Twitter: @jam4less  
New York City Department of Education, Highland Park Community School, Brooklyn, New York  
Latoya Braswell  
New York City Department of Education, Highland Park Community School, Brooklyn, New York  
Lindsay White  
New York City Department of Education, Highland Park Community School, Brooklyn, New York  
Meeting Room 26, Connecticut Convention Center

136  LANG  The Language of Mathematics  
General Interest Session  
Constructing viable arguments is as important as accurate computation but often gets left out of math class. When is the right time to introduce vocabulary? What about symbolic language? We will explore practices to elicit student language and learn how to adapt activities to your populations (including ELLs and students with disabilities).  
Tina Cardone  
Twitter: crstn85  
Illustrative Mathematics, Oro Valley, Arizona  
Meeting Room 15, Connecticut Convention Center

Need funding for professional development? Check out grant opportunities from the Mathematics Education Trust. The next deadline to apply is Nov 2. Visit the MET area in NCTM Central to learn more.
11:00 A.M.–12:00 P.M.

137  PRAC
Pre-K–2 Session
This Unlocking Word Problems session will inspire collaborative thinking while providing the tools to support students striving to be successful problem solvers. Problem solving is a unique genre in which reading comprehension strategies support math understanding and concepts.
Sara Bogdon
Bristol Warren Regional School District, Rhode Island
Christine Hughes
Bristol Warren Regional School District, Rhode Island
Meeting Room 17, Connecticut Convention Center

138  ESL
Use Discourse to Provide Access to Language and Mathematics for English Learners
Coaches/Leaders/Teacher Educators Session
Discourse in the classroom will increase English learners’ productive and receptive language functions and their comprehension of mathematics concepts. All students need to reason, construct viable arguments, and critique the reasoning of others. Increasing discourse will support students’ language development as they engage in these practices.
Susie Hakansson
Twitter: @SusieHakansson
Independent Consultant, Venice, California
Meeting Room 25, Connecticut Convention Center

139  EW
Using Data Activities to Inspire Math Learning in K–3
Pre-K–2 Session
Data activities in K–3 classes inspire math learning as students engage in varied math content and make connections within math, across subjects, and with their own world. See a variety of data tools, connect data to critical content, and explore using literature to inspire data use. Walk away with ideas to implement immediately!
Regina Kilday
Twitter: @MathLadyRI
Board of Directors, National Council of Teachers of Mathematics, Reston, Virginia; Exeter-West Greenwich Regional School District, Rhode Island
Anne Barbour
Metcalf School, Exeter, Rhode Island
Ballroom C, Connecticut Convention Center

139.1  TOOLS
Calculator Activities to Help Students Prepare for Normed Exams
10–12 Exhibitor Workshop
Pick up tips for making best use of graphing technology to prepare for success on high stakes exams. This hands-on session will explore important strategies for technology use to help students develop understanding of highly tested topics and make use of this tool strategically.
Texas Instruments
Dallas, Texas
Meeting Room 23, Connecticut Convention Center
100th Day Grows Up! Activities for Upper Elementary School Grades

3–5 Burst

Have you ever searched for sophisticated activities for upper elementary school grades? This is your lucky day! In this session, you will find more ideas than you can use for engaging cross-curricular activities that continue the excitement of the 100th Day by including all students in STEAM, language arts, and social studies lessons.

Abbye Cornfield
Perelman Jewish Day School, Wynnewood, Pennsylvania
Mindy Civan
Perelman Jewish Day School, Wynnewood, Pennsylvania

Meeting Room 11 & 12, Connecticut Convention Center

Exploring Computer-Based Numerical Systems in Middle School Mathematics

6–8 Burst

Audience will actively engage with material of a lesson developed to support middle school students understanding of binary and hexadecimal numbers. Examples of student work, realizations, as well as lesson handouts will be provided during the session as a collective reflection on teaching these topics during regular school mathematics time.

Carlos LopezLeiva
University of New Mexico, Albuquerque

Meeting Room 16, Connecticut Convention Center

Improving Retention: Assessing the Math Component of a Summer Bridge Program

Higher Education Burst

Eastern Connecticut State University offers a summer bridge program for students who are first generation, are from low-income families, or are from groups traditionally underrepresented on college campuses. Their academic math performance is analyzed seeking to improve efforts to support students in the high school to college transition.

Kim Ward
Eastern Connecticut State University, Willimantic

Meeting Room 27, Connecticut Convention Center

Infusing Lab Science and Statistics Topics into a Developmental Mathematics Course

Higher Education Burst

Upon an extensive survey, it was determined that the concepts being taught in our developmental mathematics course and the concepts necessary for the most popular college-level lab science and math courses were not in alignment. This talk will discuss the process of redesigning our college’s algebra I course as well as some preliminary findings.

Adrienne Chu
Suffolk County Community College, Brentwood, New York
Rachael Millings
Suffolk County Community College, Selden, New York

Marriott Capital Room 1 & 2, Marriott Hartford
11:30 A.M.–12:00 P.M.

145 **ASSESS**
Leveled Activities for Improving Proficiency on Standards-Based Unit Exams in Algebra I
8–10 Burst
Improving proficiency on standards-based assessments in algebra I can be supported by incorporating leveled activities that are self-selected by individual students according to their current proficiency level (e.g., basic, proficient, advanced) on each standard. Methods for creating activities and monitoring student proficiency will be provided.

Heather Bleecker
University of Michigan, Ann Arbor
Meeting Room 21 & 22, Connecticut Convention Center

146 **REACH**
Reimagining the K-2 Math Classroom: Developing Math Communities for Sense Making, Agency, and Play
Pre-K–2 Burst
Experience three powerful math routines that engage young learners in sense making and reasoning. This session will share activities that promote meaningful mathematical engagement and connect mathematics to students’ life experiences and play! Come play math and leave with practical activities and resources to use next day!

Cathery Yeh
Twitter: @YehCathery
Chapman University, Orange, California
Meeting Room 14, Connecticut Convention Center

147 **PRAC**
Teaching and Learning through Collaborative Activities in the High School Mathematics Classroom
8–10 Burst
Can you envision a classroom full of actively engaged students working collaboratively to solve problems? In this presentation, participants will learn to plan and implement student-centered activities designed to promote engagement, encourage mathematical discourse, and provide opportunities for differentiation to reach all students.

Katie Laird
Trumbull Board of Education, Connecticut
Exhibit Hall A4, Connecticut Convention Center

148 **CURRIC**
What’s Going On in This Graph? Free, Online Discussion of New York Times Graphs with Moderation
10–12 Burst
Build “graph” literacy in grades 7–12 in math, science, and humanities with the free, online “What’s Go On In this Graph?” program. The New York Times, in partnership with the American Statistical Association, offers a timely graph and asks “What do you notice?”, “What do you wonder?”, and “What’s up?” Students reply online and teachers moderate. Stat Nuggets are used to explain statistics.

Sharon Hessney
Mass Insight Education, Boston, Massachusetts
Exhibit Hall A5, Connecticut Convention Center
1:30 P.M.–2:30 P.M.

149  REACH
“When I Grow Up I Want to Be . . .”: Discover the Mathematical Demands of Prospective Occupations
General Interest Session
By 2020, 65 percent of all jobs will require education or training after high school. How can a student know which careers he or she is prepared for in terms of a particular career’s mathematical demands? Discover new research on how the mathematical ability necessary for career preparedness is determined for individual occupations through conjoint measurement.
Lisa Bickel
MetaMetrics, Hendersonville, North Carolina
Meeting Room 26, Connecticut Convention Center

150  REACH
A Quiet Revolution: One District’s Story of Radical Curricular Change in High School Mathematics
10–12 Session
Over the past thirty years, Holt High School has transformed mathematics teaching and learning. The high school mathematics staff has grown an innovative, meaningful high school mathematics curriculum that eliminates tracking and sees nearly every student in the district completing the equivalent of precalculus. In this talk, I describe how they did it.
Mike Steele
Twitter: @mdsteele47
University of Wisconsin–Milwaukee
Exhibit Hall A2, Connecticut Convention Center

151  REACH
Asking Forgiveness Rather Than Permission: Building Stronger Students through Department Agency
8–10 Session
In this session, we present how our mathematics department formed a cohesive bond that inspires collegiality and critical reflection, and how our journey toward creating an effective remediation program was shown to increase student agency, fill deficiency gaps in students’ prerequisite skills, and ultimately improve high-stakes test scores.
Ashley Garner
Atlanta Public Schools, Georgia
Lark Bullock
Atlanta Public Schools, Georgia
Meeting Room 15, Connecticut Convention Center

152  REACH
At the Intersection of Culturally Relevant Pedagogy, Social Justice Pedagogy, and Student Identity
General Interest Session
Culturally relevant instruction and teaching for social justice can motivate marginalized students to learn mathematics and develop a positive identity. This presentation will address five equity-based instructional practices to promote positive mathematical identities and will consider social justice through three lenses.
Shelly Jones
Twitter: @ShellyMJones1
Central Connecticut State University, New Britain
Ballroom B, Connecticut Convention Center

153  PRAC
Circle Round: Engaging Students through Mathematical Storytelling
3–5 Session
Who doesn’t love a good story, especially when it’s told well? Unfortunately, despite their name, story problems often feel lifeless and uninspiring. In this session, I’ll share strategies for using mathematical storytelling techniques, including numberless word problems, to build engagement and curiosity all while keeping a focus on sense making.
Brian Bushart
Twitter: @bstockus
Round Rock Independent School District, Texas
Ballroom A, Connecticut Convention Center
1:30 P.M.–2:30 P.M.

154 PRAC Early Mathematics: Using the SMPs to Drive a Playful Math Experience
Pre-K–2 Burst
A child’s innate sense to learn is through the act of play. Why not use the Standards for Mathematical Practice to exploit, utilize, and facilitate intentional play through valuable mathematical instruction? In this workshop, you will learn developmentally appropriate ways to employ the SMPs, and how to ignite the passion for learning!

Gretchen Presley
ORIGO Education, Inc., Earth City, Missouri
Debi DePaul
ORIGO Education, Inc., Earth City, Missouri

Ballroom C, Connecticut Convention Center

155 TOOLS Fundamentals of Functions with Graphing Calculators
8–10 Session
Frustrated with functions? Confused about composition? Help students understand functions using the TI-84+ Color and TI-Nspire graphing calculators to connect symbolic, numerical, and graphical representations. Use function notation and classroom-tested activities to make the math connections visible and put the focus on students’ understanding.

Karen Campe
Twitter: @KarenCampe
Teachers Teaching with Technology, New Canaan, Connecticut
Fred Decovsky
Consultant, Bradley Beach, New Jersey

Exhibit Hall A1, Connecticut Convention Center

156 PRAC Summarizing Routines for Making Mathematical Discourse Meaningful
6–8 Session
When students engage in mathematical discourse, they are given the opportunity to deepen and build a shared understanding of the mathematical ideas. This workshop will give you an exposure to a variety of summarizing routines that can support mathematical discourse. You will walk away ready to implement the routines in your own classroom.

Jana Ford
Growing Up Green Middle School, Long Island City, New York
Jennifer Parker
Growing Up Green Middle School, Long Island City, New York

Exhibit Hall A3, Connecticut Convention Center

157 CURRIC Teaching Proportional Reasoning without Using Proportions
6–8 Session
Traditionally, teaching proportional reasoning has been hindered by the procedural emphasis on writing a proportion and “cross-multiplying.” In this session, we will examine the learning progressions that lead to the ability to reason proportionally by using a variety of representations that incorporate the coherence in CCSSM.

John Keogh
President, Connecticut Council of Leaders of Mathematics, Fairfield

Meeting Room 17, Connecticut Convention Center

Interested in speaking at one of the 2019 Regional Conferences next year in Boston, Nashville, or Salt Lake City? Submit your proposal at nctm.org/speak before December 1, 2018.
Routines can keep your classroom running smoothly. Now imagine having a set of routines focused on helping students develop their mathematical thinking and reasoning skills.

*Routines for Reasoning* provides expert guidance for weaving the Standards for Mathematical Practice into your teaching by harnessing the power of classroom-tested instructional routines.

"Teaching students to think and reason is perhaps the greatest challenge we face as math educators and these routines provide clear pathways to do so."

Grace Kelemanik
Amy Lucenta
Susan Janssen Creighton

Visit hein.pub/Routines to read a sample
1:30 P.M.–2:30 P.M.

158 REACH
Using Alternative Algorithmic Techniques to Improve Procedural Fluency and Enrich Adaptive Reasoning
3–5 Session
Participants will learn how to identify common math errors of marginalized students. After identifying errors in computation, individuals will discover how to implement alternative algorithmic techniques for improving strategic competence and developing productive dispositions to empower students while creating equitable and inclusive environments.
Joseph Sencibaugh
Webster University, St. Louis, Missouri
Jennifer Bond
Ferguson-Florissant School District, St. Louis, Missouri
Meeting Room 25, Connecticut Convention Center

1:30 P.M.–2:45 P.M.

159 CURRIC
Achieving High Cognitive Demand Math Lessons—Is It the Task, or How You Use It?
Coaches/Leaders/Teacher Educators Workshop
In our research, we see that the extent to which the students, as opposed to the teacher, are doing the mathematical “heavy lifting” in a lesson depends far more on the instructional decisions than on the task or curriculum. This session explores the *enactment* of various types of tasks, and how to keep the cognitive demand high in all cases.
Claire Gogolen
Twitter: @MQIclaire
Harvard University, Cambridge, Massachusetts
Samantha Booth
Harvard University, Cambridge, Massachusetts
Jackie Kearney
Harvard University, Cambridge, Massachusetts
Meeting Room 27, Connecticut Convention Center

160 REACH
Am I Really Hearing My Students?
6–8 Workshop
NCTM’s Principles to Actions advocates for teachers to facilitate meaningful mathematical discourse with their students. This session will create experiences for participants to reflect on whether math discussions are present or missing from their own math classrooms and to consider how the conversations include or exclude the students’ voices.
Barbara Everhart
Twitter: @berealcoach
BeRealCoach, Minneapolis, Minnesota
Meeting Room 11 & 12, Connecticut Convention Center

161 CURRIC
Contextualizing and Decontextualizing: Supporting Students to Visualize Mathematical Relationships
3–5 Workshop
Participants will consider video clips of students engaged in Standard for Mathematical Practice #2: Reasoning abstractly and quantitatively. We will discuss how students move back and forth between the problem context, representations of that context, and mathematical abstractions, and how the teacher supports all students to make these connections.
Susan Jo Russell
TERC, Cambridge, Massachusetts
Meeting Room 16, Connecticut Convention Center

162 CURRIC
Data Collection and Context in Math Classes
8–10 Workshop
Come experience engaging data-collection activities for the math classroom that are simple and inexpensive. These activities will help give context to linear equations, systems of equations, quadratics, and exponential equations. We will even investigate some that are truly unknown. Activities will be hands-on to get your students moving and learning.
Ismael Zamora
Lyons Township High School, LaGrange, Illinois
Exhibit Hall A4, Connecticut Convention Center
1:30 P.M.–2:45 P.M.

163  CURRIC  Enhance Math Instruction with National Geographic’s Giant Floor Map: Interactive & Highly Engaging!  
3–5 Workshop  
We’ll have fun doing creative, engaging, and interactive activities for exploring interconnections among elementary school topics in math, geometry, and geography. Participants will perform math activities on the National Geographic giant (16’ by 20’) floor map. Information will be given on how to borrow the map free of charge for classrooms.

Beverly Ferrucci  
Keene State College, New Hampshire  
Maria Aiello  
Keene State College, New Hampshire  
Kiera Bell  
Keene State College, New Hampshire  
Meeting Room 21 & 22, Connecticut Convention Center

164  PRAC  Everyday Routines to Increase Rigor  
8–10 Workshop  
Join teachers from the Better Math Teaching Network who are using Improvement Science to increase student engagement and rigor in the algebra I classroom. You will see and experience how adding specific routines, conversation protocols, exit strategies, and purposefully designed rich tasks help students develop a deeper understanding of algebra I.

Tara Sharkey  
Twitter: @taramsharkey  
Colchester High School, Vermont  
Meeting Room 24, Connecticut Convention Center

165  TOOLS  Exploring Several Recursive Sequences with CAS Technology  
10–12 Workshop  
CAS technology has enabled learners to delve more deeply into the mathematics. In this hands-on workshop, participants will explore recursive sequences including the Fibonacci, Lucas, Reverse Lucas and Tribonacci sequences. Exploring divisibility and periodicity patterns as well as prime outputs with the aid of the handhelds is our ultimate goal.

Jay Schiffman  
Rowan University, Glassboro, New Jersey  
Exhibit Hall A5, Connecticut Convention Center

166  PRAC  Observation to Equation: Learning to Think like a Mathematical Modeler  
10–12 Workshop  
How does a modeler leap from the real world to a mathematical model? How does one move from experience to equation? Practice mathematical modeling and learn what’s needed to take that crucial step from the real world to the world of mathematics. Learn to translate from observation to equation and back again and leave thinking like a modeler.

John Pelesko  
Twitter: @peleskoj  
University of Delaware, Newark  
Michelle Cirillo  
University of Delaware, Newark  
Meeting Room 24, Connecticut Convention Center

167  PRAC  Vertical Tasks: How One Task Is Used in Many Different Grades  
Pre-K–2 Workshop  
Teachers have the enormous task of differentiating assignments for students with a large range of mathematical abilities. In this session, you will learn how to create a single task to use across many grade levels. We will explore an algebra I task that was given to students in grades 1–8 and consider the vertical math development of their work.

Theresa Wills  
George Mason University, Fairfax, Virginia  
Marriott Capital Room 1 & 2, Marriott Hartford
168 **ASSESS**

“Just the Facts, Ma’am”: Using Evidence to Plan Instruction

6–8 Session

Every day is busy for you and your students, so how do you sort out what worked and what needs help? Come learn how using an evidence-based checklist can help you see where your instruction/curriculum is strong and where it could be improved.

**Jenna Richard**
Twitter: @JennaLeeRichard
American Institutes for Research, Washington, D.C.

**Joyelle Greenway**
Bristol Warren Regional School District, Rhode Island

**Kristina Pereira**
Bristol Warren Regional School District, Rhode Island

Meeting Room 17, Connecticut Convention Center

169 **ASSESS**

Beyond Right and Wrong: Three Shifts in Practice for Assessing Student Thinking

Pre-K–2 Session

Learn three shifts to be made in grading and assessment practices that will make time spent grading papers more relevant to instruction. Traditional grading takes a deficit view, focusing on what students do NOT know. Shift to asset-based assessment and gather information about what students already DO know.

**Kimberly Morrow-Leong**
George Mason University, Fairfax, Virginia

Ballroom A, Connecticut Convention Center

170 **ESL**

Bringing ELL Students into the Math Conversation

3–5 Session

English language learners sometimes struggle in math because the scaffolds that teachers use during reading instruction seem out of place next to math content. In this session, participants will learn strategies that build a culture of discourse in math class by scaffolding lessons using a variety of means of entry and previewing vocabulary.

**Jan Scott**
Houghton Mifflin Harcourt, Fort Worth, Texas

Ballroom C, Connecticut Convention Center

171 **TOOLS**

Desmos for Calculus: Animating All the Greatest Hits!

10–12 Session

Augment your calculus teaching by using Desmos to animate its greatest hits! We will share ready-made examples, plus lift the hood to show how to dynamically visualize such classics as secants approaching tangents, derivative sketching, related rates, Riemann sums, the fundamental theorem of calculus, Taylor polynomials, and polar curves.

**Dave Cesa**
Twitter: @davecesa
Charlotte Latin School, North Carolina

Exhibit Hall A3, Connecticut Convention Center

172 **PRAC**

Flipping the High School Mathematics Classroom

10–12 Session

Two teachers at Chariho Regional High School in southern Rhode Island decided to implement a self-paced, self-directed, flipped classroom. Discussions will revolve around the reason for the change in technique as well as resources used for instruction and assessment, supports needed, and overall successes and challenges.

**Robert Mayne**
Twitter: @RobertMayne74
Chariho Regional School District, Wood River Junction, Rhode Island

**Diane Leith-Doucett**
Chariho Regional School District, Wood River Junction, Rhode Island

Exhibit Hall A1, Connecticut Convention Center

173 **ASSESS**

Get the Facts F. A. S. T. (Formative Assessment Strategies and Techniques)

General Interest Session

Learn how F.A.S.T can quickly give insight into students’ math understanding. Participants will focus on combining traditional and innovative assessment to develop mathematically proficient students. Explore how talking/writing about math, exit tickets, progress checks, observations, performance tasks, and hinge questions can be used to drive effective learning.

**Ellen Edmonds**
Twitter: @Edmonds_elleno
W.H. Sadlier, Inc., Charlotte, North Carolina

Meeting Room 26, Connecticut Convention Center
174  REACH
Implementing Low-Floor, High-Ceiling Whole-School Math Problems in Your School
6–8 Session
Join us as we introduce “whole-school” math problems to mobilize a diverse community of problem solvers. This low-floor, high-ceiling approach engages students school-wide to interact with rich problems, collaborate, and model thinking. The presenters lead whole-school math problems at their school, which has used them successfully for ten years.

Rachel Gordon
New York City Department of Education, Tompkins Square Middle School, New York
Julie Biggane
New York City Department of Education, Tompkins Square Middle School, New York

Meeting Room 15, Connecticut Convention Center

175  PRAC
Math Tasks and Manipulatives: A Winning Combination
General Interest Session
Rich mathematical tasks that engage students in solving and discussing are a vital part of a mathematics classroom. Manipulatives can be utilized as a tool to help students with such tasks by providing entry points for each and every student. Come explore some rich tasks utilizing a variety of manipulatives.

Kevin Dykema
Twitter: @kdykema
Mattawan Consolidated Schools, Michigan

Ballroom B, Connecticut Convention Center

176  PRAC
Seeing Is Believing: Making Mathematical Thinking Visible
8–10 Session
Create an environment where multiple student strategies are valued as tools that help students make sense of mathematics. See and study how an instructional routine embeds moves to make thinking visible and accessible so that everyone can navigate to success!

Jennifer Kim
New Visions for Public Schools, New York, New York
Elizabeth Ramirez
New Visions for Public Schools, Long Island City, New York
Sara Toguchi
New Visions for Public Schools, New York, New York

Meeting Room 25, Connecticut Convention Center

177  REACH
Standing on the Verge of Brilliance: Re-engaging Reluctant Learners of Mathematics
8–10 Session
Negative stereotypes about certain cultures often limit students’ views of their abilities to be successful in mathematics. In this interactive workshop, participants will learn to use strategies from an equity framework to engage diverse learners, including those reluctant to learn mathematics.

Pamela Seda
Twitter: @pamseda1
Southwest Dekalb High School, Decatur, Georgia

Exhibit Hall A2, Connecticut Convention Center

Join us at the NCTM 2019 Regional Conferences & Expositions:
Boston, Massachusetts | September 25–27
Nashville, Tennessee | October 2–4
Salt Lake City, Utah | October 16–18
3:15 P.M.–4:30 P.M.

178 **TOOLS**
Action-Consequence-Reflection Activities: Using Technology to Make Math Stick!

10–12 Workshop

Perform actions with technology and ask targeted questions to optimize student reasoning about mathematical implications. Explore dynamic activities with TI graphing calculators, GeoGebra, or Desmos that use multiple representations to connect algebra, geometry, and precalculus; promote conceptual thinking; and support CCSSM and Principles to Actions.

Karen Campe
Twitter: @KarenCampe
Teachers Teaching with Technology, New Canaan, Connecticut

Fred Decovsky
Consultant, Bradley Beach, New Jersey

Meeting Room 27, Connecticut Convention Center

179 **PRAC**
Breakout! Problem Solving within and beyond the Math

10–12 Workshop

Have you ever tried to escape the room? Then you’ll love Breakout! Put your problem-solving skills—math and otherwise—to the test as your team tries to crack the codes. Breakout brings a refreshing twist to the classroom by engaging students in a hands-on, friendly competition that tests perseverance and willingness to think “beyond the math.”

Janine Russo
Weston High School, Connecticut

Meeting Room 21 & 22, Connecticut Convention Center

180 **LANG**
Explore Relationships between Mathematical Representations & Students’ Language Choice

8–10 Workshop

The Standards for Mathematical Practice encourage communication, including argumentation, explanation, and justification. Students communicate in a range of ways as they grapple with mathematics. We examine important connections between mathematical representations and language choice by engaging participants in a high cognitive demand math task.

Jillian Cavanna
University of Connecticut, Storrs

Beth Herbel-Eisenmann
Michigan State University, East Lansing

Michelle Cirillo
University of Delaware, Newark

Meeting Room 11 & 12, Connecticut Convention Center

181 **REACH**
Let’s Shape Up! Fun Games to Engage All Primary Students in Developing Key Concepts in Geometry

Pre-K–2 Workshop

Geometry helps us make sense of our world and is a CCSSM critical area of study in K–grade 2. Come explore fun games that engage young students in developing a deep understanding of key geometric ideas. Learn how to easily promote reasoning while your students compose and decompose shapes, build spatial sense, and identify properties of shapes.

Ann Marie Spinelli
Twitter: @AnnSpinelli
Central Connecticut State University, New Britain

Meeting Room 14, Connecticut Convention Center
3:15 P.M.—4:30 P.M.

182 REACH
Mathematical Superheroes: Create a Justification League in Your Classroom
3–5 Workshop
Each of our students has the potential to be a mathematical superhero with important problem solving powers. This session will draw from recent superhero movies to provide activities for uncovering, celebrating, and using our students’ mathematical super-strengths to create a classroom community focused on justification and mathematical learning.

Marcy Wood
University of Arizona, Tucson
Jennifer Eli
University of Arizona, Tucson

Meeting Room 24, Connecticut Convention Center

183 LANG
Meeting the Needs of Linguistically and Culturally Diverse Students in Mathematics
6–8 Workshop
Learn how Mathematical Language Routines equitably address the needs of students who encounter systematic barriers to academic success. ALL students—including those acquiring English, living in poverty, and/or impacted by systemic racism—need instruction that facilitates their access to disciplinary language and positive mathematical identities.

Luis Lima
Twitter: @lima271828
UnboundEd, Austin, Texas
Daniel Villarreal
UnboundEd, Oakland, California

Meeting Room 16, Connecticut Convention Center

184 LANG
Promoting Equity & Access in Mathematics through Discourse
3–5 Workshop
Effective use of discourse leads to significant gains in mathematics learning for students. Thoughtful discourse around engaging tasks provides access to meaningful mathematics for students from a wide range of backgrounds. Learn strategies to use discourse to support agency, learning, and understanding. See the best of every student!

Sara Delano Moore
Twitter: @saradelanomoore
ORIGO Education, Kent, Ohio

Marriott Capital Room 1 & 2, Marriott Hartford

185 CURRIC
Rigor: Putting the Balance in Instruction
6–8 Workshop
Rigor is a balance of conceptual understanding, procedural skill and fluency, and application. How is this put into practice in classroom instruction? This workshop will explore each component of rigor and connect it to relevant standards. Participants will connect the aspect of rigor called for in particular standards to tasks and assessment items.

Jennifer Michalek
Connecticut State Department of Education, Hartford

Exhibit Hall A5, Connecticut Convention Center

186 PRAC
Teaching Algebraic Thinking and Problem Solving without the X’s
Pre-K–2 Workshop
Strategies to develop algebraic thinking—including use of the equal sign, other representations, patterns, and solving for unknowns—will be the focus of this hands-on workshop. Attendees will be actively engaged with manipulatives, effective questioning strategies, and the exploration of real-life problems that promote algebraic thinking.

Donna Knoell
Educational Consultant and Author, Shawnee Mission, Kansas

Exhibit Hall A4, Connecticut Convention Center

A big thank you to our exhibitors, sponsors, volunteers, and speakers!
A math intervention program for K–5

Bridges Intervention provides targeted instruction and support, addressing Tier 2 within the RTI framework. Each volume contains activities, games, and practice pages that can be used for re-teaching key numeracy skills and concepts. Placement and progress monitoring assessments are included.

Join our session about Bridges Intervention on Saturday, Oct. 6 from 9:30 to 10:30 in Room 13 or stop by booth 413 to learn more.

mathlearningcenter.org/intervention

NCTM Regional Conferences & Expositions are an opportunity to share knowledge and learn with leaders in the field of mathematics education. Gain new strategies to unleash the mathematical mind of every student when you take advantage of superior math resources right on your doorstep.

What you’ll get:
- Innovative ideas you can immediately put to use
- Updates on classroom best practices from recognized innovators
- In-depth discussion about the latest education resources
- Knowledge-sharing with like-minded peers
- Interaction with the latest tools and products in the robust exhibit hall

Who should attend?
- Pre-K–Grade 12 classroom teachers
- Math coaches
- Administrators
- Math teacher educators
- Preservice teachers
- Math specialists

Join NCTM in Boston, Nashville, or Salt Lake City and discover the tools that will help you promote the mathematical habits of mind that will lead your students to college and career success.

Save the Date!

Learn more at nctm.org/regionals and follow us on #NCTMregionals
We thank our sponsors for generously supporting NCTM by offering products and services to enhance your conference experience. Please stop by to thank the following sponsors when you are in the Exhibit Hall.

In-Kind Sponsors

- BIG IDEAS LEARNING
- CASIO
- TEXAS INSTRUMENTS
Join an NCTM Affiliate Today

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

A list of Partner Affiliates in the conference’s region and the Affiliates-at-Large appears listed on page 61. To join one of these organizations, e-mail the Affiliate contact for membership information. NCTM has more than 200 Affiliates throughout the United States and Canada. For a list of all organizations affiliated with NCTM and information on how to join, visit the Affiliate Directory at nctm.org/Affiliates/Directory.

About the Host Organization

ATOMIC (Associated Teachers of Mathematics in Connecticut) is an organization that, through the cooperative effort of those individuals involved in mathematics and mathematics education at all levels, has the following purposes:

1. Encourage and assist the improvement of the teaching of mathematics
2. Promote the study of mathematics
3. Enhance interest in mathematics

The ATOMIC mission is to ensure that every Connecticut student receives world-class education in mathematics to promote and support improved student learning of mathematics by providing—

1. vision, leadership and support to the K-16 mathematics community, and
2. every teacher of mathematics with the opportunity to grow professionally.

NCTM Appoints New Editor-in-Chief for New Journal

Angela Barlow

NCTM is pleased to announce the appointment of Angela Barlow as the inaugural editor-in-chief for Mathematics Teacher: Learning and Teaching Pre-K–12, which launches in January 2020.

Angela Barlow
Affiliate Information

Connecticut
Associated Teachers of Mathematics in Connecticut
Lyn Channey, atomicmath@gmail.com
Connecticut Council of Leaders of Mathematics
Adam Goldberg, mrgoldberg1@yahoo.com

Delaware
Delaware Council of Teachers of Mathematics, Inc.
Sarah Kashner, Sarah.Kashner@capital.k12.de.us

Maine
Association of Teachers of Mathematics in Maine
Pamela Rawson, pamela.rawson@gmail.com

Maryland
Maryland Council of Teachers of Mathematics
Soosan Faulk, soosanfaulk@gmail.com

Massachusetts
Association of Teachers of Mathematics in Massachusetts
Steven Rattendi, steven_rattendi@newton.k12.ma.us

New England
Association of Teachers of Mathematics in New England
Cynthia Hillman-Forbush, cynthiahillman@gmail.com

New Hampshire
New Hampshire Teachers of Mathematics
Bernadette Kuhn, bkuhn@mrsd.org

New Jersey
Association of Mathematics Teachers of New Jersey
Neil Cooperman, NCoop@att.net

New York
Association of Mathematics Teachers of New York State
Ellen Falk, efalk@northsalemschools.org
Association of Teachers of Mathematics of New York City
Sandi Plotkin, zzplot@aol.com
New York State Association of Mathematics Supervisors
Suzanne Libfeld, suszli@aol.com
Ten County Mathematics Education Association (New York)
Suzanne Libfeld, suszli@aol.com
United Federation of Teachers Math Teachers Committee
 Philip Rosen, philipsroren@yahoo.com

Pennsylvania
Pennsylvania Council of Leaders of Mathematics
Melanie Sittler, melanie@justmath.net
Pennsylvania Council of Teachers of Mathematics
Annette Cook, annette_cook@hempfieldsd.org

Rhode Island
Rhode Island Mathematics Teachers Association
Raymond Morin, rmorin1035@cox.net

Vermont
Vermont Council of Teachers of Mathematics
Sean Sullivan, ssullivan@ssdvt.org

Affiliates-at-Large

Adult Numeracy Network
Pam Meader, mdr151@aol.com

Association of Mathematics Teacher Educators
Maggie McGatha, maggie.mcgatha@louisville.edu

Association of State Supervisors of Mathematics
Charles Watson, chaswatson@sbcglobal.net

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

Council for Technology in Mathematics Education
David Wees, davidwees@gmail.com

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

National Council of Supervisors of Mathematics
Jessica McIntyre, jkanoldmcintyre@gmail.com

North American Study Group on Ethnomathematics
Tod Shockey, todshockey@gmail.com

Society of Elementary Presidential Awardees
Timothy Dalby, tdalby@wilmingtonfriends.org

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

Women and Mathematics Education
Andria Disney, andriadisney@live.com
NCTM Board of Directors

Robert Q. Berry III, President
University of Virginia

Matt Larson, Immediate Past President
Lincoln Public Schools, Nebraska

Ken Krehbiel, Executive Director

Olive Chapman
University of Calgary, Calgary

Linda Davenport
Boston Public Schools, Massachusetts

Kevin J. Dykema
Mattawan Middle School, Michigan

David Ebert
Oregon High School, Wisconsin

DeAnn Huinker
University of Wisconsin–Milwaukee

Gina Kilday
Metcalf Elementary School, Rhode Island

Beth Kobett
Stevenson University, Maryland

Jeff Shih
University of Nevada, Las Vegas

Jason Slowbe
Great Oak High School, California

Daniel J. Teague
North Carolina School of Science and Math

Denise Walston
Council of Greater City Schools, Washington D.C

Kay A. Wohlhuter
University of Minnesota Duluth

NCTM wishes to thank our 2018 Hartford Regional Conference Committees for their generous support and dedication planning this Regional Conference.

PROGRAM COMMITTEE

Kyndall Brown, Chair
California Math Project

Delise Andrews
Lincoln Public Schools, Nebraska

Harold Asturias
University of California, Berkeley

Maria Diamantis
Southern Connecticut State University

Toya Jones Frank
George Mason University, Virginia

Karen Karp
John Hopkins University, Maryland

Beth Kobett
Stevenson University, Maryland

Carlos Lopez-Leiva
University of New Mexico

Pam Seda
Southwest DeKalb High School, DeKalb County School District, Georgia

Dina Williams
75th Street School, Los Angeles Unified School District, California

Cathery Yeh
Chapman University, California

Steve Weimar
21st Century Partnership for STEM Education, Pennsylvania

PROFESSIONAL DEVELOPMENT GROUP

Jeff Shih
University of Nevada, Las Vegas

VOLUNTEER COMMITTEE

Lyn Channey, Chair
ATOMIC Board Member

Erin Barlow
Cooperative Educational Services, Connecticut

Maria Mitchell
Central Connecticut State University
A

Amplify
Booth 417
Brooklyn, New York
www.amplify.com

Amplify is reimagining the way teachers teach and students learn. Amplify Fractions is our new digital math program that offers a new approach to learning fractions through a unique blend of adaptive learning and interactive storytelling. Through story-driven lessons, fractions are taught with real-world context, purpose, and humor. Along with personalized feedback and unlimited practice, Amplify Fractions truly engages students by helping them master—and deeply understand—fractions.

B

Big Ideas Learning, LLC
Booth 129
Erie, Pennsylvania
877-552-7766
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 comes with a complete and innovative technology package that includes additional resources, customizable online assessments, virtual tools and manipulatives, skills practice, and much more. Big Ideas Math truly gives you the power to reach every student in your classroom! Visit us at booth 129 to learn more!

C

Casio America, Inc.
Booth 321
Dover, New Jersey
973-361-5400
www.casio.com

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

CPM Educational Program
Booth 412
Elk Grove, California
916-638-1145
www.cpm.org

CPM offers grades 6–12 mathematics textbooks that use problem-based learning in student-centered classrooms and supports it with funded professional development. The Core Connections series (© 2013–2015) is 100 percent aligned with CCSSM content and practices. High school books offer both traditional and integrated pathways. Visit our booth and receive free access to the curriculum.

Curriculum Associates
Booth 421
North Billerica, Massachusetts
978-313-1269
www.CurriculumAssociates.com

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

D

Didax Inc
Booth 328
Rowley, Massachusetts
978-997-4385
www.didax.com

Didax creates innovative hands-on resources to improve the teaching of mathematics. Our materials include books, manipulatives and more for pre-K–grade 12. In addition, we work with Great Minds, the creators of Eureka Math™, to provide the only authorized grade-level manipulative kits that support the curriculum. We also work with Math Perspectives to provide Kathy Richardson’s K–2 online assessment system, Assessing Math ConceptsSM, and the instructional program Developing Number Concepts.

E

EAI Education
Booth 422
Oakland, New Jersey
800-770-8010
www.eaieducation.com

Your one-stop source for math manipulatives, classroom resources, educational games, calculators, STEM products, and teaching aides for pre-K–grade 12. Stop by our booth to see our NEW products for 2018, watch exciting product demonstrations, enter to win prizes, and browse a selection of our most popular games and resources available for purchase. Come learn how EAI Education can create custom manipulative kits to complement your curriculum and SAVE your district funding.

Exemplars
Booth 325
Underhill, Vermont
802-899-4409
www.exemplars.com

For 25 years, Exemplars has published math performance tasks for instruction and assessment. Our authentic material engages students and is differentiated at three levels. Our latest material, Problem Solving for the 21st Century, features newly developed tasks and classroom tools to support the implementation of problem solving. Planning sheets, rubrics, student anchor papers and assessment rationales are provided. Material supports and is aligned to state, national and Common Core standards.

Eureka Math by Great Minds
Booth 329
Washington, D.C.
202-223-1854
www.eureka-math.org

Eureka Math (EngageNY) was written by teachers and mathematicians who took great care to present math in a logical progression from pre-K through grade 12. Eureka works to establish conceptual understanding first, to reduce gaps in student 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 curriculum, professional development, print materials, digital tools, and support.

ExploreLearning
Booth 323
Charlottesville, Virginia
866-882-4141
www.explorelearning.com

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

F

First In Math – Suntex International
Booth 334
Easton, Pennsylvania
610-253-5255
www.firstinmath.com

FIRST IN MATH® ONLINE: Building the M in STEM. Suntex International has helped K–8 students build the M in STEM for more than 30 years, starting with the 24® Game and continuing with the First In Math® Online Program. FIM provides a rich platform to help students acquire, reinforce, and retain vital math skills. The innovation continues with the addition of our latest module, Computational Thinking World that includes coding! Visit us at booth 334 to hear about this new and exciting STEM resource.
We offer a complete line of math aids, math supplies, and math equipment for the middle and high school classroom. Many of our products are exclusively produced by Geyer! We specialize in graph paper, graphing and measurement tools, dry erase products, and posters. We also carry books, games, and general school supplies. Purchase orders accepted. Check us out online at www.geyerinstructional.com.

Houghton Mifflin Harcourt is a global learning company dedicated to changing people’s lives by fostering passionate, curious learners. As a leading provider of pre-K–12 education content, services and cutting-edge technology solutions across a variety of media, HMH enables learning in a changing landscape.

We are the U.S. subsidiary of a leading provider of learning materials in Japan, founded in 1933. For over 80 years we have been supporting the advancement of Japanese public education. Our mission is to provide quality education to children in all kinds of environments. Education fosters our children, and paves the way for our society’s future. Here at Japan Math Corp., we provide high-quality education and learning materials for children to help them build a brighter future.

Kendall Hunt is the premiere publisher of innovative, hands-on science, mathematics, gifted and virtual reality curricula for pre-K-grade 12. ConstructEd, a division of Kendall Hunt, allows schools and/or teachers to create made-to-order textbooks or digital products using existing products or by creating their own.

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

McGraw-Hill Education
Booth 114
Columbus, Ohio
614-430-4482
www.mheducation.com

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

MOEMS
Booth 418
Belmore, New York
516-781-2400
www.moems.org

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

National Geographic Learning, a part of Cengage, provides quality pre-K–12, academic, and adult education instructional solutions for reading, science, social studies, mathematics, and world languages; ESL/EFL; advanced, honors, and electives; career and technical education; and professional development. See our new catalog at NGL.Cengage.com/catalogs.

ORIGO Education covers all facets of elementary mathematics education: from traditional printed products to digital/interactive resources and professional learning. ORIGO Stepping Stones (aligned to CCSSM) delivers a world-class mathematics program that seamlessly blends digital and print materials. ORIGO is committed to excellence by creating products that inspire and empower teachers and students. Our diverse selection of products bring a renewed enthusiasm to students’ learning experiences.
Pearson
Booth 333
Chandler, Arizona
480-316-0210
www.PearsonEd.com

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

Sadlier
Booth 414
New York, New York
800-221-5175
www.SadlierSchool.com

For more than 60 years, Sadlier has developed high-quality K–8 math programs. Sadlier Math, new for K–grade 6, reflects the keystones of mathematical learning through a systematic instructional approach, abundant real-world STEAM applications and problem solving, and innovative support for teaching and learning. Progress Mathematics, a supplemental K–8 program, provides a variety of pathways to improve student learning and outcomes. Both programs offer dynamic digital tools to enrich learning.

ST Math, created by MIND Research Institute
Booth 319
Irvine, California
888-751-5443
www.stmath.com

Spatial-Temporal (ST) Math® is a visual instructional program that builds a deep conceptual understanding of math through rigorous learning and creative problem solving. ST Math currently reaches more than 1.2 million students. For more information, visit stmath.com.

Texas Instruments
Booth 311
Dallas, Texas
214-567-6409
education.ti.com

TI provides free classroom activities that enhance math, science, and STEM curricula; technology that encourages students to develop a deeper understanding of concepts; and professional development that maximizes your investment in TI technology. TI offers handhelds, software, apps for iPad®, and data-collection technology, all designed to promote conceptual understanding, and formative assessment tools that gauge student progress. Visit education.ti.com.

The Math Learning Center
Booth 413
Salem, Oregon
800-575-8130
www.mathlearningcenter.org

The Math Learning Center (MLC) offers innovative and standards-based materials for elementary classrooms. Bridges® in Mathematics, Number Corner®, and Bridges® Intervention are designed to develop mathematical confidence and ability not only in students but also in teachers. In support of our nonprofit mission, we also offer a range of free resources, from math apps to free lessons and books for educators.

Program Advertisers (in alphabetical order)

Big Ideas Learning, LCC .................................. 23
CPM Educational Program .............................. 8
Heinemann ......................................... 50
Houghton Mifflin Harcourt ....................... Inside Front Cover
The Math Learning Center .................. 57, Back Cover
University of New Hampshire .............. Inside Back Cover

NCTM Advertising

CONFERENCES

2019 Annual Meeting & Exposition ...................... 32
2019 Regional Conferences ............................. 58

MEMBERSHIP

NCTM Election 2018 .......................... 27

PROFESSIONAL DEVELOPMENT

NCTM Workshops .................................. 14

PUBLICATIONS

Catalyzing Change ................................. 39
New NCTM Journal .............................. 60
Zeiner, Ellen  . . . . . . . . . . . . 27
Zichermann, Gary  . . . . . . . . . . . 62
Zimmerman, Greg  . . . . . . . . . . . 145
Zuber, Nathan  . . . . . . . . . . . . . . 110
Zuo, Jing  . . . . . . . . . . . . . . . . . . 75
Zuehlke, Matthew  . . . . . . . . . . 181
Zweibel, Christine  . . . . . . . . . . . 12
Zweig, Charles  . . . . . . . . . . . . . . 58
Zweifel, Jan  . . . . . . . . . . . . . . . . . 3
Zwicker, Pinar  . . . . . . . . . . . . . . . 7
Zwicky, Richard  . . . . . . . . . . . . . . 10

Speaker Index

A
Aiello, Maria ............ 163
Amplify Education ...... 24.2
Asturias, Harold .......... 3
B
Baker, Courtney ........ 54, 76
Balk, Ellie ................ 131
Banspach, Cara .......... 139
Barbour, Anne .......... 139
Beattini, Thomas ....... 105
Bell, Kiera ............... 163
Bernabucci, Briana .... 38, 134
Berry III, Robert Q .... 39
Bickel, Lisa ............. 149
Bigelow, Amy .......... 91
Biggane, Julie .......... 174
Bleecker, Heather ...... 145
Bogdon, Sara .......... 137
Bond, Jennifer ........ 45, 101, 158
Booth, Samantha ...... 159
Boratto, Angela ....... 38, 134
Bowell, Laurie ........ 44
Braswell, Latoya ....... 135
Broome, Michael ..... 97
Brzezinski, Timothy ... 49
Bullock, Lark .......... 151
Burrett, James .......... 9, 87
Burrill, Gail .......... 69, 117
Bush, Sarah ........... 121
Bushart, Brian .......... 153
C
Caban, Sarah ........ 115
Campe, Karen ...... 125, 155, 178
Cardone, Tina ...... 136
Carroll, Elizabeth .. 90
Casa, Tutita .......... 33
Castillerro, Christopher . 36
Cavann, Jillian ...... 31, 58, 180
Cesa, Dave ........... 6, 171
Chadz, Susan ........ 21
Cho, Hoyun ........... 16
Chu, Adrienne ......... 144
Cirillo, Michelle ..... 31, 61, 88, 166, 180
Civan, Mindy ........ 11, 140
Cohen, Victoria .......... 40
Colonnesi, Madelyn ... 33
Cornfield, Abbye .... 11, 140
D
Daly, Stacey .......... 68
Davidson, Andrew .... 12
Davis, Marsha .......... 20
de Groot, Cornelis .... 51
De Haan, Darlynne ... 51
Decovsky, Fred .......... 125, 155, 178
Delano Moore, Sara ...... 119, 184
DePaul, Debi ...... 25, 123, 154
Deptula, Karyn ...... 90
Devine, Katelyn ...... 106, 128
Diehl, Stephanie .... 53
Dietker, Leslie .... 110
Dillon, Frederick .... 120
Dituri, Philip .......... 79
Dykema, Kevin .... 65, 175
Krasnow, Allison .... 103
Krupa, Adam ........ 59
Laib, Jenna ........... 42
Laird, Katie .......... 147
Langman, Juliet ........ 77
Larose, Chantal .. 10
Lawrence, Gary ....... 16
Lazar, David .......... 112
Leinwand, Steven ...... 100
Leith-Doucett, Diane . 172
Lim, Luis ............... 183
Lochel, Robert ........ 64
Lopez-Leiva, Carlos .. 141
Lucenta, Amy ........ 1, 37, 78
M
Mann, Robert ........ 8
Manthey, Joseph ... 34
Marley-Payne, Jack .... 12, 79
Martin, Pamela ........ 97
The Math Learning Center . 120.2
Matthase ........... 62.1
Matthews, James .... 104
Maxwell, Jennifer .... 68
Mayne, Robert ........ 172
Mazzotta, Catherine .... 58
McAleeer, Jennifer ..... 116
Michalek, Jennifer .... 185
Miller, Sandra .......... 60
Millings, Rachael .... 144
Moore, Robin .......... 85
Morris, Peter .......... 116
Morrow-Leong, Kimberly . 119, 169
National Geographic Learning/ Cengage Center .... 24.1
Nebesniak, Amy ........ 132
Neumayer DePiper, Jill ... 50
Nikula, Johanna .... 50
O
O’Connell, Susan .... 108
O’Keefe, James ........ 43
Oliver, Carl ........... 41
P
PantoZZi, Ralph .......... 26
Parnish, Sherry ....... 4
Pelesko, John ........ 166
Pereira, Kristina ...... 163
Perez, Belinda ...... 158
Piatek, Shannon .... 96
Picha, Gina .......... 84
Presley, Gretchen .... 73, 123, 154
R
Rademacher, Martha-Alice ... 98
Ramirez, Elizabeth .... 75, 176
Ratliff, Brea .......... 48
Reid, Anita ........... 8
Restivo, Nicholas ...... 114
Richard, Jenna .......... 168
This certificate is presented to

in recognition of attendance and participation at the
NCTM 2018 Regional Conference & Exposition

Hartford, Connecticut • October 4–6, 2018

Robert Q. Berry, III
President, NCTM
Name of Provider:  National Council of Teachers of Mathematics

Educator’s Name: ____________________________________________________________________________________

Description of Professional Development Activity: This is a three-day regional conference sponsored by the National Council of Teachers of Mathematics. Nearly 200 presentations are offered for teachers of prekindergarten through college. Topics range from administration to geometry, precalculus to statistics.

*Note: PD time earned should be the time actually spent in sessions and/or workshops.*

<table>
<thead>
<tr>
<th>Date</th>
<th>Session #</th>
<th>Session Title</th>
<th>Presenter Name(s)</th>
<th>Start/End Time</th>
<th>PD Time Earned</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL Professional Development Hours Accrued:**

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

Ken Krehbiel  
Executive Director, NCTM

Robert Q. Berry, III  
President, NCTM

*Please check with your state education agency and local administration to determine whether these conference hours can be used for professional development credits.*
A SUMMER PROGRAM

Designed for teachers of secondary and middle school mathematics, this program provides a broader and deeper background in several areas of mathematics, including algebra, geometry, and analysis. Explore mathematics with supportive faculty in small class sizes. Share ideas and teaching approaches with other educators from across the country. Consider perspectives which allow students to learn mathematics more effectively.

This program features a strong emphasis on mathematics content, while also providing opportunities for teachers to consider alternative approaches to pedagogy.

CEPS.UNH.EDU/MST

- Complete the program in as little as 2 years.
- Campus housing and dining options are available.
- Designed for educators to earn their masters, while continuing to advance their career.
- Interested in a course for professional development? MST courses are available to non-degree students.

CONTACT US
mst.math@unh.edu
(603) 862-1943
Building Mathematical Thinkers

Bridges in Mathematics is a comprehensive PK–5 curriculum that equips teachers to fully implement the national standards in a manner that is rigorous, coherent, engaging, and accessible to all learners. Bridges blends direct instruction, structured investigation, and open exploration.

Visit booth 413 in the exhibit hall to learn more.