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TI-Nspire™ technology extends seamlessly across a suite of tools, including handhelds, software and apps, helping teachers integrate engaging content into math instruction. Colorful visuals allow students to make meaningful connections between abstract concepts and the real world. The ability to manipulate graphs, charts and geometry constructions increases student engagement and provides them with a deeper understanding of concepts. No matter what technology you’re using in the classroom, you can explore and discover relevant mathematics in the everyday world.

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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 www.nctm.org

Printed in U.S.A.
Welcome to Louisville!

Whether you have been to Louisville before or this is your first time in our great city, we know you will find plenty to do. Because the conference is in the heart of downtown, we are excited to show you the many options this area of town has to offer.

In Louisville, we pride ourselves on the walkability of our city. Hundreds of businesses are connected to our skywalk system, called the Louie Link. This stretches from our entertainment district, Fourth Street Live!, to the KFC Yum! Center. This means you will be able to access everything from a quick bite at the food court to a white tablecloth dinner with ease. Free trolleys stop all over downtown, which makes it a breeze to get around. They go all the way to our up-and-coming NuLu area, one mile east of downtown where you can also find some delicious eats or light shopping.

The downtown area is also rich with unique attractions. Museum Row on Main is a quick stroll from the hotels, featuring nine attractions within four walkable blocks. Learn about “The Greatest” in and out of the ring at the Muhammad Ali Center; see the world’s largest bat at the Louisville Slugger Museum & Factory; learn about the state’s intricate history at the multimedia KentuckyShow! narrated by Ashley Judd; and see artifacts that helped shape our nation, including a sword owned by Josiah Bartlett, signer of the Declaration of Independence, and a rifle owned by our first president, George Washington. Head to the Ohio River and take a cruise on the Belle of Louisville, America’s last true Mississippi River steamboat still in operation.

Our Louisville Visitors Center is in the center of town on the corner of 4th and Jefferson. The center is staffed seven days a week with people who can tell you where to go, where to eat, and how to get there. Free walking tours of the city are also available by appointment. We can’t wait for you to experience downtown Louisville. We think you will enjoy the convenience and versatility of the area and hope you find it to be a fun and educational experience.

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

E. Todd Brown  
Volunteer Committee Chair  
University of Louisville (Retired)  
Louisville, Kentucky
The NCTM 2013 Regional Conference & Exposition officially begins with the Opening Session, featuring Matt Larson (see page 10), starting at 5:30 p.m. on Wednesday. Presentations on Thursday and Friday begin at 8:00 a.m. each day and are scheduled concurrently throughout the day.

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

Please remember:

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

New and Preservice Teachers Workshop

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

Thursday and Friday
10:30 a.m.–12:00 noon
Room 104

New Members and First Timers’ Orientation

New to NCTM or a first-time attendee at a regional conference? Join us to learn how to maximize your membership experience! From journals, online lessons, tools, and activities to networking and career-advancement opportunities, you’ll discover all that NCTM has to offer you. Also, first-time attendees will learn how to make the most of their time at the conference.

Thursday and Friday
7:15 a.m.–7:45 a.m.
Room L6/L7

Professional Development

This year’s Focus of the Year is Number and Operations: Be Radical and Get Real!

The conference will highlight this theme as the topic of Thursday’s Learn↔Reflect strand, as well as in many other NCTM activities throughout the year. For more information, visit www.nctm.org/focus.

Learn↔Reflect Strand

NUMBER AND OPERATIONS: BE RADICAL AND GET REAL!
THURSDAY, NOVEMBER 7

Plan one full day for the Focus of the Year topic, Number and Operations: Be Radical and Get Real! The strand begins with a morning Kickoff session and concludes with an end-of-the-day Reflection session. In between, choose from among a number of sessions exploring the topic, all marked with the symbol Learn↔Reflect. Immerse yourself in the topic, and collaborate with leaders and colleagues. We ask participants to reflect on the following questions throughout the Learn↔Reflect strand and then discuss them at the end of the strand, during the Reflection session:

1. What is number sense, and how can you promote the development of number sense in your students? How are fluency and understanding related in the context of number and operations?
2. How can instructional decisions facilitate the development of strategies that are meaningful and transferable for operations on all numbers?
3. How are equity and diversity promoted by developing conceptual understanding of number?
4. How can the Standards for Mathematical Practice support the development of number sense and computational fluency?
5. How are you thinking differently about your learning and teaching of number and operations as a result of participating in the Learn↔Reflect sessions?

Learn↔Reflect sessions are open for anyone to attend throughout the day. Participants who attend the Kickoff session, at least one Learn↔Reflect session during the day, and the final Reflection session will receive personalized certificates by mail.

Learn↔Reflect Kickoff Session
Thursday, 9:30 a.m.
Room L14

Learn↔Reflect Reflection Session
Thursday, 3:30 p.m.
Room 209
Focus Strands

MATHEMATICAL LEARNING TRAJECTORIES (THURSDAY)
Mathematical learning trajectories provide descriptions of children’s developmental thinking within a particular content domain. These trajectories speak to the types of instructional tasks teachers can use to support students’ ascension through the trajectory. Sessions included in this focus strand will provide an overview of learning trajectories, detailed descriptions of specific trajectories, and related instructional tasks.

Strand Speakers
Jeff Barrett (#91)
Michael Battista (#88)
Maria Blanton (#54)
Joanne Cady (#67)
Doug Clements (#5)
Alan Maloney (#116)

Other presentations related to this topic: Amanda Miller and Cheryl Eames (#10), Jennifer Nickell and Alan Maloney (#12), Tim Sears and Ellen Sears (#138)

ENGLISH LANGUAGE LEARNERS (FRIDAY)
The sessions in this strand focus on engaging English Language Learners of all ages and levels of English proficiency in meaningful mathematics. Ideas for differentiating instruction, utilizing effective assessments, and guiding students to construct a conceptual understanding of mathematics will be shared.

Strand Speakers
Jennifer Bay-Williams (#124)
Higinio Dominguez (#214)
Anne Estapa (#178)
Stefanie Livers (#164)
Deandera Murrey (#189)
Amy Nebesniak and Aaron Burgoa (#241)
Rachel Syrja (#216)

DEVELOPING MATHEMATICAL PROMISE, TALENT, CREATIVITY, AND GIFTEDNESS (FRIDAY)
Quality education must capture mathematical passions and imagination and develop the potential of a wide range of mathematically promising students. Join us in this strand for a discussion of these issues, suggestions for students’ development, and a look at critically needed development and dissemination of research to prepare the STEM leaders of tomorrow.

Strand Speakers
Heather Carmony (#133)
Tutita Casa (#177)
Scott Chamberlin (#225)
Suzanne Chapin (#215)
Kathryn Chval (#200)
Carole Greenes (#191)
Becky Leff (#161)
Linda Sheffield (#149)

CCSS: STANDARDS FOR MATHEMATICAL PRACTICE (THURSDAY)
The Common Core State Standards focus not only on content but on habits of mind as well. Like the NCTM standards, the Standards for Mathematical Practice (SMPs) are about the thinking and processing that we want all of our students to be doing. This strand will help you better understand what the SMPs look and sound like in the classroom when students are engaged in problem solving.

Strand Speakers
Christopher Danielson (#52)
Christian Hirsch (#98)
Hank Kratky and Fred Dillon (#112)
James Kratky (#3)
Laura Parn (#94)
Betty Phillips (#35)
Drew Polly and Amy Lehew (#31)
Mike Shaughnessy (#65)

Other presentations related to this topic: Diane Briars (#154), Heather Brown and Alanna Mertens (#145), Ed Dickey (#134), Brianna Donaldson (#71), Kelly Edenfield (#132), Ted Hull and Don Balka (#78), Diane Lambdin (#32), Maggie McGatha, Jennifer Bay-Williams, and Beth Kobett (#234), Carolyn Moore (#147), Samuel Otten (#155), Susan Peters and Jonathan Watkins (#118), Elizabeth Phillips (#35), Theresa Reilly (#169), Rose Zbiek (#158)
Exploring Fractions (Friday)

Assist your students in deepening their fraction knowledge by engaging in a variety of sessions in the Exploring Fractions strand. The sessions include foundational fraction concepts, fraction division, interpreting students’ thinking about fractions, exploring fractions through interactive activities, and initial decimal concepts.

Strand Speakers

- M. Lynn Breyfogle (#139)
- Kathleen Cramer and Debbie Monson (#165)
- Fred Dillion (#70)
- Francis (Skip) Fennell and Jon Wray (#19)
- Alanna Mertens and Heather Brown (#199)
- Debbie Monson and Kathleen Cramer (#69)
- Meghan Shaughnessy (#186)
- Erik Tillema (#131)

Other presentations related to this topic: Rick Anderson (#168), Kim Sutton (#141), Trena Wilkerson (#176)

Special Education (Thursday)

This strand is intended to support teachers who work with the spectrum of students who struggle with mathematics. These sessions offer a variety of approaches and assessment strategies to assist special education teachers, Title I teachers, and regular classroom teachers who instruct students with a wide range of abilities. This strand is appropriate for teachers of students with special needs.

Strand Speakers

- Diane Bryant (#79)
- Barbara Dougherty and Anne Foegen (#203)
- Anne Foegen and Barbara Dougherty (#24)
- Karen Karp and Amy Lingo (#11)
- Judy Storeygard (#92)
- Delinda van Garderen, John Lannin, and Tiffany Hill (#42)
- John Woodward (#57)

Other presentations related to this topic: Ginevra Courtade, Amy Lingo, and Jeremy Whitney (#80), Christa Jackson and Margaret Mohr (#108), Mary Hodges (#93), Karen Ross-Brown (#27), Andrew Scott and Amy Johnson (#33)

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. The speaker may use audiovisual equipment, technology, and handouts, and he or she may include audience participation. Rooms are set theatre style and vary in size.

Gallery Workshops (90 minutes) have rooms set with round tables for hands-on work and additional gallery seating around the perimeter of the room. The gallery participants will receive the print materials and observe the workshop in a fashion similar to that of a classroom observer.

Exhibitor Workshops (60 minutes) are set theatre style for at least 70 people. Exhibitors showcase their products and services away from the Exhibit Hall. Look for the symbol indicating exhibitor workshops in the program book.

Grade Bands

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

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

Program Updates

Don’t forget to pick up your copy of the Program Updates, which includes speaker and program updates, a complete exhibitor directory, and additional exhibitor workshop listings. Program Updates are available in the Registration Area.
Tips for a Rewarding Regional Conference & Exposition

- Access available speaker handouts at www.nctm.org/plan.
- Become familiar with the layout of the Kentucky International Convention Center by reviewing the floor plans on pages 70–75.
- Visit the NCTM Bookstore for the latest NCTM educational resources and the Member Showcase to learn more about how NCTM can help you professionally and pick up free resources.
- Stop by the Information Booth for information on the local area.
- Wear comfortable shoes and clothes, and dress in layers.
- Turn off cell phones during presentations.
- Be safe! Remove your name badge when you leave the conference facilities at the end of the day.

Registration and Access to Presentations

You must wear your badge to enter all presentations and the NCTM Exhibit Hall. Please be aware that the fee for a replacement badge is $10.

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

For Your Child’s Safety

Due to the size and nature of the NCTM 2013 Regional Conference & Exposition, this event is not an appropriate setting for children under 16 years of age. Children under age 16 will not be permitted in the Exhibit Hall. We appreciate your understanding and cooperation. Children 16 years and over will need to register as nonteaching guests. To register a nonteaching guest, please visit the Registration Area.

Member Showcase

Make sure to stop by the NCTM Member Showcase located in the Exhibit Hall and let us help you learn more about how your NCTM membership can help you be more successful. A membership provides you access to lessons, teaching tips and strategies, research findings, and more. Classroom-ready activities, sample journals, and other materials will be available for you to take back and use immediately in the classroom.

Whether you are a new member, a current member, or thinking of joining, the NCTM Member Showcase is here to support you with your daily challenges!

Renew your membership or join NCTM for the first time on site and you will receive a free New Orleans Annual Meeting t-shirt! While supplies last.

Bookstore

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Save 25 percent off the list price on all purchases made at the NCTM Bookstore in the Exhibit Hall. Check out NCTM’s newest titles and bestsellers and find NCTM gear for yourself and for friends and family at home. Spreading the word about the importance of math has never been easier. Start your wish list today by previewing NCTM’s wealth of resources at www.nctm.org/catalog.

Note on Sales Tax Exemptions: To be considered exempt from sales tax in the NCTM Bookstore, you must provide a copy of a Kentucky tax exemption certificate at the time of purchase. NCTM is required by law to keep a copy of the certificate, so we cannot return it to you. To qualify, you must make payment with a purchase order, check, or credit card from the school to which the Kentucky Exemption Certificate is issued. We cannot accept personal checks, personal credit cards, or cash in conjunction with tax exemption certificates. Tax exemption certificates for states other than Kentucky are not valid for this regional conference.

The NCTM Bookstore is not equipped to handle shipping from the meeting site. The Kentucky International Convention Center Business Center can assist you with your shipping needs.
Information Booth

The NCTM Information Booth will be in the Convention Center. Friendly staff can answer your questions about Louisville. They will also assist you with directions and local information, from transportation and historical sites to shopping and entertainment.

Networking Lounge

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 Network Lounge to do so. Download the Conference App to receive alerts for scheduled networking meet-ups!

Lost-and-Found

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

First-Aid Station

There will be a first-aid station at the Kentucky International Convention Center during the NCTM conference. If you need medical services while in Louisville, please check with the hotel concierge for the closest medical facilities.

Your Opinion Counts!

Thank you for attending the NCTM 2013 Regional Conference & Exposition. In the days following the Regional Conference, you will receive an e-mail asking for an evaluation of your meeting experience. Please take a moment to complete the survey. Your feedback is important to us and will be instrumental in the Regional Conference and Exposition planning process.

Exhibits

Be sure to make time in your schedule to visit the NCTM Exhibit Hall. To give you dedicated time to visit the exhibits, no presentations will take place from 4:00 p.m. to 5:00 p.m. on Thursday. Explore, try out, and purchase products and services to use in your classroom or to help you meet your career goals. You’ll also be able to meet the people who produce these products, get fresh ideas, and see demonstrations of how products work. Check out the list of exhibits and a map of the Exhibit Hall on pages 74–80. Please note: Children under age 16 will not be permitted in the Exhibit Hall.

Exhibitor Workshops

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

Conference App

The NCTM conference app keeps you connected with the Regional Conference’s every aspect. The free app allows you to search sessions, speakers, and exhibits; view the Exhibit Hall floor plan; highlight your favorite presentations; and interact with your colleagues! Visit www.nctm.org/confapp for more information.

Presentation Handouts

Attendees can access available electronic presentation handouts through the conference app and online planner. Handouts will be available until December 31, 2013.

Online Planner

The online 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 planner is continually updated with the latest program changes and presentation information. Visit www.nctm.org/plan to check it out.

NCTM App

When you return home, don’t forget to download NCTM’s Android or iOS app for free. The NCTM app gives users easy, efficient access to timely NCTM information throughout the year—from updates on new publications and best sellers to the latest information on upcoming conferences and professional development opportunities. Users can be up to the minute on NCTM activities, teaching tips, and classroom resources. The conference app also includes Facebook and Twitter feed updates. Visit www.nctm.org/nctmmobile for more information and to download the app.
Engage Students and Inspire Learning

Check out these new books from Heinemann

**Powerful Problem Solving**
*Activities for Sense Making with the Mathematical Practices*

Max Ray, of the Math Forum at Drexel, shows what’s possible when students become active doers rather than passive consumers of mathematics. Self-confidence, reflective skills, and engagement soar as students discover different ways to approach problems.


**Agents of Change**
*How Content Coaching Transforms Teaching and Learning*

How can teacher leaders cultivate an environment that will improve student learning in every classroom? Lucy West and Toni Cameron turn decades of experience designing and implementing coaching initiatives into a practical resource for transforming school culture and inspiring true learning.


**Putting the Practices Into Action**
*Implementing the Common Core Standards for Mathematical Practice*

Susan O’Connell and John SanGiovanni provide practical activities to help you quickly integrate the eight Standards for Mathematical Practices into your existing math program. With classroom vignettes, sample activities, and helpful teaching tips, they bring the standards to life.


Visit Heinemann.com to order online.
To order by phone call 800.225.5800 or fax 877.231.6980.

*Sale prices reflect 30% off list price through 11/8/13*
HIGHLIGHT
Opening Session (Presentation 1): The Challenge of Making CCSSM Matter

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REGISTRATION HOURS
5:00 p.m.–8:00 p.m.

FIRE CODE
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 Challenge of Making CCSSM Matter

Opening Session

Adopting new content standards alone is unlikely to reduce existing learning differentials. For implementation of the Common Core State Standards for Mathematics (CCSSM) to raise the achievement of all students and close existing learning differentials, implementation efforts must simultaneously address the five paradigm shifts that will be the focus of this session.

Matthew R. Larson
Lincoln Public Schools, Nebraska

Cascade Ballroom A/B
HIGHLIGHTS
New Members and First Timers' Orientation (Presentation 2)
Learn↔Reflect Kickoff Session (Presentation 29)
New and Preservice Teachers Workshop (Presentation 39)
Learn↔Reflect Reflection Session (Presentation 113)

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www.nctm.org/facebook

TWITTER
Use Twitter to follow the Conference!
www.twitter.com/nctm
#NCTMLouisville

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

EXHIBIT AND NETWORKING LOUNGE HOURS
8:00 a.m.–5:00 p.m.

BOOKSTORE AND MEMBER SHOWCASE HOURS
7:00 a.m.–5:00 p.m.

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**2**  
**New Members and First Timers’ Orientation**  
*(General Interest)* Session

New to NCTM? Join us to learn how to maximize your membership experience. From journals and online lessons, tools, and activities to networking and career-advancement opportunities, you’ll discover all that NCTM has to offer you. Also, learn how to make the most of your time at the conference.

**Jane Porath**  
Board of Directors, National Council of Teachers of Mathematics; Traverse City East Middle School, Michigan

**Tommy Hodges**  
University of South Carolina, Columbia

**Karen Graham**  
Board of Directors, National Council of Teachers of Mathematics; University of New Hampshire

**Room L6/L7**

**8:00 A.M.—9:00 A.M.**

**3**  
**Connecting and Reconnecting to What It Means to Understand Mathematics**  
*(General Interest)* Session

The Common Core State Standards for Mathematics set the stage for the Standards for Mathematical Practice by mentioning some of the hallmarks of understanding mathematics. We will generate a list of hallmarks and reflect on ways that teachers at all grade bands can continue to improve their instruction. Also, we will discuss how this connects to professional teaching.

**James L. Kratky**  
Western Michigan University, Kalamazoo

**Cascade Ballroom B**

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**4**  
**Designing Professional Development for Mathematics Teachers**  
*(General Interest)* Session

Designing professional development for mathematics educators requires insight into teachers’ level of expertise and their confidence in teaching mathematics. Using teacher self-assessment, professional development was designed to create a multilevel approach to teacher training.

**Patricia A. Dickenson**  
National University, San Jose, California

**Judith Montgomery**  
University of California Santa Cruz

**Room 218**

**5**  
**Lessons from Research: Standards, Teaching, Learning Trajectories**  
*(General Interest)* Session

Math education is in a state of dramatic change. What does the research say that provides reliable guidance to using new standards, curricula, and teaching strategies? Discuss lessons from recent research. At the core of many successful efforts are learning trajectories: research-based paths of learning and teaching.

**Douglas H. Clements**  
University of Denver, Buffalo, New York

**Cascade Ballroom C**

**6**  
**Math Journaling with a Twenty-First-Century Twist: iJournals**  
*(General Interest)* Session

Follow the journey a partnership—consisting of a preservice teacher, an in-service teacher, and a university professor—took with integrating iPads in math journaling with first graders. We will share lessons learned, effective apps, and specific strategies for integrating iPads in first-grade classrooms.

**Katie Kinney**  
University of North Alabama, Florence

**Mandy Wicks**  
Kilby Laboratory School, Florence, Alabama

**Kaitlin Ashley**  
University of North Alabama, Florence

**Room 110/111**
8:00 A.M.–9:00 A.M.

7 PARCC: Realizing a New Vision of Assessment
(General Interest) Session

Partnership for the Assessment of Readiness for College and Careers (PARCC) is an alliance of twenty-two states committed to developing assessments for grades 3–11 that measure student performance according to the Common Core State Standards and to doing so in a way that contributes to student learning. I will address PARCC’s goals, characteristics of the assessments, and several mathematics items.

Cory Curl
Achieve, Washington, D.C.

Cascade Ballroom A

8 Reasoning about Rational Numbers on the Cartesian Coordinate Plane
(General Interest) Session

I will model formative assessment strategies while you represent ratios and proportions on the Cartesian coordinate plane. This visual model for what is often taught as an abstract concept allows students easy access to understanding slope and linear functions. We will explore range questions and conjecture boards.

Anne M. Collins
Lesley University, Cambridge, Massachusetts

Room L14

9 Building Formative Assessment Practices to Support the Common Core State Standards
(Pre-K–2) Session

Understanding of number is crucial to students’ development in mathematics. Explore formative assessment as a tool for building the level of number understanding necessary for mathematical proficiency. I will focus on multiple assessment practices dealing with major concept areas in elementary mathematics.

Drew Polly
University of North Carolina at Charlotte

Room L6/L7

10 Learning Trajectories as Instructional Tools, K–5
(Pre-K–5) Session

We will explore how learning trajectories can be used as diagnostic, analytical, and instructional tools for teachers, as well as share sample tasks on measurement (length, area, volume). We will share student work to highlight common responses to those tasks. Leave with research-based, classroom-ready tasks.

Amanda L. Miller
Illinois State University, Normal

Cheryl L. Eames
Illinois State University, Normal

Melike Kara
Illinois State University, Normal

Room 201/202
11 Teaching the Common Core to Students Who Struggle in Mathematics
(3–5) Session
Students with disabilities often struggle in mathematical achievement. We will focus on the concrete–semiconcrete–abstract model of teaching math concepts to students who struggle in mathematics. You will get a chance to apply content to video-based case studies that focus on the Common Core State Standards.

Amy Lingo
University of Louisville, Kentucky
Karen S. Karp
University of Louisville, Kentucky

12 Navigating Middle School Statistics Learning in CCSSM
(6–8) Session
See how to navigate the demanding Common Core State Standards for Mathematics (CCSSM) statistical standards using a learning trajectory of variation, distribution, and modeling. Participate in vertical team discussions about students’ conceptual development and instructional coherence for grades 6–8 using descriptor resources from turnonccmath.net.

Jennifer Nickell
North Carolina State University, Raleigh
Alan Maloney
North Carolina State University, Raleigh

13 Square Roots Go Rational
(6–8, Preservice and In-Service) Session
This collection of activities explores the square roots of not-so-perfect squares and develops an algorithm to express the not-so-perfect square root as a rational value. Explorations continue as the algorithm is compared to calculator value to find the regression coefficient and strength of this relationship.

Dana Humble Dodson
Indiana University Northwest, Gary
Michael Todd Edwards
Miami University, Oxford, Ohio

14 Using NASA Press Releases to Develop Integrated STEM Lessons
(9–12) Session
NASA press releases, integrated space math problems, and NASA videos bring standards-based learning to life with topics such as habitability, astrobiology, and climate change. Sten Odenwald, SpaceMath@NASA creator, will cofacilitate this session. You will receive STEM modules and other resources in a LiveBinder.

Sharon Bowers
National Institute of Aerospace; Virginia Beach City Public Schools, Hampton
Sten Odenwald
National Institute of Aerospace, Hampton, Virginia

14.1 Teaching Look 4s: Tools and Resources Focused on the Mathematical Practices
(General Interest) Exhibitor Workshop
The eight Common Core math practices provide purpose for change and require shifts in classroom practice. Instructional shifts are an opportunity to focus on observable teaching skills. This session provides an overview of coaching resources to support teachers, as you talk about specific skills that develop desired academic behaviors in students.

Pearson
Washington, D.C.

14.2 Pearson High School Math and the Common Core
(9–12) Exhibitor Workshop
Learn how this blended print and digital curriculum (grades 9–12) not only engages students but also infuses Common Core Standards and Mathematical Practices throughout each lesson to ensure all learners acquire the critical knowledge and skills necessary to succeed in college and in their careers.

Pearson
Upper Saddle River, New Jersey
8:30 A.M.–10:00 A.M.

15 Bridging Mathematics and Literacy with Children’s Books and Manipulatives
(Pre-K–2) Gallery Workshop
Engage in hands-on activities for pre-K–grade 2 students integrating math, children’s literature, and manipulatives. Use inexpensive materials to create fascinating projects incorporating math lessons and literature.
Sallie Harper
Mississippi State University, Meridian
Tory Shirley
Mississippi State University, Meridian
Suzanne Waddell
Mississippi State University, Meridian

16 Early Algebra for Young Students
(Pre-K–2) Gallery Workshop
How early can we introduce algebra to students? Having different activities for students to develop problem-solving techniques helps students learn algebra without realizing it. Engaging students in learning activities that make a foundational connection to algebra in later grades helps them understand the building blocks for algebra.
Kari M. Everett
Eastern Kentucky University, Richmond

17 Engaging Students in Number Sense, Geometry, Problem Solving, Reasoning, and Discourse
(Pre-K–5) Gallery Workshop
Explore strategies, including use of manipulatives, to develop number sense, place value, estimation, geometry, and problem solving. See the power of mathematical discourse to develop concepts, reasoning, and mathematics vocabulary. Experience hands-on activities.
Donna L. Knoell
Consultant, Shawnee Mission, Kansas

18 Singapore’s Secret to Mathematical Success and Supporting CCSS
(Pre-K–5) Gallery Workshop
With the Common Core State Standards (CCSS) comes an expectation that our students will become better mathematicians. Content must be more focused, coherent, and rigorous. Instruction should include practices that support this content. Singapore teachers have applied these practices and achieved international success. We will explore their pedagogy and how it leads to mathematical success.
Kelly C. Snyder
Houghton Mifflin Harcourt, Boston, Massachusetts

19 Fraction Sense: How Do We Get There?
(3–8) Gallery Workshop
Fractions have always been important. Are they more important today? Come and see how recommendations from the Institute of Education Sciences Practice Guide—Developing Effective Fractions Instruction and the Common Core State Standards for Numbers and Operations—Fractions connect and let’s all consider how students can and must develop fraction sense.
Francis (Skip) Fennell
Past President, National Council of Teachers of Mathematics; McDaniel College, Westminster, Maryland
Jon Wray
Board of Directors, National Council of Teachers of Mathematics; Howard County Public Schools, Ellicott City, Maryland

NCTM newbie?
Attend the New Members & First Timers’ Orientation to learn how to enhance your conference experience and maximize your membership’s benefits.
See page 3 for details.
20 Write Proofs! How the Logic in Games Develops Proof-Like Reasoning
(3–8) Gallery Workshop
Creating viable arguments (a Common Core State Standards expectation) is challenging for many students with special needs. We will share how we used games and strategy discussions to develop students’ critical thinking and oral and written communication. We will share student work to trace the evolution of their writing, as well as games and lessons.

Antonia Marie Cameron
Metamorphosis Teaching Learning Communities, New York, New York

Lauren O’Neill
New York City Department of Education, Brooklyn, New York

Karine Kelley
New York City Department of Education, Brooklyn, New York

Room L4/L5

21 Costuming and Mathematics: The Process of Hat Design
(6–8, Preservice and In-Service) Gallery Workshop
To help preservice teachers begin to understand the relationship between mathematics and art in the world of costume design, we created lesson plans based on one very important and expressive element of the costume—the hat! Come and immerse yourself in the history of hats and the process of hat design.

Shelly Sheats Harkness
University of Cincinnati, Ohio

Susan Gregson
University of Cincinnati, Ohio

Regina Truhart
University of Cincinnati, Ohio

Room L2/L3

22 Data, Data Everywhere: Making Statistics Meaningful for All Learners
(6–8, Preservice and In-Service) Gallery Workshop
Explore measures of central tendency and variability by collecting and analyzing multiple sets of data. This data will be used to identify core content knowledge and recognize essential learner outcomes for all students while employing a culturally responsive, learner-centered focus and maintaining high expectations.

Amy Scheuermann
Minnesota State University, Mankato

Mark Zuiker
Minnesota State University, Mankato

Room 210/211

23 Engaging Students in Rich Mathematics Tasks
(6–12) Gallery Workshop
Engage in well-engineered assessment tools that support teachers in implementing the Common Core State Standards for Mathematics (CCSSM).

Jenny Ray
Kentucky Department of Education/Northern Kentucky Cooperative for Educational Services, Frankfort

Diane Culbertson
Northern Kentucky Cooperative for Education Services, Cold Springs

Room 212-217

24 Exploring Student Responses to Support Struggling Learners
(6–12) Gallery Workshop
Existing assessments for struggling learners often emphasize procedural aspects of mathematics learning. We will examine the responses provided by students to two types of tasks emphasizing either procedural or conceptual understanding of beginning algebra. We will share student work and discuss implications for instruction.

Anne Foegen
Iowa State University, Ames

Barbara J. Dougherty
University of Missouri, Columbia

Room 207/208

Stay connected!
Check us out on Twitter and Facebook.
8:30 A.M.–10:00 A.M.

25 Tools for Teaching the Common Core State Standards
(6–12) Gallery Workshop
Are you overwhelmed by the large number of websites that promise to deliver the new Common Core State Standards (CCSS) to the classroom? Take a tour of some of the CCSS lessons, student tasks, assessments, videos, and student work samples that are available on the NCTM and National Council of Supervisors of Mathematics (NCSM) websites.

Amy Herman
Jefferson County Public Schools, Louisville, Kentucky
(Retired)

Room 112

26 Using Origami to Explore Proportional Relationships
(6–12) Gallery Workshop
Paper folding is a rich context for engaging students. We will use origami and a guided-discovery approach to explore various mathematical concepts in the Common Core State Standards, including proportionality, similarity, and scale factor.

Holly Anthony
Tennessee Technological University, Cookeville

Room 109

9:30 A.M.–10:30 A.M.

27 Access to Real Math for Students with Severe Disabilities
(General Interest) Session
Access to grade-level standards for students with severe disabilities raised expectations. How have higher expectations increased achievement and changed the delivery of math instruction? As an experienced educator, I will show you how proven math methodologies plus accessibility help educators get serious about math instruction for students with the most to gain.

Karen Ross-Brown
AbleNet, Inc., Roseville, Minnesota

Room 218

28 How to Shift Mindsets from Remembering How to Understanding Why
(General Interest) Session
Some of the least effective lessons I’ve observed boil down to telling students what they need to remember. Some of the very best and most effective lessons I’ve observed boil down to providing students with a range of alternative approaches that support an understanding of why the answers make sense. We’ll look at elements of these lessons.

Steven Leinwand
American Institutes for Research, Washington, D.C.
Cascade Ballroom C

29 Learn↔Reflect Kickoff: Identifying and Building Common Core Fluencies for Mathematics
(General Interest) Session
To become twenty-first-century learners and thinkers, students must see the connections between arithmetic and algebra. I will focus on building foundational fluencies so that struggling students can leverage fact knowledge, deepen understanding of fundamental concepts, and feel prepared for the more rigorous curriculum they will face.

Jan Scott
Scholastic Inc., New York, New York
Room L14

30 Reengagement: A Close Look at One Formative Assessment Strategy
(General Interest) Session
Reengagement is grounded in the effective and intentional use of student thinking to improve learning. In this session, you will explore this strategy and experience a reengagement task. While reengagement is not a familiar strategy, it has been inspiring for teachers as they discover that a new stance toward assessment can support and advance learning.

Valerie Lynn Mills
Oakland Schools, Waterford, Michigan
Cascade Ballroom B
9:30 A.M.–10:30 A.M.

31  
Attending to Precision and Modeling with Mathematics in Kindergarten–Grade 2  
(Pre–K–2) Session
Examine the Standards for Mathematical Practice in the Common Core State Standards. Explore cognitively demanding tasks and focus on what it means for K–2 learners to attend to precision and model with mathematics.

Drew Polly  
University of North Carolina at Charlotte

Amy J. Lehew  
Charlotte-Mecklenburg Schools, North Carolina

Cascade Ballroom A

32  
Helping Young Children Develop Mathematical Habits of Mind  
(Pre–K–5) Session
Do your students think like mathematicians: looking for patterns, eagerly justifying their reasoning, striving to make sense of mathematics, and appreciating its power and beauty? Come see classroom-tested ideas for developing these mathematical habits of mind and learn how such habits are related to the Common Core State Standards for Mathematical Practice.

Diana V. Lambdin  
Indiana University, Bloomington

Room 110/111

33  
RtI: Critical Strategies Ensuring Success for Struggling Students (Grades 5–8)  
(3–8) Session
We will demonstrate proven methods and applications for response to intervention (RtI) success with state, NCTM, and Common Core standards. We’ll also share research-based strategies implementing formative assessment, hands-on manipulative activities within the concrete–representational–abstract model, vocabulary development, and problem solving. Audience participation is important.

Andrew Scott  
Math Teachers Press, Minneapolis, Minnesota

Amy Johnson  
Math Teachers Press, Minneapolis, Minnesota

Room 106/107

34  
Using Dynamic Shapes to Explore the Properties of Shapes  
(3–8) Session
Come learn ways to use dynamic software to explore and analyze properties of 2-D shapes and develop mathematical arguments about relationships among these shapes. We’ll share several classroom activities, video clips of students interacting with dynamic shapes, and pen casts of students’ understanding of the relationships among 2-D shapes.

Shannon Driskell  
University of Dayton, Ohio

Suzanne Harper  
Miami University, Oxford, Ohio

Room L6/L7

35  
The CCSS Mathematical Practices: Alive in the Middle Grades  
(6–8) Session
The mathematical practices of the Common Core State Standards (CCSS) provide an opportunity to change the dynamics of the mathematics classroom. I will use student work and videos to illustrate the practices in the middle-grades classroom. Using these examples, we’ll discuss the role of mathematical tasks, classroom discourse, and the teachers’ role in promoting the practices.

Elizabeth Phillips  
Michigan State University, East Lansing

Room 105

36  
Flip Your Classroom! Give It a Try for a Chapter  
(6–12) Session
We describe our attempt to flip our classrooms for one chapter in a geometry class. We will discuss our students’ opinions, struggles, and successes. We’ll also present a demonstration on creating your own movies. Bring a laptop if you can!

Kevin Carlin  
Lakota East High School, Liberty Township, Ohio

Jennifer Nickell  
North Carolina State University, Raleigh

Room 209
9:30 A.M.–10:30 A.M.

37 Transformational Geometry and Common Core: Are You Ready? (9–12) Session
The Common Core State Standards set the bar for geometry in terms of rigid motions and congruence. This is not geometry as usual. What does a high school teacher need to know to teach this way? Are you ready?

Johnny Lott
Past President, National Council of Teachers of Mathematics; University of Montana (Retired)

Room 201/202

38 Using Student-Response Systems in Entry-Level College Math Courses (9–12) Higher Education) Session
Student-response systems (clickers) have been used extensively in physics classrooms. Learn how clickers can be used in introductory mathematics courses to help teachers determine what students know about mathematical topics during instruction, rather than at the end of instruction.

Jonathan A. Engelman
Kettering College, Ohio

Room 219

38.1 Experience the CCSSM through Investigations and the Common Core (Pre-K–5) Exhibitor Workshop
Interactive whiteboard, assessment, and differentiated activities that focus on Standards for Mathematical Content and embed Standards for Mathematical Practice will be shared for use in your classroom.

Pearson
Upper Saddle River, New Jersey

Room 103

38.2 Cracking the Code of Algebra to Ensure Success for All (3–8) Exhibitor Workshop
How does Hands-On Equations enable 80 percent of inner-city fourth graders to succeed with such basic equations as $4x + 3 = 3x + 10$ in only three lessons? Come and discover how effective instruction can dramatically shorten the learning process and lead to higher levels of success. If algebra is a foreign language to your students, this session is for you!

Borenson and Associates
Allentown, Pennsylvania

Room 102
10:30 A.M.–12:00 P.M.

39 New and Preservice Teachers Workshop
(General Interest) Gallery 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
Room 104

40 Ones, Tens, and Hundreds, Oh My!
(Pre-K–2) Gallery Workshop
Knowing a digit’s position does not require knowing the number’s value. Students who do not understand place value lack strategies for number comparisons and computations. Explore contextual experiences for modeling numbers with respect to place value, building confidence and competence with number and operations.

Rhonda Allen Burns
Making Math Magic, Lancaster, Kentucky
Vonda Stamm
Making Math Magic, Lancaster, Kentucky
Room L4/L5

41 Seeds to the Table: Growing Green Gardening Goes High Tech
(Pre-K–2) Gallery Workshop
Explore a Young Learners Classroom Garden project, which involves hands-on activities using garden produce to connect numeracy, literature, and SMART Board technology. View and discuss video of students’ activities and receive graphic organizers to assess the mathematics.

Gina M. Kimery
Jefferson County Public Schools, Louisville, Kentucky
Lana B. Thomas
University of Louisville, Kentucky
Room 210/211

42 Drawing Inferences to Inform Instruction for Struggling Learners
(Pre-K–2, Preservice and In-Service) Gallery Workshop
View student video examples and use a framework to assist in drawing conclusions (inferences) about the mathematical understanding of elementary students, particularly those who struggle with mathematics. Develop instructional tasks to address the difficulties identified.

Delinda van Garderen
University of Missouri, Columbia
John K. Lannin
University of Missouri, Columbia
Tiffany Hill
University of Missouri, Columbia
Room L2/L3

43 Algebraic Thinking through Literature
(3–5) Gallery Workshop
Literature is a powerful tool for developing algebraic thinking. Explore the power of literature to develop math concepts in students who are English language learners. Experience both hands-on learning and high-quality literature as tools for developing academic vocabulary and important algebraic concepts about operations and variables for every student.

William P. Bintz
Kent State University, Ohio
Sara D. Moore
ETA hand2mind, Vernon Hills, Illinois
Room 207/208

44 Games That Make You Think
(3–5) Gallery Workshop
Play newly developed games that take it to the next level—targeting grades 3–5 of the Common Core State Standards (CCSS) for Number and Operations—and foster the use of the CCSS mathematical practices. Differentiate instruction to support and challenge the full range of learners within the framework of a game and the follow-up class discussion. Walk away with ideas and game pieces.

Gail E. Gerdemann
Oregon State University, Corvallis
Kathleen Barta
Teacher to Teacher Publications, Lake Oswego, Oregon
Room 109
10:30 A.M.–12:00 P.M.

45 Math Teachers’ Circle Demonstration
(6–8) Gallery Workshop
A math teachers’ circle is a group of math teachers and mathematicians coming together to engage in mathematics. During this session, the Eastern Kentucky Math Teachers’ Circle will engage the audience in a sample circle meeting on the topic using games to foster mathematical thinking. Experience KenKen and the SET game.

Cheryll E. Crowe
Eastern Kentucky University, Richmond

Michele Anderson
Corbin Independent School District, Kentucky

Cindy Davis
Corbin Independent School District, Kentucky

Room L15

46 Problem Solving with the Presidents
(6–8) Gallery Workshop
We will provide you with plans and guidelines to use presidential data interactively in the mathematics or social studies classroom through coteaching. In these activities, students model mathematical relevancy, share statistical connections, and analyze presidential data, all while focusing on the Common Core State Standards for Mathematical Practice.

Lynn Patterson
Council of Presidential Awardees in Mathematics, Murray, Kentucky

Kadie L. Patterson
Rockvale Middle School, Murfreesboro, Tennessee

Room 101

47 Promote Higher-Order Thinking: Tie Assessment Strategies to the Common Core
(6–8) Gallery Workshop
Investigate ways to formatively assess students in math by targeting specific instructional goals, integrating questioning strategies to promote higher-order thinking, and analyzing student work. Intentionally integrate a variety of formative assessment tools, including technology. Take away tools for immediate use in your classroom!

Robyn Whelan
Jefferson County Public Schools, Louisville, Kentucky

Kathryn S. Williams
Jefferson County Public Schools, Louisville, Kentucky

Room 112

48 Integrating Probability and Geometry through Shape Rolling
(9–12) Gallery Workshop
Dice have been used to discuss probability, but what if regular cube-shaped dice were stretched to make rectangular prisms? On what side would you expect the dice to fall? You will get the chance to roll different shapes and discuss how high school students used these shapes in lessons that bridge geometry and probability.

Michael Daiga
Indiana University, Bloomington

Erin Ingwersen
Hamilton Southeastern School Corporation, Fishers, Indiana

Jill Balke-Niehoff
Hamilton Southeastern School Corporation, Fishers, Indiana

Room 108

49 Complex Numbers Are within Reach of All Students
(9–12) Preservice and In-Service) Gallery Workshop
Aspiring high school teachers are not always exposed to complex numbers as undergraduates. I will focus on arithmetic, algebraic, and geometric ideas and introduce powers of i, enabling you to view important patterns leading to an example of an abelian group.

Jay L. Schiffman
Rowan University, Glassboro, New Jersey

Room 203-206

Participate in today’s Learn↔Reflect Strand. Look for sessions marked with the icon.
10:30 A.M.–12:00 P.M.

50  Hands-On Conics
(9–12) Preservice and In-Service) Gallery Workshop
Many hands-on teaching approaches help conic sections come to life for high school students. Attend and see how to use wax paper, Wikki Stix, cheese, thumbtacks, and string to construct conics, providing conceptual understanding of definitions.
L. Jeneva Moseley
University of Tennessee, Knoxville
Room 212-217

53  Developing Early Mathematics Fluency with CCSSM
(Pre-K–2) Session
In the spirit of expectation for student fluency in NCTM’s Standards and the current call for fluency in the Common Core State Standards for Mathematics, we will discuss three ways K–2 students can reach fluency and continue to grow. We will show materials and student work and discuss pedagogical moves to help students become fluent.
Gabriel T. Matney
Bowling Green State University, Ohio
Tami D. Matney
Imagine Clay Avenue, Toledo, Ohio
Room 209

11:00 A.M.–12:00 P.M.

51  Making Math More Like Things Students Like: Video Games
(General Interest) Session
Students around the world are playing thousands of hours of video games every day, and in many cases, they’re enjoying those games more than they enjoy our math classes. Let’s look at several of the most popular video games of all time and pull out some lessons. As task designers, test givers, and classroom managers, what can we learn from those games?
Dan Meyer
Stanford University, California
Cascade Ballroom B

52  Standards for Mathematical Practice: They’re Not Just for Students Anymore!
(General Interest) Session
What do the Common Core State Standards for Mathematical Practice offer a math major who teaches fractions to middle schoolers? Or an elementary teacher teaching place value? Or a seasoned high school algebra teacher? I will offer success stories and open-ended questions to challenge the mathematical minds of teachers at a variety of levels.
Christopher Danielson
Normandale Community College, Bloomington, Minnesota
Cascade Ballroom C

54  Learning Trajectories in Children’s Thinking about Functions: Opportunities Missed?
(Pre-K–5) Session
Functions are an important domain in which children can engage in key algebraic thinking practices. But how does their understanding emerge? I will examine learning trajectories in how K–grade 2 children generalize and represent functional relationships and highlight important (but missed) learning opportunities that can begin in kindergarten.
Maria Blanton
TERC, Cambridge, Massachusetts
Room L6/L7

55  Mastering Mental Math Number Facts . . . and Beyond
(Pre-K–5) Session
Mental math should be a major goal of all mathematics programs. It is used every day and is essential for high school math. I will use pictorial representations to show how to achieve that goal, beginning with strategies to master basic number facts for all four operations. These are then extended to examples beyond the facts.
Calvin Irons
Queensland University of Technology, Brisbane, Australia
Room 201/202
11:00 A.M.–12:00 P.M.

56  
A Math-Minded School: ‘Nfusing Number Sense and Mathematical Thinking  
(3–5) Session  
Explore ideas for transforming your school into a math-minded school. We will focus on claiming time for mathematics throughout the day by engaging students, directly or indirectly, in number sense–building tasks across content areas. We will look at ways to bring students’ mathematical thinking out and let that affect our planning.  
Jane Braddock Hunt  
Hunt’s Educational Consulting, Elizabethtown, Kentucky

57  
Improving Mathematical Problem Solving for Students Who Struggle  
(6–8) Session  
The Institute for Educational Sciences (IES) recently produced a practice guide on math problem solving in grades 4 to 8. Their practice guides contain thorough analyses of high-quality research as well as specific recommendations for practice. I will focus on the implications of the practice guide for special education.  
John Woodward  
University of Puget Sound, Tacoma, Washington

58  
Radical, Irrational, Immeasurable, Yet Real  
(6–12) Session  
Although the ancient Greeks could determine precisely the length of a side of a square, they found the length of its diagonal to be “immeasurable.” I will use lessons from the history of mathematics to build the set of real numbers from the most basic systems (counting and whole numbers) to the real number system and beyond.  
Amanda N. Davis  
Indiana State University, Terre Haute

59  
Twenty-Five Things Students Must Know to Succeed in College Mathematics  
(6–12) Session  
Beginning with misunderstandings about operations, algebra, and trigonometry—even calculus, here are the twenty-five math concepts students must understand to be prepared to succeed in college mathematics.  
Alan Zollman  
Northern Illinois University, DeKalb

60  
Algebra: Beyond X, Y, and Z  
(9–12) Session  
Algebraic thinking is more than the study of the last three letters of the alphabet. Variables are an important part of mathematical processes, but so are quantitative reasoning, discourse, patterning, and more. The activities we share demonstrate connecting these mathematical habits and making connections with algebra and other topics.  
Anthony Bokar  
Ohio University, Athens

61  
Making Sense of a Stunning Approximation to the Sine Function  
(9–12) Preservice and In-Service) Session  
We will examine a little-known function that is a ratio of two quadratic functions. Discovered 1,400 years ago, it provides an exceptionally close approximation to the sine function. Using technology, we will see that the approximation is stunning. We will explore how to use the approximation as the basis of a reasoning and sense-making activity.  
Ron Lancaster  
Ontario Institute for Studies in Education of the University of Toronto, Canada

Looking for lessons, activities, and teacher resources?  
Check out www.nctm.org
**62**
Incorporating 5 Practices for Orchestrating Productive Mathematics Discussions in Methods Courses
(Preservice and In-Service) Session

In their 2011 book *5 Practices for Orchestrating Productive Mathematics Discussions*, Smith and Stein describe how implementing five practices can improve students’ understanding and connection making. I will describe how I incorporate these five practices into my secondary mathematics methods course.

Bethany A. Noblitt
Northern Kentucky University, Highland Heights

Sarah Kasten
Northern Kentucky University, Highland Heights

*Room 106/107*

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**62.1**
Making Math Meaningful in the Middle Grades
(6–8) Exhibitor Workshop

Help your students gain a deeper understanding of mathematics with Math Innovations. This research-based program is accessible on iPads and tablets, as well as in print, and features interactive digital activities that support and extend learning. Learn how the curriculum addresses the Common Core standards and builds conceptual understanding of mathematics.

Kendall Hunt Publishing Company
 Dubuque, Iowa

*Room 102*

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**62.2**
CCSS Math Practices? Trust CPM’s Twenty Years of Writing Experience
(6–12) Exhibitor Workshop

Try some lessons and take home samples of CPM’s Core Connections series (2013). The third generation of CPM blends Common Core State Standards (CCSS) content and practice standards in a coherent sequence from sixth grade through algebra 2. Course elements include problem solving, mathematical thinking, problem-based lessons, and mathematical discourse in a student-centered format.

CPM Educational Program
Sacramento, California

*Room 103*

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**63**
Coaching through Technology: Using Digital Media to Reach More Teachers
(General Interest) Session

Instructional coaches must find ways to support many teachers even as resources diminish. Learn how to use video tutorials to provide individualized coaching support and model effective instructional strategies, including the Common Core State Standards for Mathematical Practice and the NCTM Process Standards. See video exemplars, testimonials, and demonstrations.

Delise Andrews
Lincoln Public Schools, Nebraska

*Room 219*

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**64**
Formative to Summative Paths to Implementing and Validating CCSS
(General Interest) Session

Elementary and middle grade mathematics leaders, as you move toward full implementation of the Common Core State Standards (CCSS), what formative assessment strategies work? How do you know? How will formative assessment opportunities lead to and connect with PARCC (Partnership for the Assessment of Readiness for College and Careers) or Smarter Balanced assessments? Come help us figure this out—together!

Francis (Skip) Fennell
Past President, National Council of Teachers of Mathematics; McDaniel College, Westminster, Maryland

Beth Kobett
Stevenson University, Baltimore, Maryland

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

*Cascade Ballroom B*
12:30 P.M.–1:30 P.M.

65 **CC**
The Standards for Mathematical Practice: Cherishing and Nurturing the Mathematics
(General Interest) Session
The Common Core State Standards for Mathematical Practice are about “doing” mathematics—they are centered on solving problems, student discourse, and valuing mathematical reasoning processes. Without the practices, the Common Core is just a list. We will discuss examples of mathematical tasks from recent NCTM resources that exemplify the eight mathematical practices.

J. Michael Shaughnessy
Past President, National Council of Teachers of Mathematics; Reston, Virginia

66 **LCR**
Build Number Sense with Visual Models and Games
(Pre-K–2) Session
Be more efficient and selective about time devoted to number. Explore number relationships by using visual models, including dot cards, ten-frames, number lines, grids, and hundred charts. Leave with classroom-ready games and strategies, based on the Common Core State Standards, to help you enhance number sense and build confidence in your students.

Laura L. Choate
Fallbrook Union Elementary School District, California

67 **ML**
Learning Trajectories for Place Value
(Pre-K–2) Session
Optimal learning takes place when teaches understand learning trajectories or sequences for teaching mathematical concepts. This session presents learning trajectories for developing place value concepts. These trajectories focus on the characteristics of an efficient number system, such as symbols, base, and location.

Jo Ann Cady
University of Tennessee, Knoxville

Jami E. Garner
University of Tennessee, Knoxville

Theresa M Hopkins
University of Tennessee, Knoxville

68 **EF**
Teaching the Tough Topics: Number Sense, Fact Fluency, and Fractions
(Pre-K–5) Session
Is there a way to teach computational skills that develops number sense, leads to fact fluency, prepares students for word problems, and helps visual learners become abstract thinkers? Join The Grapes of Math author and Kakooma inventor, Greg Tang, as we apply model-drawing strategies to arithmetic. You’ll wonder why math isn’t always taught this way!

Greg Tang
Scholastic, New York, New York

69 **R**
Rational Number Project: Initial Decimal Ideas and Student Thinking
(3–8) Session
We will examine common errors surrounding decimal order, equivalence, addition, and subtraction and look at a new model to overcome these errors. We share lessons within the Rational Number Project (RNP) curriculum, examine student work, and describe the development of these lessons.

Debbie Monson
University of St. Thomas, Minneapolis, Minnesota

Kathleen Cramer
University of Minnesota, Minneapolis

70 **R**
Ours Is to Reason Why When We Invert and Multiply
(6–8) Session
Starting with pictorial representations and continuing with different operational strategies, we will build student understanding of dividing with fractions. Our lessons and activities will culminate with ideas to help students have a clear meaning of the general algorithm for division by a fraction.

Fred Dillon
Consultant, Strongsville, Ohio
12:30 P.M.–1:30 P.M.

**71 Math Teachers’ Circles: The Practice of Mathematics in Middle School**  
(6–8, Preservice and In-Service) Session  
Math Teachers’ Circles (MTCs) are professional-development communities of middle school mathematics teachers and mathematicians focusing on the practice of mathematics. We examine key features of MTCs and discuss evidence of their effectiveness from national surveys, multisite study of mathematical knowledge for teaching, and case studies.  

**Brianna Donaldson**  
American Institute of Mathematics, Palo Alto, California  
Room 106/107

**72 Keeping It Real: Teaching Math through Real-World Topics**  
(6–12) Session  
How long does it take to burn off a Big Mac? In basketball, should you ever foul at the buzzer? We’ll explore a range of real-world lessons that teachers can immediately use to address the Common Core State Standards in fresh, new way, one that fosters a rigorous understanding of math while challenging students to think about the world more critically.  

**Karim Kai Ani**  
Mathalicious, Alexandria, Virginia  
Room L6/L7

**73 Addressing the CCSSM Modeling Standards for High School**  
(9–12) Session  
What is mathematical modeling, and how it can be used in the classroom? I will present activities and investigations that focus on modeling as it relates to the Common Core State Standards for Mathematics (CCSSM) and explore context areas such as proportioning systems and forensic anthropology.  

**Nancy J. Crisler**  
Washington University–St. Louis, Missouri  
Room 110/111

12:30 P.M.–2:00 P.M.

**74 Using Web 2.0 Tools to Enhance Mathematical Thinking**  
(Higher Education, Preservice and In-Service) Session  
We will describe the use of Web 2.0 technology tools (Facebook, Twitter, blogs, wikis, and journals) to enhance mathematical thinking and reflection of teacher candidates. We’ll present strategies for increasing student-to-instructor communication, student-to-student communication, and reflective thinking.  

**Jennifer Carter McCain**  
Morehead State University–Ashland, Kentucky  
**Sherry Lynn Stultz**  
Morehead State University, Kentucky  
**April D. Miller**  
Morehead State University, Kentucky  
Room 218

**74.1 Implementing the CCSS Integrated Pathway for High School Mathematics**  
(9-12) Exhibitor Workshop  
Review resources that support the Common Core Integrated Pathway for high school mathematics. Discuss strategies for the transition from traditional instruction to a problem-based model of teaching and learning. Explore activities that address the eight Mathematical Practices. Participants will receive sample materials to try in their classrooms.  

**Walch Education**  
Portland, Maine  
Room 102

**75 Fun with Fluency**  
(Pre-K–2) Gallery Workshop  
Play and take away a variety of games and activities targeting addition and subtraction fluency. These tiered activities are aligned with the Common Core fluency benchmarks K.OA.5, 1.OA.6, and 2.OA.2 and are part of the Kentucky Numeracy Project, a statewide initiative to offer training and resources for primary-level math instruction.  

**Cindy A. Aossey**  
University of Kentucky, Lexington  
**Gwen Morgan**  
Kentucky Valley Education Cooperative, Hazard  
Room 109
12:30 p.m.–2:00 p.m.

76 Shuffling into Math
(Pre-K–2) Gallery Workshop

Play card, dice, and domino games that help your primary students achieve success in numeration, operations, place value, patterning, and graphing. Explore excellent take-home ideas, game boards, student samples, and more, to help you teach the Common Core State Standards. These activities are great for regular, English as a second language, Title I, and after-school programs.

Allison Riddle
Davis Unified School District, Salt Lake City, Utah

Room 212-217

77 Reading and Writing Math Poetry
(Pre-K–5) Gallery Workshop

Students can use poems as written manipulatives to conceptualize understanding of mathematical concepts. Get examples of poems useful in math instruction as well as guidance for writing math poems with students.

Lindsay N. Laurich
Augustana College, Sioux Falls, South Dakota

Room 112

78 Concept Games for Common Core Mathematical Practices
(3–5) Gallery Workshop

Games are tremendous motivators for students. Get actively involved in concept games that make student thinking visible.

Ted H. Hull
LCM: Leadership, Coaching, Mathematics, Pflugerville, Texas

Don S. Balka
Saint Mary’s College, Notre Dame, Indiana

Ruth Harbin Miles
Mary Baldwin College, Staunton, Virginia; Falmouth Elementary School, Stafford, Virginia

Room 203-206

79 SE
RtI: Tier II Intervention Lessons for Elementary Students
(3–5) Gallery Workshop

I will focus on evidence-based instructional practices that can be used to teach students who demonstrate difficulties learning essential mathematical concepts and skills in the elementary grades. I’ll provide intervention lessons and practical implementation tips along with handouts for classroom instruction.

Diane Pedrotty Bryant
The University of Texas at Austin

Room L15

80 Using Shared Story Reading in Mathematics for Students with Disabilities
(3–5) Gallery Workshop

Shared story reading is an excellent way to teach mathematics skills to elementary students with moderate to severe disabilities. We will discuss selecting appropriate books, adapting books, using concrete examples and systematic instruction to teach the mathematical concept, and incorporating assessments to inform instructional decisions.

Jeremy Todd Whitney
University of Louisville, Kentucky

Amy Lingo
University of Louisville, Kentucky

Ginevra Courtade
University of Louisville, Kentucky

Room 203-206

81 A Day at the Races
(6–8) Gallery Workshop

Play several types of “dice-race” games, and investigate the sample spaces, probability distributions, and strategies for crossing the finish line first in each game.

Thomas Evitts
Shippensburg University, Pennsylvania

Room 101

Hear what’s new from Exhibitors—attend an Exhibitor Workshop. Look for the cw symbol throughout the program book.
Thursday

12:30 P.M.–2:00 P.M.

82
Toothpicks, Towers, and Tiles, Oh My!
(6–8) Gallery Workshop

Compare and contrast various representations of patterns and relationships. We will describe, analyze, and generalize patterns represented graphically or numerically using words and symbolic rules and connect this to models made with toothpicks and square tiles.

Ryan Andrew Nivens
East Tennessee State University, Johnson City

Room 207/208

83
Mathematics of Climate Change: Causes, Effects, and Solutions
(6–12) Gallery Workshop

Embrace the Common Core State Standards and empower learners to use twenty-first century skills to solve twenty-first century problems via interdisciplinary, problem-based learning. Create meaningful learning experiences in mathematics by investigating causes and effects of and solutions to climate change. We’ll share tools for fostering discourse and critical thinking.

Karen L. Lindebrekke
iBIO Institute EDUCATE Center, Chicago, Illinois

Melissa Wiegand
Red Bud High School, Illinois

Greg Wiegand
Red Bud High School, Illinois

Room 104

84
Rethinking Geometry: Why Transformations?
(6–12) Gallery Workshop

The high school Common Core State Standards call for students to understand congruence and similarity in terms of transformations. Why is this important? How does this change the content we teach in geometry, including how we think about proofs? We will work several examples chosen to help us think about answers to these questions.

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

Room L2/L3

85
Incorporate Colorful, Interactive Activities into Your Mathematics Classroom for Free!
(9–12) Preservice and In-Service) Gallery Workshop

Get creative activities for all math courses from algebra I through AP Calculus. These colorful student-paced activities develop conceptual understanding and help students discover the math, investigate, and more. Teachers and students can interact with these using the free TI-Nspire Document Player and an iPad—see my favorite apps! Get more than two hundred free activities.

Tom Reardon
Youngstown State University, Ohio

Room 210/211

2:00 P.M.–3:00 P.M.

87
Game Changers: Rethinking the Way We Teach Math
(General Interest) Session

What should effective and innovative math instruction look like, and how can teachers create ideal learning experiences for all students? This discussion, led by NCTM board member Jon Wray, features the perspectives of three educators whose work is transforming curriculum design and delivery and changing the way students think about mathematics.

Dan Meyer
Stanford University, California

Karim Kai Ani
Mathalicious, Alexandria, Virginia

Eric Westendorf
LearnZillion, Washington, D.C.

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

Cascade Ballroom B
2:00 P.M.–3:00 P.M.

88  [ML]  Learning Progressions in Mathematics: Linking Teaching, Assessment, and Research
(General Interest) Session

The Cognition Based Assessment (CBA) is an integrated system of research-based learning progressions, assessment tasks, and instructional materials for number and geometry in grades 1–8. This project, funded by the National Science Foundation, was tested with students and teachers. I will describe how such learning progressions can be used for effective teaching and assessment.

Michael T. Battista
Ohio State University, Columbus

89  [ML]  SMART 3-D Tools: Digital 3-D Images in Students’ Hands
(General Interest) Session

Discover how easy it is to integrate 3-D content from SMART Exchange or Google 3D Warehouse into your SMART Notebook lessons. Allow your students to tactibly explore and manipulate digital 3-D content, using a cube under the document camera, directly from the SMART Board or from the computer.

Amy L. Colucci
Jefferson County Public Schools, Louisville, Kentucky

Erin Coyle
Jefferson County Public Schools, Louisville, Kentucky

90  [LC-R]  Enacting Numeracy for At-Risk Learners: Suggestions from Neuroscience Research
(Pre-K–2) Session

We will discuss implications and ideas from recent neuroscience research that suggest (1) instruction should focus on sensorimotor interaction; (2) sensorimotor experience increases transfer and application of previous concepts; and (3) ignoring the importance of gestures and hand movement risks undermining conceptual understanding of mathematics.

Kathy Shaffrey Schoengrund
Naperville Community School District 203, Illinois

Frank K. Lester
Indiana University, Bloomington

91  [ML]  Creating Powerful Learning Environments Based on Learning Trajectories
(Pre-K–5, Research) Session

We will discuss the role of learning trajectories (LTs) in mathematics education as both research and teaching tools. Specifically, we will address the following questions: What is a LT? Do you have to be a researcher to use an LT? What questions can we use LTs to answer about instruction, assessment, or mathematical learning?

Jeffrey E. Barrett
Illinois State, Normal

(Pre-K–5) Session

Analyze the potential of guided math groups to be a powerful response to intervention (RtI) strategy using examples from real practice, both video and written. We’ll also analyze the components involved in planning and implementing these sessions to address students’ individual needs and build their mathematical understanding.

Judy Storeygard
TERC, Cambridge, Massachusetts

Pick up your copy of the Program Updates for additional presentations, cancellations, and other important information.
2:00 P.M.–3:00 P.M.

93 Kentucky Numeracy Project Intervention Guide
(Pre-K–5) Session
Take a tour of the dynamic, online Kentucky Numeracy Project (KNP) Intervention Guide, containing more than three hundred proven numeracy development strategies for differentiated instruction and formative assessment in alignment with the Common Core State Standards and the Fluency Benchmarks for RtI. View lessons and resources to use with both classroom students and RtI students.

Mary H. Hodges
Kentucky Center for Mathematics, Murray
Barbara Jacobs
Kentucky Center for Mathematics, Louisville

Room 110/111

94 Building a Solid Foundation: The Mathematical Practices in Daily Instruction
(3–5) Session
How is it possible to help all students understand mathematics deeply and meet the high expectations of the Common Core State Standards? Learn how to use the Standards for Mathematical Practice in my elementary classroom to develop students’ understanding of concepts that are too often taught by rote. I’ll share examples, student work, and lesson plans.

Laura Parn
Peine Ridge Elementary, Wentzville, Missouri

Room 105

95 Engaging Activities + Effective Instructional Strategies = Numerically Nimble Students
(3–5) Session
Improve students’ numeric competence with strategies that promote greater sense making and participation. Discover more effective ways to differentiate instruction and efficiently implement the Common Core State Standards. Generous handout includes engaging activities to enhance mathematical reasoning as students improve their number sense and computation skills.

Leigh Childs
San Diego County Office of Education, California

Room L14

96 Operations with Rational Numbers: Not Just the Rules
(3–8) Session
We will investigate how the properties of the operations apply to all rational numbers and then strengthen our understanding of the properties of the operations by exploring the similarities and differences between operations with whole numbers and operations with fractions, decimals, and integers by examining multiple examples.

Terry W. Parkey
Partnership Institute for Math and Science Education Reform (PIMSER), Lexington, Kentucky
Gloria Beswick
Partnership Institute for Mathematics and Science Education Reform (PIMSER), Louisville, Kentucky

Cascade Ballroom A

97 Improve Students’ Number Sense while Supporting Algebra Skills and Concepts
(9–12) Session
We will look at ways to use the number line to strengthen number sense while supporting improvements in algebraic thinking and skills. The number line provides a concrete setting in which to practice algebraic skills and a way for students to know when they are correct. For example, consider a number line with coordinates in terms of some unknown $x$.

Jim Moore
P12 Outreach Unit PIMSER, University of Kentucky, Lexington

Room 201/202

98 Mathematical Modeling: Connecting the CCSS Mathematical Practices and Content Expectations
(9–12) Preservice and In-Service) Session
As a Common Core State Standard (CCSS) content standard and a standard for mathematical practice, mathematical modeling offers a rich opportunity to connect the mathematical content of the high school conceptual categories to related mathematical practices. We will examine several illustrative modeling tasks, highlighting the strategic use of NCTM’s Core Math Tools.

Christian R. Hirsch
Western Michigan University, Kalamazoo

Room 106/107
2:00 P.M.–3:00 P.M.

**98.1 Making Elementary Math Journals Fold-tastic!**
*(Pre-K–5) Exhibitor Workshop*
Cut, fold, and more, in this hands-on workshop as you transform basic classroom materials into Notebook Foldables that are sure to make your student math journals fold-tastic. Depart with a mini-composition book made on site that is filled with immediately usable ideas.

*Dinah-Might Adventures*
San Antonio, Texas

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**100 Using Numeracy Tools in Classroom Instruction**
*(Pre-K–2) Gallery Workshop*

Educators often have difficulty thinking of ways to integrate numeracy tools vital to a child’s mathematical development into instruction. Explore numeracy tools for use with whole-group and small-group instruction in progression through the Common Core State Standards (0A.1) of K–grade 2.

*Kimberly J. Elam*
Rowan County Schools, Morehead, Kentucky

**Room 102**

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2:30 P.M.–4:00 P.M.

**99 Strictly Structuring : A Strong Basis for Computational Fluency**
*(Pre-K–2) Gallery Workshop*

Explore structuring, the secret to preparing students for the rigor of being computationally fluent in addition and subtraction as required by the Common Core State Standards. Experience tasks that support development of strategies other than counting by one. Leave with research-based materials and technological resources proven to enhance learning.

*Heather Benton*
Franklin County Public Schools, Frankfort, Kentucky

*Linda Jewell*
Kentucky State University, Frankfort

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**101 Promoting Early Algebra in Elementary Grades with Hands-On Activities**
*(3–5) Gallery Workshop*

The playful spirit of children does not have to end as the summer fades. Children can remain just as active and engaged with mathematical activities throughout the entire year. We will provide a variety of games and activities designed to help children develop underlying concepts necessary for success in algebra.

*Mike Maesch*
Michigan City Area Schools, Indiana

*David Feikes*
Purdue University North Central, Westville, Indiana

*Jeff Edinger*
Michigan City Area Schools, Indiana

**Room 207/208**
2:30 P.M.—4:00 P.M.

103
Beyond Cookies: Understanding Various Division Models
(3–5, Preservice and In-Service) Gallery Workshop
Through an interactive approach, we will build teachers’ understanding of division, emphasizing partitive and measurement models. We will offer a rationale for examining division, describe the models, and provide an opportunity to increase understanding of the models. We will also present strategies for writing high-quality division story problems.

Robin L. Magruder
University of Kentucky, Lexington

Cindy Jong
University of Kentucky, Lexington

104
Leveraging Dynamic Spreadsheets to Focus on Algebraic Thinking and Reasoning
(6–8) Gallery Workshop
Learn how the design of dynamic spreadsheets provides learners with algebraic reasoning tools for exploring independent and dependent variables in problem situations. Examine mathematics problems used for scaffolding learning as students gain skills with the use of spreadsheets as algebraic thinking and reasoning tools.

Margaret L. Niess
Oregon State University, Corvallis

105
NASA: Distance–Rate–Time Mathematics in Air Traffic Control
(6–8) Gallery Workshop
NASA Smart Skies: Predict and solve real-world air traffic conflicts using a hands-on experiment, Web-based simulator, print-based instructional materials, and mobile app. Students apply problem-solving and proportional-reasoning skills as they explore distance–rate–time relationships at the algebra and prealgebra levels. Materials are free online.

Rebecca Green
NASA, Moffett Field, California

Gregory Condon
NASA, Moffett Field, California

106
Connecting All Learners to Real Mathematics: Walking through Algebra and Geometry
(6–12) Gallery Workshop
Experience lessons incorporating a strategy called the algebra walk. This procedure has students completing concrete, kinesthetic activities to introduce and support the development of mathematical concepts from middle school through high school. I will also make connections to technology using the TI-84 and Nspire CAS.

Jim Austin
Whitefield Academy, Louisville, Kentucky

107
Interesting Ideas, Manipulatives, and Engaging Activities for Teaching Geometry Topics
(6–12) Gallery Workshop
Use hinged mirrors, rubber bands, patty paper, paper plates, and other manipulatives, as well as interesting problems, to explore, develop, and apply geometry concepts and review geometric vocabulary. Topics include similarity, triangle heights, transformations, central angles, polygons, angle relationships, proportions, and more!

Erin Murphy Schneider
Jefferson County Public Schools, Louisville, Kentucky

108
Tapping the Mathematical Potential of Students Who Struggle: Instructional Strategies
(6–12) Gallery Workshop
Do you have trouble reaching students who struggle in mathematics? In today’s classrooms, mathematical knowledge is not enough. Teachers must find creative ways to unlock students’ potential. Engage in classroom-ready, research-based strategies and hands-on activities to help tap the potential of students who struggle.

Christa Jackson
University of Kentucky, Lexington

Margaret Mohr-Schroeder
University of Kentucky, Lexington

Craig Schroeder
Fayette County Public Schools, Lexington, Kentucky
2:30 P.M.–4:00 P.M.

109  Presidential Portraits: Exploring Data Analysis Kinesthetically
(Preservice and In-Service) Gallery Workshop
How old were our presidents when they took office? Answer this and other questions using kinesthetic methods and related innovative techniques to explore data collections that describe our nation’s chief executives. Highlights include constructing a human histogram and acting out the calculation of several measures of center.

John E. Hammett III
Saint Peter’s University, Jersey City, New Jersey

Room 104

110  When Traditional Won’t Do: Engaging African American Students in Mathematics
(Preservice and In-Service) Gallery Workshop
Explore practices that often cause students to disengage from mathematics. Explore and use strategies to engage African American students as creators and learners of mathematics.

Crystal Hill Morton
IUPUI, Indianapolis, Indiana

Room 203-206

3:30 P.M.–4:30 P.M.

111  Data + Analyses = Good Decision Making
(General Interest) Session
Using statistical-analysis methods provides evidence for math leaders’ and coaches’ decisions. We will discuss common methods used in schools. Groups will do root-cause analysis and discuss results and how to create an improvement plan based on those results.

Janet M. Herrelko
University of Dayton, Ohio

Room 219

112  Implementing the Mathematical Practices: Does Your Classroom Look Like This?
(General Interest) Session
Join us for sample lessons and examples of student work and discourse, all of which provide classroom evidence that demonstrate students’ use of the Common Core State Standards for Mathematical Practice in action. We will make recommendations and share participant input on the challenge, “How do I support and expand the mathematical behaviors of my students?”

Henry S. Kepner
Past President, National Council of Teachers of Mathematics; University of Wisconsin–Milwaukee

Fred Dillon
Consultant, Strongsville, Ohio

Cascade Ballroom C

113  Learn↔Reflect Reflection Session
(General Interest) Session
This culminating session of the Learn↔Reflect strand is a facilitated discussion of the four reflection questions. Those who attend the Kickoff, at least one Learn↔Reflect session, and the Reflection session will earn a personalized certificate.

Erin Coyle
Whitney Young Elementary, Louisville, Kentucky

Robin R. Hill
Kentucky Department of Education, Frankfort

Tim Truitt
Jefferson County Public Schools, Louisville, Kentucky

Jamie-Marie Wilder
Lincoln County Middle School, Stanford, Kentucky

Room 209

A big thank-you to our exhibitors, sponsors, volunteers, and speakers!
3:30 P.M.–4:30 P.M.

**114**
These Are Not Your Parents’ LEGO Bricks!
(Pre-K–5) Session
Increase engagement in the classroom and infuse math and science standards using We-Do LEGO robots. Apply science, technology, engineering, and mathematics (STEM) concepts to design, build, and program robots, as well as receive ideas and activities to extend learning across the curriculum.

**Erin Coyle**
Jefferson County Public Schools, Louisville, Kentucky

Amy L. Colucci
Jefferson County Public Schools, Louisville, Kentucky

**Room L14**

**115**
Give Puzzles a Starring Role in Your Math Class
(3–5) Session
Make puzzles the main course, not the dessert, in your mathematics class as students develop problem-solving expertise to counter a brittle and rule-bound perception of mathematics. Learn about interactive and engaging Sketchpad and iPad puzzles that focus on an assortment of topics, including fractions, decimals, factors, and early algebra.

**Daniel Scher**
KCP Technologies, Emeryville, California

Scott Steketee
KCP Technologies, Emeryville, California

**Room L14**

**116**
Turnonccmath.net: Learning Trajectories for CCSSM
(3–8) Session
Describing students’ conceptual growth over time and supporting the high expectations of the Common Core State Standards for Mathematics (CCSSM), Turnonccmath.net maps the K–8 CCSSM into learning trajectories. We demonstrate how learning trajectories support interpreting CCSSM: resources that unpack the standards coherently and support cross-grade instructional planning and collaboration.

**Alan Maloney**
North Carolina State University, Raleigh

**Room L6/L7**

**117**
Flipping Out with the iPad
(6–12) Session
Come explore free and inexpensive apps on the iPad that can be used to create video instruction for a flipped classroom model or remediation opportunities for the middle school classroom. Learn how to develop and archive these resources for easy student access. I’ll provide online tutorials of the session material.

**Virginia A. Fraser**
Indiana University Southeast, New Albany

**Room 110/111**

**118**
Standard(s) Statistics: Engaging with CCSS Mathematical Practices and Statistical Content
(6–12) Session
Explore middle and high school Common Core State Standards (CCSS) content and practice standards for statistics using hands-on and cognitively demanding tasks. Through a series of data-driven activities exploring center, variability, distribution, and informal inference, learn ways to engage students in answering statistical questions through statistical problem solving.

**Susan A. Peters**
University of Louisville, Kentucky

Jonathan D. Watkins
University of Louisville, Kentucky

**Room 105**

**119**
Critical Thinking in Algebra 1 Classrooms: Research Explored
(9–12, Research) Session
Critical thinking in algebra 1 classrooms enables students to make stronger connections between abstract mathematics concepts and real-world experiences. I will examine a literature-based approach to evaluating the connections between critical thinking and algebra 1.

**Holly S. Meyer**
University of Texas, San Antonio

**Room 218**
3:30 p.m.—4:30 p.m.

120
Linear and Exponential Models
(9–12) Session

The Common Core State Standards (CCSS) require that students “distinguish between situations that can be modeled with linear functions and with exponential functions.” We will explore ways to master and use these two models. The CCSS mathematical practice addressing modeling is obviously a big part of this journey; however, we will also explore other practice standards.

Ann Booth
Making Math Magic, Lancaster, Kentucky

Vonda Stamm
Making Math Magic, Lancaster, Kentucky

121
The Mathematics of Angry Birds
(9–12) Session

Angry Birds is an engaging game, but also a rich source of mathematical learning. We will use it to explore initial velocities, angles, parametric equations, tangents, and regression. We will be using screen captures and video tracking to actually plot and model paths.

Ismael Zamora
Hinsdale South High School, Darien, Illinois

John J. Diehl
Retired, Hinsdale Central High School, Illinois

122
New Standards for Preparing Future Mathematics Teachers
(Higher Education, Preservice and In-Service) Session

NCTM has revised the standards for NCATE’s program review process. Examine new standards, content addenda, and rubrics for the preparation of secondary, middle-grades, and elementary math specialists. Explore how these changes will affect the review process leading to national recognition of programs by NCATE and CAEP.

Judy O’Neal
National Council of Teachers of Mathematics, Reston, Virginia

Room 101/102

122.1
IXL: Changing the Way Math Is Practiced!
(General Interest) Exhibitor Workshop

Come learn how IXL is using web-based practice to change the way students and teachers approach math! Aligned to the Common Core State Standards, IXL engages students with dynamic content, interactive questions, and virtual awards. IXL’s advanced reporting suite provides powerful tools for teachers to monitor students’ progress.

IXL Learning
San Mateo, California

Room 103
Regional Conferences & Expositions

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**HIGHLIGHTS**
New Members and First Timers’ Orientation (Presentation 123)
NCTM President Session (Presentation 125)
New and Preservice Teacher’s Workshop (Presentation 160)
NCTM Board Hot Topic: Embracing the Common Core (Presentation 173)

**ICON** | **PRESENTATION NUMBERS**
---|---
Exhibitor Workshops | 135.1, 135.2, 159.1, 159.2, 183.1, 183.2, 195.1, 195.2, 219.1
Developing Mathematical Promise, Talent, Creativity, and Giftedness | 133, 149, 161, 177, 191, 200, 215, 225
Exploring Fractions | 131, 139, 165, 186, 199
English Language Learners | 124, 164, 178, 189, 214, 216, 241
Special Education | 203

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

**EXHIBIT AND NETWORKING LOUNGE HOURS**
8:00 a.m.–4:00 p.m.

**BOOKSTORE AND MEMBER SHOWCASE HOURS**
8:00 a.m.–4:00 p.m.

**FIRE CODE**
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.

123 New Members and First Timers’ Orientation
(General Interest) Session
New to NCTM? Join us to learn how to maximize your membership experience. From journals and online lessons, tools, and activities to networking and career-advancement opportunities, you’ll discover all that NCTM has to offer you. Also, learn how to make the most of your time at the conference.

Laura Parn
Peine Ridge Elem, Wentzville, Virginia

Wade White
Retired, Dallas S.D., Oregon

Karen Graham
Board of Directors, National Council of Teachers of Mathematics; University of New Hampshire

Room L6/L7

8:00 A.M.–9:00 A.M.

124 An Equation for Success with English Language Learners
(General Interest) Session
We will explore a collection of key instructional practices that result in high achievement for all students, including those who are culturally and linguistically diverse. You’ll also learn which practices to avoid.

Jennifer M. Bay-Williams
University of Louisville, Kentucky

Room L6/L7

125 NCTM President Session:
It’s Raining Rich Problems!
(General Interest) Session
A rich problem is the umbrella for incorporating standards of practice with mathematics content in the elementary grades. Here are some practical suggests to turn this vision into practice.

Linda M. Gojak
President, National Council of Teachers of Mathematics; John Carroll University, University Heights, Ohio

Room L6/L7

126 Effects of Inquiry-Based Pre-K Curricula on Children’s Knowledge of Mathematics
(Pre-K–2) Session
I will describe a prekindergarten math and science curriculum, the professional development of Head Start teachers, prekindergarten children’s outcomes, and findings from the first four years of data collection. I will also share suggestions for helping teachers become successful facilitators of math and science activities.

David L. Brown
Texas A&M University–Commerce

Room 105

127 Mathematical Language: The Core for Mastering Concepts
(Pre-K–2) Session
Helping children develop deep understanding of mathematical concepts from all strands requires teachers to appropriately model the language of mathematics. Language can be the bridge for support by using stories, concrete resources, and pictorial representation. Explore language stages to facilitate meaning making for mathematical concepts.

Rosemary Reuille Irons
Queensland University of Technology, Brisbane, Australia

Room 110/111

128 Connecting Mathematics and Literacy
(Pre-K–5) Session
The content and strategies of literacy learning provide a remarkable vehicle for mathematics learning. Learn how students can apply visualizing, predicting, and other familiar comprehension strategies to creating and solving math problems. Leave with a list of children’s literature to assist you to authentically embed essential math concepts.

Deborah White
Dallas School District, Oregon

Room 218

Mingle, explore, and learn in the Exhibit Hall and Networking Lounge!
**129**
What’s Uncommon about the Common Core?
(3–5) Session
How are the Common Core State Standards for Mathematics (CCSSM) different from the objectives that I’m used to teaching? How do the standards’ expectations affect how I think about teaching? What do I do differently? If you are asking these questions, then join us as we engage in tasks designed to highlight the mathematical and instructional differences needed for CCSSM.

Shannon Harmon
Middle Tennessee State University, Murfreesboro

Angela T. Barlow
Middle Tennessee State University, Murfreesboro

**130**
Teaching Rational Numbers to the iGeneration
(3–8) Session
Let’s examine how to engage and motivate the iGeneration in teaching about rational numbers. The Common Core State Standards clearly focus on understanding rational numbers. Receive strategies, videos, and assessment tools that can lead to building better facility with basic skills and rational numbers.

Eric Milou
Rowan University, Glassboro, New Jersey

**131**
Differentiating Instruction for Fraction Division
(6–8) Session
Solve fraction division problems using a measurement model of division in this problem-solving session. I will discuss how different problems can be modified to differentiate instruction for students. I’ll also introduce a free downloadable computer tool that can be used in classrooms.

Erik S. Tillema
Indiana University–Purdue University, Indianapolis

**132**
Expressing Regularity in Repeated Reasoning with CCSSM
(6–12) Session
The mathematical practices are an essential component of the Common Core State Standards for Mathematics (CCSSM), but implementing them, including “look for and express regularity in repeated reasoning,” can be enigmatic. We will discuss strategies for employing this practice when teaching exponential functions, right triangles, complex numbers, and formula derivation.

Kelly W. Edenfield
Carnegie Learning, Pittsburgh, Pennsylvania

**133**
Integrated Assessment and Instruction
(6–12) Session
Creativity and flexibility are essential when working with gifted students in mathematics. Integrating assessment and instruction is a meaningful way to address their needs. Blended activities, such as open-ended projects, encourage students to work beyond grade-level expectations. Come see examples and begin to develop your own material.

Heather Gramberg Carmody
Park Tudor School, Indianapolis, Indiana

**134**
Videos to Engage Students in the Standards for Mathematical Practice
(6–12) Session
We will view short videos that can be used effectively to build student understanding and serve to address the Standards for Mathematical Practice that must be assessed as part of the Common Core. After viewing each video, we will discuss which practices fit and share ideas about teaching and learning mathematics with the video.

Ed Dickey
University of South Carolina, Columbia
135
Understanding Preservice Teachers’ Conceptions about Teaching Mathematics for Social Justice
(Higher Education, Preservice and In-Service, Research) Session

We present research on elementary school preservice teachers’ conceptions of social justice and mathematics across three universities. We discuss ways to inform instruction with research and ideas for integrating social justice with mathematics in methods courses.

Cindy Jong
University of Kentucky, Lexington

Christa Jackson
University of Kentucky, Lexington

Maranda L. Miller
University of Kentucky, Lexington

135.1 CW
Meeting the Practice Standards Using Models from Math in Context®
(3–8) Exhibitor Workshop

The CCSSM Practice Standards ask students to “model with mathematics.” Students are expected to identify quantities and map relationships using math tools including diagrams, two-way tables, and formulas. Participants will explore models from MiC that can be used to analyze situations and draw conclusions, and receive a free Number Tools® workbook.

Britannica Digital Learning
Chicago, Illinois

135.2 CW
Pearson’s CMP3: Get Connected!
(6–8) Exhibitor Workshop

Experience CMP3, the newest edition of the inquiry-based Connected Mathematics Project. See new updated Common Core–aligned content and easy-to-use mobile tools. Find out how twenty-first-century social-networking technology connects CMP3 teachers and how students benefit from interactive digital student pages that allow for instant sharing.

Pearson
Upper Saddle River, New Jersey

136
Kindergarten–Grade 2 Games That Make You Think
(Pre-K–2) Gallery Workshop

Play newly developed games that target the K–grade 2 Common Core State Standards for number and operations and foster use of the mathematical practices. Differentiate instruction to support and challenge the full range of learners within the framework of a game. Follow-up class discussion questions encourage deep processing.

Kathleen Barta
Teacher to Teacher Publications, Lake Oswego, Oregon

Gail E. Gerdemann
Oregon State University, Corvallis

137
Uncovering and Addressing Student Misconceptions by Using Formative Assessment Lessons
(Pre-K–2) Gallery Workshop

These classroom challenges rely on feedback and effective questioning from the teacher, employ cooperative learning strategies, activate students as learning resources for one another, and encourage orchestrated group discussions. The lessons help teachers and students work effectively together to move each student’s learning forward.

Renee' Yates
Kentucky Department of Education, Frankfort

Charles Rutledge
Kentucky Department of Education, Frankfort

Katrina Slone
Kentucky Department of Education, Frankfort

Access the Conference App for program updates, conference networking, and exhibit info.

Download it at www.nctm.org/confapp
8:30 A.M.—10:00 A.M.

138 Connections: Progressions, Problem Solving, and Practices in Implementing CCSSM
(Pre-K–5) Gallery Workshop
Explore activities from the measurement and data standards of the Common Core State Standards for Mathematics (CCSSM) while discovering connections with other domains. See examples of connections with other content areas in the context of rich, engaging mathematical experiences.

Tim W. Sears
Kentucky Department of Education, Frankfort

Ellen F. Sears
Kentucky Department of Education, Frankfort

Room 101

139 Listening to Students’ Thinking about Fractions
(3–5) Gallery Workshop
As teachers, we usually hear students, but we don’t necessarily listen carefully to their thinking. Using elementary school students’ artifacts generated from work with fraction contexts, we will develop our abilities to listen to and explore students’ thinking.

M. Lynn Breyfogle
Bucknell University, Lewisburg, Pennsylvania

Room 210/211

140 More Than One Right Answer: Alternative Strategies for Student Success
(3–5) Gallery Workshop
As we gain expertise in instructional strategies and how kids learn, we can teach our students multiple ways to solve a problem. While there may indeed be a “right” answer arrived at by traditional means, there can be many ways to find it. I demonstrate a variety of methods to help students learn how to problem solve.

Tammy L. Wall
Kentucky Educational Development Corporation, Ashland

Room L4/L5

141 Teaching Fractions to Develop Proportional Reasoning
(3–5) Gallery Workshop
I will model best practices using area, set, and number line models of fractions with hands-on materials that are easy to assess. Come sing, dance, play games, and learn how to make this difficult area of mathematics less challenging and more meaningful for all students! Be prepared to learn new strategies.

Kim P. Sutton
Consultant, Arcata, California

Room L15

142 The Importance of Context in Developing Number Sense
(6–8) Gallery Workshop
The Common Core State Standards emphasize the use of context in developing a deep understanding of numbers and operations. Learn how to use free online tools that support both context and modeling of story problems, as well as instructional strategies. We will share data on how context improves student understanding of the meaning of operations.

Connie Laughlin
University of Wisconsin Milwaukee

Melissa Hedges
Mequon-Thiensville School District, Wisconsin

Room 108

143 Making Math Out of March Madness
(6–12) Gallery Workshop
March is the time when basketball fans turn their thoughts to bracketology. Use the NCAA tournament’s single-elimination format to examine exponential and piecewise functions. With graphing technology, model the various bracket formats used over the years—from eight to sixty-eight teams—and generate equations for those models.

Jennifer Axley
Blount County Schools, Maryville, Tennessee

Donna Talley Russell
Blount County Schools, Maryville, Tennessee

Room 207/208
144  
**NASA’s Supernova Mathematics**  
*(6–12) Gallery Workshop*

Find out what a flip book and a supernova have in common. Then, apply your knowledge to solve a supernova mystery. Take activities back to your classroom to help teach your students about proportional reasoning, linear models, measurement, and interdisciplinary connections. Free NASA materials!

*Janet Lynne Moore*  
NASA; Illinois State University, Bloomington, Illinois

**Room 212-217**

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145

**High School Algebra and the Practice Standards**  
*(9–12) Gallery Workshop*

Good teachers use the mathematical practices of the Common Core State Standards for Mathematics (CCSSM); however, CCSSM demands more. A great teacher does not just use the practice standards but creates a classroom where the students must engage in them. You will engage in interactive algebra activities that require kids to become the mathematically proficient students defined in the standards.

*Heather Brown*  
Illinois State Board of Education; Statewide System of Support/PDA, Joliet

*Alanna Mertens*  
Chicago Public Schools, Illinois

**Room 112**

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146

**Formative Assessment Lessons for CCSS Content and Practices**  
*(9–12) Preservice and In-Service) Gallery Workshop*

Participate in formative assessment lessons designed by the Mathematics Assessment Project (MAP) team to assess and develop students’ integrated understanding of the high school Common Core State Standards (CCSS) content and ability to engage in the mathematical practices. We will share teachers guides and an open-source website with an additional forty high school lessons.

*Mary K. Bouck*  
University of California, Berkeley

*Julie Faulkner*  
Retired, Coordinator and Principal, Traverse City, Michigan

**Room 109**

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147

**Mathematical Practice: Eight Exemplars That Enhance Understanding**  
*(Preservice and In-Service) Gallery Workshop*

Explore the eight Standards for Mathematical Practice found in the Common Core State Standards. Engage in exemplary activities and take-back examples to enhance understanding, provide meaning in context, and demonstrate the power of these practices as students are learning mathematics.

*Carolyn M. Moore*  
McGraw-Hill, Columbus, Ohio

**Room L2/L3**

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148

**The Art of Teaching Mathematics!**  
*(General Interest) Session*

You will be challenged to think of student motivation not as a cause but as a consequence of achievement. The “art” of teaching mathematics lies within a keen understanding of your own disposition toward a fixed or growth mindset about mathematics learning and effective lesson design tools.

*Timothy Kanold*  
Loyola University, Chicago, Illinois

**Cascade Ballroom B**

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149

**The Common Core State Standards for Gifted and Advanced Learners**  
*(General Interest) Session*

The Common Core State Standards may be necessary, but are they sufficient to develop the mathematical inspiration and innovation needed to challenge and motivate gifted and promising mathematics students? Come explore proven strategies for creating advanced, passionate students who develop and collaborate on complex, multiple, and original solutions and problems.

*Linda Sheffield*  
Northern Kentucky University, Highland Heights

**Cascade Ballroom C**
9:30 A.M.–10:30 A.M.

150
Look before You Leap: Using Children’s Thinking to Target Instruction
(Pre-K–2, Preservice and In-Service) Session
What do children’s responses tell us about their understanding of mathematics? Oftentimes, we assume a correct answer indicates underlying conceptual knowledge. We will focus on learning to attend to nuances of children’s words and actions to target instruction to children’s individual needs.

Edna O. Schack
Morehead State University, Kentucky
Molly H. Fisher
University of Kentucky, Lexington
Jonathan N. Thomas
Northern Kentucky University/Kentucky Center for Mathematics, Highland Heights

151
From STEM to STEAM: Arts and Creativity in Mathematics
(Pre-K–5) Session
Young students need to be excited about math. They need to be fully engaged in creating math models, making up math stories, doodling and sketching, and using multiple means of expression to think about math. Let’s work together to get the arts—artistic expression and creative thinking—into our everyday math instruction.

Stuart J. Murphy
Independent Author, Boston, Massachusetts

152
Fractions Don’t Have to Be Frustrating!
(3–5) Session
How can I help my students understand fractions? Come see how using manipulatives can help your students better understand fraction concepts. Hear why manipulatives can be a powerful tool in developing students’ understanding of fractions. I will share ideas for equivalence, ordering, addition, and subtraction of fractions.

Kevin Dykema
Mattawan Middle School, Michigan

153
Number Lines: A Gift from CCSSM
(3–5) Session
The Common Core State Standards for Mathematics emphasize the number line as it connects components of our number system. The same number line serves as a valuable problem-solving tool, with the additional benefit of making students’ thinking visible. Come join us in this interactive session. We’ll feature activities to use in your classroom.

Kit Norris
Educational Consultant, Southborough, Massachusetts

154
High-Leverage Actions Ensure All Your Students Are Common Core Ready
(6–12) Session
What are the most important actions to take now to ensure that all your students are prepared for the 2015 Common Core State Standards (CCSS) assessments? I will highlight key content and mathematical practices that students need to know and demonstrate, along with research-based instruction and assessment practices and strategies to build students’ proficiency in both.

Diane J. Briars
President Elect, National Council of Teachers of Mathematics; Consultant, Pittsburgh, Pennsylvania

155
Strategies for Infusing Instruction with Mathematical Practices
(6–12) Session
What are tangible ways to engage students in the Common Core State Standards for Mathematical Practice while still covering required content? I will present research-based strategies that can be used in secondary mathematics classrooms to deepen students’ understanding and help them become mathematical thinkers.

Samuel Otten
University of Missouri, Columbia
156  Understanding and Addressing Algebra, Geometry, Rational Number, and Probability Misconceptions  
(6–12, Research) Session  
We will report on research to describe underlying causes and present recommendations for addressing mathematics misconceptions by outlining and incorporating an underlying structure that links rational number, algebra, geometry, and probability misconceptions. We will also address connections to the Common Core State Standards for Mathematics student learning objectives.

Christopher R. Rakes  
University of Maryland, Baltimore County

Robert N. Ronau  
University of Louisville, Kentucky

157  Computer Gaming: Mathematics Applications to Engage Students  
(9–12) Higher Education) Session  
Using Matlab, we will create computer games that include animation, audio, and video, emphasizing hands-on experiential learning opportunities for students. Explore cross-disciplinary problem-solving methods that combine mathematics and technology.

Susan G. Helser  
Mott Community College, Flint, Michigan

158  Bringing Algebra, Functions, and Mathematical Practices to Life through Technology  
(9–12) Preservice and In-Service) Session  
Core Math Tools offer a convenient way to bring technology into students’ experiences inside and outside the classroom. I will provide examples of specific ways to use the online tools to address the Common Core State Standards for Mathematics (CCSSM) for algebra, functions, and the mathematical practices through small tasks and major projects.

Rose Mary Zbiek  
The Pennsylvania State University, University Park

159  Preparing for Your Institution’s NCATE Program Review Using New Standards  
(Higher Education, Preservice and In-Service) Session  
Get the latest information on preparing mathematics education program reports for NCATE accreditation based on the 2012 NCTM NCATE Standards. Learn how to navigate the NCATE/CAEP program review process and prepare required documents under the new standards. Explore new report templates and new program standards and learn how to avoid mistakes.

Judy O’Neal  
National Council of Teachers of Mathematics, Reston, Virginia

159.1  New K–5 Math Curriculum for Building Mathematical Thinkers  
(Pre-K–5) Exhibitor Workshop  
Bridges in Mathematics, second edition, is a comprehensive K–5 curriculum that equips teachers to fully implement the Common Core State Standards in a manner that is rigorous, engaging, and accessible. Join us for an overview of this unique program—learn more about workplaces, visual models, and putting the mathematical practices into action.

The Math Learning Center  
Salem, Oregon

159.2  Do Story Problems Scare the Daylights Out of Your Students?  
(3–8) Exhibitor Workshop  
For many students, story problems set off a panic alarm: How does one translate an abstract story problem into an even more abstract algebraic equation? Attend this session to learn how Hands-On Equations® enables students to represent and solve story problems visually using game pieces, including age and consecutive number problems.

Borenson and Associates  
Allentown, Pennsylvania
10:30 A.M.–12:00 P.M.

160 New and Preservice Teachers Workshop  
(General Interest) Gallery 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  
Room 104

161 The Young Gifted Mathematician: Ideas and Strategies  
(Pre-K–2) Gallery Workshop
Gifted students in preschool through grade 2 are often unidentified and underserved. Learn to use informal means to identify young students who may be advanced in mathematical areas. Explore ways to enrich and accelerate the curriculum through hands-on activities and play-based learning in a regular classroom or pull-out program.

Becky Leff  
Quest Academy, Palatine, Illinois  
Room 109

162 Use the Hundred-Bead Abacus to Implement the Common Core Standards  
(Pre-K–2) Gallery Workshop
The hundred-bead abacus is a useful teaching aid. It gives you the opportunity to make children’s learning experience exciting and enjoyable through many different techniques. Explore these techniques with us.

Tomoe Fujimoto  
Tomoe MI Academy, Tokyo, Japan  
Hiroo Kodama  
Tomoe MI Academy, Tokyo, Japan  
Room L4/L5

163 It’s All in the Process: Strategies for Addressing Reasoning—Elementary  
(Pre-K–5) Gallery Workshop
Learn strategies for problem solving to assist students in making sense of problems, decontextualizing and contextualizing, and constructing viable arguments as they formulate their own ideas about the meaning of the problem and predict outcomes.

Tammy L. Jones  
TLJ Consulting Group, Lebanon, Tennessee  
Leslie A. Texas  
Leslie Texas Consulting, Louisville, Kentucky  
Room L2/L3

Do Word Problems Scare the Daylights Out of Your Students?

Friday, November 8  
9:30 a.m. - 10:30 a.m.  
Room #102

A class set of Hands-On Equations will be raffled at this session!  
Cannot attend? Visit us at Booth 508.
10:30 A.M.–12:00 P.M.

164  ELL
Deciphering the Complexity of Differentiating for English Language Learners
(3–5) Gallery Workshop
Differentiation can be daunting when trying to meet the needs of English language learners. There are five areas to address before implementing the instructional strategies of differentiation: knowledge of students, learning environment, assessment, content knowledge, and appropriate instruction.

Stefanie D. Livers
University of Alabama, Tuscaloosa

165  EF
Rational Number Project: Negotiating Models for Teaching Fractions
(3–5) Gallery Workshop
Use models found to be effective in building (a) meaning for fractions and their relative size, (b) a reason for common denominators when adding and subtracting fractions, and (c) an understanding of the algorithm for multiplying fractions. We will share lessons from the Rational Number Project curriculum and examine student work.

Kathleen Cramer
University of Minnesota, Minneapolis
Debbie Monson
University of St. Thomas, Minneapolis, Minnesota

166
Exceptional, Free Online Resources for Teaching Probability
(3–8) Gallery Workshop
Illuminations (http://illuminations.nctm.org) has a treasure trove of excellent resources for the middle grades, including lesson plans, online activities, and math strategy games. Immerse yourself in Illuminations lessons, play an online math strategy game, and discuss how all these resources can be used in your classroom to get students excited about probability!

Sarah DeLeeuw
National Council of Teachers of Mathematics, Reston, Virginia

167
Moving Forward with Metric
(3–8) Gallery Workshop
Milligrams of medicine, 5K races, 2-liter soft drinks. Metric is here! Learn methods to teach and see the metric system. These hands-on classroom activities are aligned with the Common Core State Standards. Have fun! I’ll provide handouts and materials.

Donna L. Monck
Rock Christian Academy, Easton, Pennsylvania

168
Developing Fraction Number Sense in the Middle Grades
(6–8, Preservice and In-Service) Gallery Workshop
Experience activities, tasks, and games to develop and extend students’ understanding of fraction concepts and operations. Go beyond procedures to build number sense and flexible thinking for fraction computation.

Rick Anderson
Eastern Illinois University, Charleston

169
Managing Groups and Fostering Math Practices
(6–12) Gallery Workshop
Be a participant! Work in groups learning sorts, ice breakers, study-team roles, and study-team strategies and expectations that help students foster the Common Core State Standards for Mathematical Practice. Efficient group work can help students “make sense of problems and persevere,” “reason abstractly and quantitatively,” and “construct viable arguments and critique the reasoning of others.”

Theresa Reilly
Jefferson County Public Schools, Louisville, Kentucky

Free T-shirts—stop by the Member Showcase to learn how to get one!
10:30 A.M.–12:00 P.M.

**170**  
Modeling through Stacking and Nesting  
(6–12) Gallery Workshop

Collect data from a variety of real-world activities related to stacking or nesting objects and make decisions on how to interpret the data through the Ohio University advanced quantitative reasoning modeling philosophy.

John M. Ashurst  
Harlan Independent Board of Education, Kentucky

Room 108

**173**  
NCTM Board Hot Topic  
Embracing the Common Core: An Opportunity, Not a Burden  
(General Interest) Session

The Common Core presents an unprecedented opportunity for mathematics education in this country. Participants will have an opportunity to learn about NCTM’s efforts and to share their own successes and challenges. It is up to us to take ownership and make it happen!

Karen Graham  
Board of Directors, National Council of Teachers of Mathematics; University of New Hampshire, Durham

Linda M. Gojak  
President, National Council of Teachers of Mathematics; John Carroll University, University Heights, Ohio

Room 209

11:00 A.M.–12:00 P.M.

**171**  
The Many Faces of Differentiation in Algebra  
(9–12) Preservice and In-Service) Gallery Workshop

Investigate various types of differentiated material, discussing when, why, and how they can be used. Working from scenarios, we’ll create material. Some of the differentiation methods discussed: tiered worksheets, graduated difficulty problem sets, differentiated questioning, different contexts or instructional mode. Support and challenge all!

Allan E. Bellman  
University of California, Davis

Room 212-217

**174**  
Number Talks: A Path to Numerical Reasoning  
(General Interest) Session

Receive an introduction to number talks and see demonstrations of how this classroom routine can support students in developing accurate, efficient, and flexible computation strategies. I will use classroom video clips to highlight the goals of number talks and how they address the Common Core State Standards and the mathematical practices.

Sherry D. Parrish  
University of Alabama at Birmingham

Room 218

**175**  
Assessing Student Understanding of Fractions: An Interview Protocol for Teachers  
(Pre-K–2) Session

How do we know what students understand about fractions? Analyze and engage in assessment tasks targeting student understanding of fractions in early grades. I will share items used with K–3 students. We will examine what the tasks reveal about understanding and how that can be used to inform instruction.

Trena L. Wilkerson  
Baylor University, Waco, Texas

Room 105
11:00 A.M.–12:00 P.M.

176 Building a Community of Mathematicians
(Pre-K–5) Session
Learn strategic ways to build a community of mathematicians in your school and how to establish norms for a positive mathematical environment. This requires inquiry-based instruction as it relates to the Common Core State Standards. You will learn various ways of engaging students during math instruction.

Carla M. Kolodey
Jefferson County Public Schools, Louisville, Kentucky

Room 110/111

177 Engaging Elementary School Student Mathematicians in High-Level Thinking through Communication
(Pre-K–5) Session
Teachers can readily use communication, both verbal and written, to help students engage in higher-level thinking. Come learn about proven strategies that comprehensively address the Common Core’s call for students to construct viable arguments and critique the reasoning of others and that support gifted students struggling to explain their reasoning.

Tutita M. Casa
University of Connecticut, Storrs

Room 201/202

178 Creating High-Level Cognitive Tasks for All Learners
(3–5) Session
Mathematics tasks can facilitate or hinder English language learners’ (ELLs) learning. In this interactive session, you will discuss tasks that can help your ELLs learn math while increasing cognitive demand for all students. We will use examples from curriculum materials and classroom videos to illustrate strategies to help ELLs.

Anne T. Estapa
Iowa State University, Ames

Cascade Ballroom C

179 It’s Not about You: Shifting the Focus to the Students
(3–8) Session
Students need to be engaged in the Common Core State Standards for Mathematical Practice. However, what that actually looks like in the classroom is elusive. Explore classroom videos that capture students engaged in the practices and discuss teacher moves and meaningful tasks that support this engagement.

Juli K. Dixon
University of Central Florida, Orlando

Room L14

180 Direct Variation Is Not a Slippery Slope
(6–8) Session
I will present a series of carefully designed activities that help students make sense of slope as a constant rate of change. We’ll connect slope and direct variation using the context of skate ramps, TV screens, and protein shakes. We’ll also discuss inverse variation.

Laurie Boswell
The Riverside School, Lyndonville, Vermont

Cascade Ballroom A

181 Constructions, Circles, Similarity, and Proofs with GeoGebra and Cabri Jr.
(6–12) Session
Find out how the dynamic geometry programs GeoGebra and Cabri Jr. can be used to perform geometric constructions. Then, examine connections between constructions, similar figures, circles, and proofs. We’ll focus on the Common Core State Standards for Mathematics, grades 9 through 12.

Tim S. Truitt
Jefferson County Public Schools, Louisville, Kentucky

Room 219
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11:00 A.M.–12:00 P.M.

182
What I Learned about Assessment from the AP Program
(9–12) Session
Forty years of teaching have taught me many things, but my most significant learning experiences have been in the area of assessment. My years with the AP Committee were especially enlightening, showing me how to challenge all my students without scaring them away.

Dan Kennedy
Baylor School, Chattanooga, Tennessee

Room L6/L7

183
The Foreign Nature of Communication in Your Classroom
(Pre-service and In-Service) Session
Learn about a language-dependent mathematics task that provides an empathic math-language experience. You will be presented with a problem, make sense of the problem, and determine a course of action. In particular, we will discuss links to the implications for student communication and the Standards for Mathematical Practice.

Jessica T. Ivy
Mississippi State University

Dana Pomykal Franz
Mississippi State University

Kelly Moser
Mississippi State University

Room 106/107

12:30 P.M.–1:30 P.M.

183.2
Making Secondary Math Journals Fold-tastic!
(6–12) Exhibitor Workshop
Cut, fold, and more, in this hands-on workshop as you transform basic classroom materials into Notebook Foldables that are sure to make your student math journals fold-tastic. Depart with a mini-composition book made on site that is filled with immediately usable ideas.

Dinah-Might Adventures
San Antonio, Texas

Room 102

184
Numeracy and Literacy: What Can We Learn?
(Pre-K–2, Preservice and In-Service) Session
Students learn early numeracy in much the same way they learn early literacy, so why does our instruction look so different? Through the use of videos, we look at children’s numeracy development and how we can use the teaching strategies effective in literacy development to guide our instruction in early numeracy.

Shelley Dickason
Fayette County Public Schools, Lexington, Kentucky

Room 105

185
Number Sense Begins with Ten-Frames
(Pre-K–5) Session
Learn why ten-frames are such a powerful tool to help students build number sense and master arithmetic. Learn how to integrate ten-frame models into your instruction to develop the Common Core mathematical practices in every student. Take away classroom-proven resources.

Christine S. Losq
CSL Associates, Inc., Palo Alto, California

Room L14
12:30 P.M.–1:30 P.M.

**186**
*Beyond Counting Parts: Engaging Students in Foundational Fraction Ideas*

(3–5) Session

Challenging topics in the upper elementary grades include teaching and learning fractions and the Common Core mathematical practice of constructing viable arguments and critiquing the reasoning of others. We will particularly look at common patterns of student thinking and instructional strategies for supporting students’ learning.

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

*Cascade Ballroom B*

**187**
*Writing: A Tool to Organize and Clarify Mathematics Concepts*

(3–5) Session

Through the powerful tool of writing, students have the opportunity to express their understanding of math concepts in their own words by synthesizing information, organizing and clarifying their thinking, and combining separate ideas into a new whole. Writing helps students with problem solutions, pattern identification, and precise vocabulary.

**Lynn Columba**
Lehigh University, Bethlehem, Pennsylvania

*Room 110/111*

**188**
*Making Student Thinking Visible*

(6–8) Session

Research on effective classrooms shows visible thinking weaves throughout teacher planning and presentation. In making thinking visible, teachers have a variety of strategies available. What are classroom activities that make student thinking visible? How can they be extended? What are the benefits of visible thinking?

**Don S. Balka**
Didax, Rowley, Massachusetts

*Cascade Ballroom A*

**189**
*Differentiated Instruction in Mathematics for English Language Learners*

(6–8, Preservice and In-Service) Session

Experience a geometry lesson that is differentiated to provide access to mathematics for all learners. We will discuss strategies for differentiating instruction, developing a positive classroom environment, and managing authentic collaboration in mathematics for English language learners.

**Deandrea Murrey**
California State University Dominguez Hills, Carson

*Room 106/107*

**190**
*How Virtual Science Manipulatives Enhance Student Understanding in Mathematics*

(6–12) Session

Computer-based science simulations are an ideal way to engage math students in real-world problems, allowing students to apply algebra skills to problems in density, electricity, motion, and other topics. Through specific questioning techniques, students learn to find patterns in data, discover principles on their own, and solve problems.

**Sue Bridgman**
ExploreLearning, Charlottesville, Virginia

*Room L6/L7*

**191**
*Identifying and Developing Strengths of Gifted Students: Scientific Village Strategy*

(6–12) Session

Learn about the characteristics of mathematically gifted students and see problems, projects, and applications to identify students’ talents and interests, as well as challenge them and help them know what they know. Engage in the solution of several problems. I’ll describe the Scientific Village, a National Science Foundation–funded and evaluated approach.

**Carole E. Greenes**
Arizona State University, Tempe

*Room 201/202*
192
Advanced Algebra with Financial Applications: Quantitative Financial Literacy for All
(9–12) Session
Advanced Algebra with Financial Applications is a third- or fourth-year course for students of all abilities that is aligned with the Common Core State Standards. Students learn selected topics in algebra 2, probability, statistics, and precalculus with an algebra 1 prerequisite, while covering banking, taxes, insurance, credit, investing, budgeting, and more!

Richard J. Sgroi
Bedford Public Schools, New York (Retired)

193
The Shape of Geometry and the Geometry of Shape
(9–12) Session
In the past fifty years, the content of the geometry curriculum has been influenced by transformations, coordinates, applications, and technology. Each of these influences can change the way one views geometry as a subject to be taught and learned and affects the idea of “shape.” And so the shape of geometry is related to the geometry of shape.

Zalman Usiskin
University of Chicago, Illinois

194
Investigating Understanding of Trigonometric Relationships between Two Base Angles
(9–12) Preservice and In-Service) Session
Trigonometry has been a central part of the mathematics curriculum for over a century. However, both students and teachers have struggled with reasoning about topics related to trigonometry. This report describes mathematics education graduate students’ understanding of relationships between sine and cosine of two base angles in a right triangle.

Melike Yigit
Purdue University, West Lafayette, Indiana

195
What Knowledge Do Secondary Geometry Teachers Need to Be Effective?
(Higher Education, Preservice and In-Service, Research) Session
Teaching geometry concepts such as surface area, volume, and similarity and congruence in a climate of high-stakes testing can be a daunting and challenging task. We will report on the research results of Geometry Assessments for Secondary Teachers, a National Science Foundation–funded project, revealing what factors affect student achievement in secondary geometry classrooms.

Margaret Mohr-Schroeder
University of Kentucky, Lexington
William Bush
University of Louisville, Kentucky
Carl W. Lee
University of Kentucky, Lexington

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| x² + 12x + 11 | x² - 6x - 55 | x² + 6x + 5 |
| x² - x - 2 | x² - 14x + 33 | x² - 6x - 7 |
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12:30 P.M.–1:30 P.M.

195.1 Walk the Number Line for Research-Based Results
(Pre-K–5) Exhibitor Workshop
Elementary learners need a number line for powerful concepts like multiples, regrouping, making change, elapsed time, rounding, factoring, and fractions! You will be amazed by Kim Sutton’s unique strategies for K–5 and ready for action on Monday morning using the most important visual!

Creative Mathematics
Arcata, California

195.2 Conquer Times Tables in ONLY 3 WEEKS—Guaranteed!
(3–8) Exhibitor Workshop
Conquer Times Tables in ONLY 3 WEEKS—Guaranteed! If class average isn’t 90 percent on the final test—100% refund. Research-based—MULTI-SENSORY—all four learning styles—for ALL students. No training! MULTI-SENSORY sister products to add, subtract, divide, and do ClockWise fractions and equivalency. Find out about us at www.rhemesntimes.com or www.clockwisemath.com, or call 888-684-6376.

Rhymes ‘n’ Times
Lewisville, Texas

12:30 P.M.–2:00 P.M.

196 Number Know-How and Fluency Fun
(Pre-K–2) Gallery Workshop
Number sense involves knowing meanings of numbers, ways of representing numbers, and relative magnitude of numbers, as well as skill in working with numbers. Explore activities and games for developing the early-elementary number and operation standards described in the Common Core State Standards.

Ann C. McCoy
University of Central Missouri, Warrensburg

197 Thinking Strategically: Connecting Addition and Subtraction
(Pre-K–2) Gallery Workshop
By the end of grade 2, students are expected to explain why addition and subtraction strategies work. Three strategies lead students to the connections between the two operations and supply the underlying reasoning to the basic facts. We can extend these to multidigit computation. Let’s arm our students with meaningful strategies.

Rob Nickerson
ORIGO Education, St. Charles, Missouri

198 How to Cultivate Algebraic Thinking for Our Students and Ourselves
(Pre-K–5) Gallery Workshop
Both the NCTM Standards and the Common Core State Standards for Mathematics insist on algebraic thinking from the start. But what does it mean to do algebra in the early grades? Experience concrete and engaging examples from Planting the Seeds of Algebra: Explorations for the Early Grades, modeling how to uncover the algebraic character of elementary math.

Monica Neagoy
Monica Neagoy Mathematics Consulting Services, Arlington, Virginia

199 Fractions Are Numbers, Too! Deeper Understanding through Interactive Activities
(3–5, Preservice and In-Service) Gallery Workshop
Engage in problems from the Common Core progression for Number and Operations—Fractions. Experience activities designed to build student confidence with fractions just as they build when learning to work with whole numbers. While rolling dice to create fractions, we will experience mathematical practice 3.

Alanna Mertens
Chicago Public Schools, Illinois

Heather Brown
Illinois State Board of Education; Statewide System of Support/ PDA, Joliet
200  DM
Improving Mathematics Tasks and Teaching for Gifted Learners (3–8) Gallery Workshop
How can teachers in grades 3–5 meet the mathematical needs of all their students, including gifted learners? We will examine student work and videos as we consider the perspective of gifted students and their parents. We’ll also examine strategies for enhancing tasks and teaching mathematics to gifted learners.
Kathryn B. Chval
University of Missouri, Columbia

201  Tri-Mathalon: Activities, Challenges, and Games to Try (3–8) Gallery Workshop
Looking for ways to exercise students’ minds, stretch their imaginations, and help them grasp goals? Join us as we revisit some classics and introduce you to new ideas worth exploring. You’ll leave with exciting activities, challenging puzzles, and fabulous games for immediate use to help your students stay mathematically fit for the future!
Martha Hildebrandt
Chatham University, Pittsburgh, Pennsylvania

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Fri.  8:00 a.m. – 4:00 p.m.

NCTM 2013 Regional Conference & Exposition
12:30 P.M.–2:00 P.M.

**202**
Launch a Quadrilateral into Space
(6–12) Gallery Workshop

Construct a rocket from a single sheet of paper using no scissors, glue, or tape. Determine your rocket fuel formula using effervescent tablets and choice of liquid (soda or water) and temperature (cold or warm). Then launch your rocket using a film cannister containing your rocket fuel. Tape is optional.

**William C. Luke**
Central Texas College, Killeen

**Gregory P. Luke**
Temple High School, Texas

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**203**
Looking Beyond an Answer: Supporting Learners Who Struggle
(6–12) Gallery Workshop

Skill-based assessments often do not give enough information to determine what instruction and content students need to move forward. We will provide examples of conceptual and skill-based assessments for use in middle and secondary classrooms with a focus on interpreting students’ needs from their responses.

**Barbara J. Dougherty**
University of Missouri, Columbia

**Anne Foegen**
Iowa State University, Ames

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**204**
Algebra 1 and 2 Activities from Automotive, Manufacturing, and Construction
(9–12) Gallery Workshop

You will participate in and receive engaging hands-on classroom activities that highlight the Common Core State Standards for Mathematical Practice. The activities will span many career paths. The math topics include linear equations, systems of equations, quadratics, and exponents. Join us to see how project-based activities can increase learning and provide relevance.

**Tom W. Moore**
Thompson R2J Schools, Loveland, Colorado

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**205**
Cross-Curricular Integration: Tracking the Space Shuttle
(9–12) Gallery Workshop

When the space shuttle traveled around the earth, NASA scientists tracked the path using a computer screen. This idea allows teachers to transform spherical 3-D points from a globe to rectangular 2-D points on a map. This connects algebra and geometry to geography, provides connections across the curriculum, and introduces the unit circle.

**Carol H. Wade**
State University of New York Brockport

**Alison Wright**
State University of New York Brockport

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**206**
Statistical Inference through Simulation
(9–12) Gallery Workshop

Using hands-on techniques and technology to conduct simulations, we will explore concepts of statistical inference. These simulations (randomization tests) provide more flexibility in the hypotheses our students can test and allow them to focus on conceptual understanding and statistical thinking.

**Paul L. Myers**
Georgia Institute of Technology, Atlanta

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**207**
The Perfect Math Marriage: Edmodo and the Mathroom Teacher
(Preservice and In-Service) Gallery Workshop

Edmodo is a secure, social learning platform for teachers, students, schools, and districts. It provides a safe and easy way for your class to connect and collaborate: share content; and access homework, grades, assessments, and notices. Edmodo allows teachers to share content easily, and free mobile apps for iPhones and Androids makes Edmodo mobile!

**Shonda K. Brooks**
St. Landry Parish School System, Opelousas, Louisiana

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2:00 P.M.–3:00 P.M.

208 Powerful and Radical Actions to Enrich Number and Operations
(General Interest) Session
Learn about the latest resources from the National Council of Supervisors of Mathematics that support powerful and radical actions to implement number and operations. Resources include sample mathematical tasks, research, leadership tips, position papers, instruction that promotes students’ proficiency in the mathematical practices, and formative assessment examples.

Suzanne Mitchell
National Council of Supervisors of Mathematics, Denver, Colorado

Cascade Ballroom B

209 Smarter Balanced Assessment System: Supporting Mathematics Teaching and Learning
(General Interest) Session
The Smarter Balanced Assessment Consortium is a group of states working together on an improved system for supporting mathematics teaching and learning. I will provide an overview of the consortium, the progress to date, and a look at future consortium activities.

Shelbi Cole
Smarter Balanced Assessment Consortium, Olympia, Washington

Cascade Ballroom C

210 Whatever Happened to Problem Solving in the Math Curriculum?
(General Interest) Session
If problem solving is to be the focus of school mathematics, why has it all but disappeared from our texts? I have written extensively about mathematical problem solving over the past forty years. In this session I will discuss the role of problem solving in instruction and what we should do to make it more central in our curricula.

Frank K. Lester
Indiana University, Bloomington

Room 106/107

211 Assessing and Advancing Early Numeracy
(Pre-K–2) Session
We will explore considerations for effectively implementing research-based response to intervention and learn about ready-to-use practical tools for assessing and advancing student numeracy foundations.

Alice J. Gabbard
Kentucky Center for Mathematics, Highland Heights

Room 219

212 From Balancing Students to Balancing Equations: Helping Children Visualize Mathematics
(Pre-K–2) Session
We will be exploring algebraic ideas and the concept of equality using role play, manipulatives, and children's literature. From helping kindergarten students build equations to teaching balanced equations, we will share methods to help younger children become enthusiastic, visualizing mathematicians.

Kyle M. Patterson
Centerfield Elementary, Crestwood, Kentucky

Marcia H. Rowe
Centerfield Elementary, Crestwood, Kentucky

Room L6/L7

213 Teaching Math? There’s an iPad App for That!
(Pre-K–5) Session
How do you decide the best apps to use for teaching math when there are so many to choose from? We’ll share iPad apps that go beyond basic flash-card practice technique to focus on developing conceptual understanding of math. Receive a detailed list of apps for each math strand and share your own favorites.

Leslie A. Suters
Tennessee Technological University, Cookeville

Sarah Ann Keller
Tennessee Technological University, Cookeville

Stephanie Richards
Tennessee Technological University, Cookeville

Room 105
2:00 P.M.–3:00 P.M.

214  It’s in the “With”: Constructing Common Resources with English Learners
(3–5) Session

Resources for teaching mathematics to English learners are too often understood as preexisting outside teacher-student interactions. I will offer an alternative view of resources by looking at an interaction in which an English learner and the researcher constructed multiple resources while working on a volume problem.

Higinio Dominguez
Michigan State University, East Lansing

Room 209

215  Let’s Get Visual! Geometric Problems That Make Students Think
(3–8) Session

How do we provide challenges for our most talented students? Come explore problems in geometry that will intrigue students and expand their understanding using drawings and models. I will present problems and questions that will challenge your most talented students!

Suzanne H. Chapin
Boston University, Massachusetts

Room L14

216  Using Differentiated Assessments to Help English Language Learners
(3–8) Session

Learn strategies to help differentiate common formative assessments for English language learners. I will share recommendations for how both teachers and students can use the formative feedback gleaned from these assessments to help close the achievement gap.

Rachel Carrillo Syrja
The Leadership and Learning Center, Denver, Colorado

Room 110/111

217  Algebra: Why Don’t We Use Research to Inform Classroom Practice?
(6–12) Session

Research about teaching and learning algebra has provided findings about how students learn core algebraic concepts such as equivalence or algebraic structure. How does this research play out in how algebra is taught? What do we know about instruction that can increase student access to these concepts?

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

Cascade Ballroom A

218  Diagrammatic Reasoning Skills of Preservice Mathematics Teachers: An Investigation
(Higher Education, Research) Session

I will report on a study that explored a relationship between geometric knowledge of preservice secondary mathematics teachers and their diagrammatic reasoning skills. In the course of this study, preservice mathematics teachers were presented with visual proofs of certain theorems and asked to reason from the diagram.

Margaret Karrass
Borough of Manhattan Community College, City University of New York, New York

Room 218

219  Using Children’s Literature to Engage Learners in Mathematics
(Preservice and In-Service) Session

I will present an organizational tool to assist elementary teachers in planning exploratory lessons using children’s literature. We will explore the challenges for this kind of work. Receive a handout of example lessons that were developed by teachers.

Lynn C. Hart
Georgia State University, Atlanta

Room 201/202
2:00 P.M.–3:00 P.M.

219.1 Implementing CCSS from a Teacher’s Perspective
(6–12) Exhibitor Workshop
When it comes down to implementation of Common Core State Standards, how will our classroom practices change? How will they affect what students are doing? How will we make CCSS a reality in our classrooms? In this session, you will learn hands-on, practical strategies for engaging your students in the Mathematical Practices using technology.

Texas Instruments
Dallas, Texas

Room 102

2:30 P.M.–4:00 P.M.

220 Which One of These Things Doesn’t Belong?
(Pre-K–2) Gallery Workshop
Explore methods of teaching classifying. Focal points will be use of the question “Which one of these things doesn’t belong?” as well as children’s books and manipulatives (insects, people, etc.) to teach use of objects’ traits to categorize items, number sense, critical-thinking skills, and set concepts.

Michael D. Hardy
Saint Xavier University, Chicago, Illinois

Room 207/208

221 Four Types of Addition Facts That Help Develop All Others
(Pre-K–5) Gallery Workshop
Four types of addition facts can help students develop fluency with all their addition facts: doubles, +0, make a 10, and 10 + something. Explore activities that build these four types of facts as well as connections to all other addition facts.

Christina Tondevold
Mathematically Minded, Orofino, Idaho

Room 101

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222 Literacy in Geometry
(Pre-K–5) Gallery Workshop
How can we connect literacy and geometry in elementary classrooms? The use of books in a classroom can connect real-world examples with geometric concepts being studied. We’ll look at a variety of books and activities that explore shapes and real-world contexts to help children better understand geometry in the world around them.

Joy P. Curtis
Edmonson County High School, Kentucky
Kari M. Everett
Eastern Kentucky University, Richmond

Room 112

223 Context vs. Key Word Approach to Solving Problems
(3–5) Gallery Workshop
Solving problems using a keyword approach skips the step of understanding and jumps directly to selecting a solution strategy or algorithm. Good problem solvers look beneath the surface information at the underlying model. I will focus on how to help students understand story problems before solving them.

Ann Wallace
James Madison University, Harrisonburg, Virginia

Room 109

224 Assessment for Learning: Uncovering Student Misconceptions through Formative Assessment Lessons
(3–8) Gallery Workshop
The depth of the Common Core State Standards for Mathematics requires instruction and assessment to change. Embracing this change means using assessments that inform instruction so that both students and teachers are learning from daily interactions. Come and explore how to use high-level tasks in formative lessons that address student misconceptions and create an environment for student thinking.

Debbie W. Waggoner
Kentucky Department of Education/ Central Kentucky Educational Cooperative, Lexington
Teresa Emmert
Kentucky Department of Education/ Green River Regional Education Cooperative, Bowling Green
Krista Hall
Kentucky Department of Education, Frankfort

Room 212-217
2:30 P.M.—4:00 P.M.

225 DM Mathematical Modeling with Upper Elementary and Middle Grade Students
(3–8) Gallery Workshop
The concept of mathematical modeling has applications with students much younger than the tertiary level. Students as young as grades 3–8 can engage in the creation of mathematical models and make sense of precollege-level mathematics. Model-eliciting activities can be used to challenge students of various ability levels.

Scott A. Chamberlin
University of Wyoming, Laramie

226 Saving the Planet with Math
(3–8) Gallery Workshop
Being good environmental stewards and global citizens requires an understanding of math concepts such as large numbers, growth patterns, measurement, probability, algebra and more. Discover creative hands-on math activities that include science and social studies content about the world around us. Free CD-ROM of activities!

Walter Ryan
Indiana University Southeast, New Albany

227 STEM and CCSS: Go Green!
Math and Science Interdisciplinary Fun
(3–8) Gallery Workshop
Go Green incorporates the Common Core State Standards (CCSS) by team teaching with science. This hands-on session includes activities and labs to teach math through the science concepts of energy usage; alternative energies; and reducing, reusing and recycling. Mathematically explore problem-based learning activities that open your students’ eyes to the world around them.

Jim Reynolds
Galway Central School, New York

Carrie Herron
Galway Central School, New York

228 Three Dozen Games with Three Dozen Dice
(3–8) Gallery Workshop
Who knew regular dice could be used to teach and practice operations, order of operations, fractions, place value, patterning, data management and analysis, probability and more! Come prepared to play with easy-to-find regular spotted dice and learn three dozen ways to motivate and engage your students. Great for differentiation.

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

229 Exploring AP Calculus with Graphing Calculator Investigations
(9–12) Gallery Workshop
Come explore hands-on activities involving limits, derivatives, and integrals through engaging lessons that use graphing calculators as discovery tools.

Deedee A. Stanfield
Oxford City School System, Alabama

230 Using a Computer Algebra System with Struggling Algebra Students
(9–12) Gallery Workshop
Computer algebra system (CAS) in algebra 1: How can we plan, create and use CAS-activities and provide opportunities for students to be successful and challenged without becoming CAS-dependent. Be the student, and try various classroom activities to experience CAS firsthand. See how students can construct their own mathematical knowledge without taking notes!

Derek Swierczek
Wheeling High School, Illinois

Ken Indeck
Wheeling High School, Illinois

Room L2/L3

Room 203-206

Room 108
2:30 P.M.–4:00 P.M.

231 Math SDI—Simply Do It!
(9–12) Preservice and In-Service) Gallery Workshop

Specially designed instruction (SDI) is what makes special education special. Many teachers have students with an individualized education plan (IEP) for part of the school day. With the implementation of the Common Core State Standards, how are we to accelerate the learning of all K–12 students with math disabilities? This hands-on session will provide you with many ways to simply do it!

Mark E. Helton
Central Kentucky Special Education Cooperative, Lexington

Karen Campbell
PIMSER, Lexington, Kentucky

Room L4/L5

3:30 P.M.–4:30 P.M.

232 Algebraic Reasoning and Sense Making across the Grades
(General Interest) Session

I will focus on the importance of algebraic reasoning and sense making across the grades and present examples and activities that align with the Common Core State Standards.

Karen Graham
University of New Hampshire, Durham

Room 106/107

233 A Mathematical Carnival
(General Interest) Session

Step right up! Enter the wonderful world of recreational mathematics. I will model enthusiastic teaching and present mathematics in a spirit of play. You will learn activities that enhance NCTM Standards and motivate students to become active learners. Come prepared to experience the beauty and fun of mathematics.

Charles Sonenshein
Wright State University, Dayton, Ohio

Cascade Ballroom A

234 Coaching Tools to Support CCSS Content and Mathematical Practices
(General Interest) Session

A dual focus on the content standards and mathematical practices of the Common Core State Standards (CCSS) leads to mathematically proficient students. We will share tools (resources, templates, and activities) for mathematics coaches, leaders, and teachers that can support professional development efforts to ensure all students become mathematically proficient.

Maggie B. McGatha
University of Louisville, Kentucky

Jennifer M. Bay-Williams
University of Louisville, Kentucky

Beth Kobett
Stevenson University, Baltimore, Maryland

Cascade Ballroom C

235 Integrating English Language Arts into Mathematics Learning in Primary Grades
(Pre-K–2) Session

The Common Core State Standards for Mathematics require students to construct and critique arguments as they learn, which provides opportunities to address English language arts standards while engaging in rich mathematics tasks. We will highlight mathematics tasks that integrate reading, writing, speaking, and listening in the primary grades.

Melissa Faetz
Macon County Schools, Franklin, North Carolina

Delaney Holloway
Macon County Schools, Franklin, North Carolina

Room L14

236 Parent Involvement in Mathematics: Giving Parents a Voice
(Pre-K–2) Session

Potential impediments to student success are based on the teacher-focused construction of the parents’ role in their child’s math education and the parents’ beliefs that children’s math education is the school’s and teacher’s responsibility. This can possibly lead to conflict between parents’ and teachers’ beliefs regarding duties and responsibilities.

Sandra Wilder
The University of Akron, Ohio

Room 209
**3:30 P.M.–4:30 P.M.**

**237**  
**Formative Feedback to Empower Students**  
(Pre-K–5) Session  
I will highlight the formative feedback practices implemented in a professional learning community by the teachers and leaders at Lacy Elementary School in Christian County, Kentucky. By thinking of likely misconceptions ahead of time and planning feedback, these teachers have transformed their instruction, assessment, and intervention practices. Learn what worked for them!  
Jessica M. Addison  
Kentucky Department of Education, Frankfort  
Room 110/111

**238**  
**Solving Story Problems from Singapore Schools Using Bar Diagrams**  
(3–5) Session  
Come and solve a selection of story problems from several elementary schools in Singapore. Learn to use bar diagrams, among other strategies, to help students develop the ability to visualize even as they learn mathematics.  
Ban Har Yeap  
Marshall Cavendish Institute, Singapore  
Cascade Ballroom B

**239**  
**iPads for Math: Explore Apps Aligned with the CCSS**  
(3–8) Session  
Let’s explore iPad apps that will promote learning in elementary mathematics and are aligned with the Common Core State Standards (CCSS). The iPad can be used for presenting math instruction, for student exploration, for mastery of math concepts and facts, and as a tool for formative assessments. I’ll recommend individual apps for specific math topics and furnish you with a list of resources.  
Gayle D. Smith  
Snoqualmie Valley School District, Washington  
Room 218

**240**  
**Teacher Beliefs Affect Practice: Proportional Reasoning and Linear Equations**  
(6–8) Session  
Investigate how our beliefs about mathematics and student learning affect the way we teach proportional reasoning and linear equations. Two middle-grades teachers will discuss how examining their own beliefs has affected their teaching of this topic and explore ideas for instruction.  
Todd A Abel  
Appalachian State University, Boone, North Carolina  
Ashley Lamar  
Ben Franklin Academy, Atlanta, Georgia  
Adam Abel  
Glade Spring Middle School, Virginia  
Room 105

**241**  
**Math: A Not-So-Universal Language**  
(6–12) Session  
Is mathematics really the universal language? With an increased focus on problem solving and reasoning in the mathematics classroom, students with limited English may struggle to learn this “universal language” of mathematics. We will discuss a variety of strategies that we have found increase English language learners’ prealgebra skills.  
Amy Nebesniak  
University of Nebraska at Kearney  
Aaron Burgoa  
Harlem Village Academy, New York, New York  
Room 219

**242**  
**Learning Mathematical Concepts through Context with Pictures**  
(9–12) Session  
Now our graphing calculators have pictures. How do we use them in effective ways that promote concepts through context? We will use bridges, fountains, ferris wheels, and other images to explore function graphs, transformations, parametric relations, conics, regression, area under a curve and more!  
John J. Diehl  
Hinsdale Central High School, Illinois (Retired)  
Room L6/L7
3:30 P.M.–4:30 P.M.

243
Mentoring, Induction, and Rounds! Oh My!
(Preservice and In-Service) Session
Professional development is not one size fits all. From the novice to the veteran teacher, you can transform school culture from teaching in isolation to public and collaborative work. We’ll explore best practices that raise the discourse about teaching and learning, including educative mentoring, new-teacher induction, and instructional rounds.

Reena Freedman
Gann Academy, Boston, Massachusetts

Room 201/202

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