INNOV8 PROGRAM BOOK

Engaging the Struggling Learner

November 16–18, 2016 • St. Louis

nctm.org/innov8

NCTM | NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS

#NCTMinnov8

INNOV8 CONFERENCE

November 15–17, 2017
Las Vegas

Breaking Barriers:
Actionable approaches to reach each and every learner in mathematics

Access. Equity. Empowerment.

Bring your team and engage in an innovative learning experience for mathematics education. With a focus on access, equity, and empowerment, and designed specifically for teams, you can experience the conference through three different themes:

- Reflecting on mathematics instruction in terms of access, equity, and empowerment
- Developing equitable mathematical teaching practices that empower students
- Learning new strategies to identify and remove barriers to access to high-quality mathematics

What You'll Gain—

- A deeper understanding of student agency, identity, social justice, culture, and language within the math classroom
- Tips on how to reflect on assumptions and deficit thinking about educational systems, students, and communities
- Relevant and responsive instructional practices in mathematics that take into account diverse learners
- Ways to foster positive mathematics identities.
- Methods to identify and overcome obstacles to ensure that each and every student has access to high-quality mathematics instruction
- Ways to empower your students to ask and answer critical questions about the world around them

NCTM® | NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS

Learn more at **www.nctm.org/innov8**
and follow us on

#NCTMinnov8

INNOV8 CONFERENCE

HOST

Missouri Council of Teachers of Mathematics (MCTM)
Mathematics Educators of Greater St. Louis (MEGSL)

All Innov8 presentations will be held at America's Convention Center. See pages 64–66 for floor plans.

REGISTRATION

Wednesday	4:00 p.m.	–	7:00 p.m.
Thursday	7:00 a.m.	–	3:00 p.m.
Friday	7:00 a.m.	–	4:00 p.m.

EXHIBITS

Thursday	12:00 p.m.	–	5:00 p.m.
Friday	8:00 a.m.	–	4:00 p.m.

NCTM CENTRAL

Wednesday	5:00 p.m.	–	7:00 p.m.
Thursday	12:00 p.m.	–	5:00 p.m.
Friday	8:00 a.m.	–	4:00 p.m.

www.nctm.org/Innov8

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

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Welcome to Innov8!

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Welcome to Innov8 2016—NCTM's exciting new conference experience! Innov8 is a working conference; you will be working with other mathematics educators (from your school or other schools) to identify, analyze, and plan for instruction and intervention around a problem of practice related to learners who struggle in mathematics. Our goal is for you to leave Innov8 with a plan to address a challenge you are facing in your school.

We have many new experiences planned for you! In the conference program, you'll notice some new session formats—such as Team Time, Lifesaver Lessons, Intervention Convention, Student Stakeholders, and Master Classes—as well as some more traditional session formats. Sessions will highlight three themes: developing instruction for Multi-Tiered Systems of Support (MTSS), supporting productive struggle, and motivating the struggling learner.

Be sure to visit the Innovation Lounge—an exciting feature of the Innov8 Conference. Five areas (Innov8 Bar, Book Nook, Narrate, Innov8 Hangout, and TNT) in the Lounge will provide new and unique opportunities for you to collaborate with other participants, seek advice from experts on supporting struggling students, learn about helpful books from authors, learn how to use social media for professional development, participate in a math circle . . . and more.

We hope you will have time to enjoy the beautiful city of St. Louis! Explore the Gateway Arch area, see the home of the St. Louis Cardinals at Busch Stadium, or visit the City Museum, all within walking distance of the conference. If you are feeling more adventurous, hop on the MetroLink to Forest Park, voted the best urban park by *USA Today*! Visit the St. Louis Zoo, walk the Grand Basin, tour the Art Museum, slide down Art Hill, or take a relaxing walk, bike ride, or paddle boat ride through the park. You will find some great restaurants on nearby Washington Avenue. We hope you are able to experience what St. Louis has to offer!

Many people have contributed in planning, preparing, and hosting Innov8, and we wish to express heartfelt thanks to each. Thank you, also, to the NCTM Professional Development Services Committee for providing the vision for Innov8 and for having the courage to try something new and unique. A very special thank-you to the members of the Program Committee, who have spent many hours planning this new experience.

Above all, we wish to thank you for being part of this exciting new conference experience! We hope you leave Innov8 empowered and with a commitment to implement ideas and strategies you have experienced to support your students who struggle.

Ann McCoy
Program Committee Chair
University of Central Missouri
Warrensburg, Missouri

Ruth Knop
Volunteer Committee Chair
Parkway West High School
St. Louis, Missouri

TYPES OF PRESENTATIONS

The NCTM 2016 Innov8 Conference officially begins with the Opening Session, starting at 5:30 p.m. on Wednesday. Presentations begin at 8:30 a.m. on Thursday and at 8:00 a.m. on Friday and are scheduled concurrently throughout the day.

We have made every attempt to provide adequate seating for participants at the Innov8 Conference. 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.

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 8–10
- Grades 9–12
- Elementary
- Middle School
- High School
- General Interest—issues of interest to multiple grades and audiences

Program Updates

Check **www.nctm.org/innov8** for a digital copy of the program updates including all of the latest changes, cancellations, and additions!

Tips for a Rewarding Innov8 Conference

- Become familiar with the layout of America's Convention Center by reviewing the floor plans on pages 64–66.
- Visit **NCTM Central** and stop by the **NCTM Bookstore** for the latest NCTM educational resources; the **Mathematics Education Trust** to inquire about available grant, scholarship, and award opportunities; and the **Member Services** area to learn more about how NCTM can help you professionally and pick up free resources.
- If attending the conference with colleagues, attend different presentations and share your learned knowledge after the conference.
- Silence 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** and you will need to present a photo ID.

By registering and attending an NCTM conference, meeting, or other activity, participants grant NCTM the right to use their likeness or voice as recorded on, or transferred to, video, 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 2016 Innov8 Conference, this event is not an appropriate setting for children under 16 years of age. Children under age 16 will not be permitted in the Innovation Lounge or Exhibit Hall. We appreciate your understanding and cooperation.

Information Booth

The NCTM Information Booth will be in America's Convention Center. Staff can answer your questions about St. Louis and assist you with directions and local information, from transportation and historical sites to shopping and entertainment.

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 America's Convention Center Security.

PROGRAM INFORMATION

30-MINUTE PRESENTATIONS

Lifesaver	Lifesaver sessions are designed for you to share a particular idea or strategy that changed the way you teach.
Intervention Convention	These sessions highlight an intervention that worked with students who struggle. They include details that would support teams in designing and implementing their own intervention.
Video Interactive	**Video of Classrooms**—These sessions highlight video of active classrooms, including students who struggle and/or teachers discussing mathematics, solving problems, and sharing strategies. **Using Video in the Classroom**—These sessions demonstrate how to use video to engage students who struggle.
Student Stakeholder	**Elementary/Middle School**—During this session, a panel of elementary and middle grades students will share their stories of struggle in mathematics and their perspectives on how students can and should be supported. Learn how the teachers of these students helped them find success in mathematics. **High School**—During this session, a panel of high school students will share their stories of struggle in mathematics and their perspectives on how students can and should be supported. Learn how the teachers of these students helped them find success in mathematics.

60-MINUTE SESSIONS

Content Session	This interactive session focuses on how content knowledge connects to classroom instructional practices for students who struggle.

75-MINUTE SESSIONS

Topical Session	*(60-minute presentation + 15-minute facilitated discussion)* These interactive sessions focus on a particular topic that connects to classroom instructional practices for students who struggle.
Facilitated Task Talk	*(60-minute presentation + 15-minute facilitated discussion)* These motivating sessions engage participants in solving a rich task, anticipating student responses, and discussing task implementation. Facilitators might share student work samples, video, or other evidence of student learning. Facilitators might also share task design and implementation strategies and adapted versions of the same task for diverse learners.
Research & Practitioner's Paired Session	*(60-minute presentation + 15-minute facilitated discussion)* These engaging sessions partner a researcher and a practitioner to share their journey of translating research into practice. Speakers will share insights about findings from research projects, experiences, and innovations that changed classroom instructional practices.
Master Class	Master Class presenters will focus on the Mathematics Teaching Practices described in NCTM's *Principles to Actions*. The grade-band specific sessions will focus on how the teaching practices can be implemented in the classroom in a way that supports struggling students.
Wellness Presentations	These are sessions that focus on your personal well-being. As classroom teachers, you have to constantly respond to change, manage a work/life balance, and stay grounded. These sessions will help you manage life's challenges as a classroom teacher.

OTHER PRESENTATION TYPES

Major Keynotes	Experts in the field will address crucial topics related to and supporting the conference theme as well as the three conference pathways: building effective multi-tiered systems of support (MTSS), supporting productive struggle, and motivating the struggling learner.
Team Time	**Thursday Team Time**—These sessions are designed to guide teams in defining and deepening their understanding of a challenge they face related to mathematics instruction and learners who struggle. Facilitators will guide teams in creating an action plan for addressing this challenge and in selecting conference sessions that will be beneficial in refining the action plan. **Friday Team Time**—These sessions will provide the opportunity for teams to receive feedback on the action plans they've created and to finalize their action plans using the knowledge and strategies they've gained from conference sessions. Teams will leave with a plan for continued action toward addressing their challenge.
Exhibitor Workshops	Exhibitor Workshops offer exhibitors an opportunity to showcase their products and services away from the Exhibit Hall. If you are interested in purchasing an exhibitor workshop, please visit **www.nctm.org/Innov8exhibit/**. Look for the symbol EW indicating exhibitor workshops in the program book.

Innovation Lounge

The Innovation Lounge, located in Exhibit Hall 2 of America's Convention Center, includes five areas designed to provide new and unique learning experiences. See the floorplan on page 67.

Innov8 Bar: Experts will be available to talk to individuals or groups of teachers about issues related to struggling students. You will be able to sign up in advance to speak to an expert.

Narrate: Presenters of Narrate sessions will share their stories and experiences from the classroom. Two selected presenters will anchor each topic, and then the mic will be turned over to attendees to narrate their own experiences. A brief panel discussion with all contributors will conclude each session. If you have much more to share than traditional Q&A time allows, this open mic experience is for you.

Book Nook: At the Book Nook, you can network with other educators, participate in interactive and highly engaging discussions about your favorite NCTM publications, attend Meet and Greet sessions with your favorite authors, and preview publications before you purchase them in the open reading area.

TNT (Teachers Networking Together): TNT offers several different opportunities for participants:

- Twitter 101—Sign up for Twitter and learn how to tweet
- Blog 101—Find out what it means to Blog and how to get started
- Math Circles—Teachers get a chance to work on rich mathematics problems together allowing them to enrich their own mathematical knowledge, as well as in some cases have opportunities to experience productive struggle firsthand.

Innov8 Hangout: This area provides unscheduled space for discussion and meet-ups with team members and/or other conference attendees.

First-Aid Station

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

Your Opinion Counts

Thank you for attending the NCTM 2016 Innov8 Conference. In the days following the Innov8 Conference, you will receive an e-mail asking for an evaluation of your meeting experience. Please take a moment to complete the survey. Use the Conference App to rate specific presentations you attend. Your feedback is important to us and will be instrumental in planning future meetings.

Exhibits

Make time to visit the NCTM Exhibit Hall. The hours allow ample opportunity to explore, try out, and purchase products and services for your classroom or to help you meet your career goals. You'll also be able to meet the people who produce these products, get fresh ideas, and see demonstrations of how products work. 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. Check out the Exhibitor Directory on pages 68–70 and a floor plan of the Exhibit Hall on page 66.

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 EW or see the Program Updates.

Presentation Handouts

Attendees can access available electronic presentation handouts through the conference app and online planner at **www.nctm.org/planinnov8**. Handouts will be available until January 2017.

Conference App

The NCTM Conference App keeps you connected with the Innov8 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; rate presentations; and interact with your colleagues! Visit **www.nctm.org/confapp** for more information.

Online Conference Planner

The Online Conference Planner is a great way for you to search the conference program book, set up your personal schedule, and download available presentation handouts. The Online Conference Planner is continually updated with the latest presentation changes and information. Visit **www.nctm.org/PlanINNOV8** 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.

NCTM Central

Check out NCTM Central. This exciting area has everything "NCTM" all in one convenient location, right at the entrance of the Exhibit Hall.

Wednesday	5:00 p.m.–7:00 p.m.
Thursday	12:00 p.m.–5:00 p.m.
Friday	8:00 a.m.–4:00 p.m.

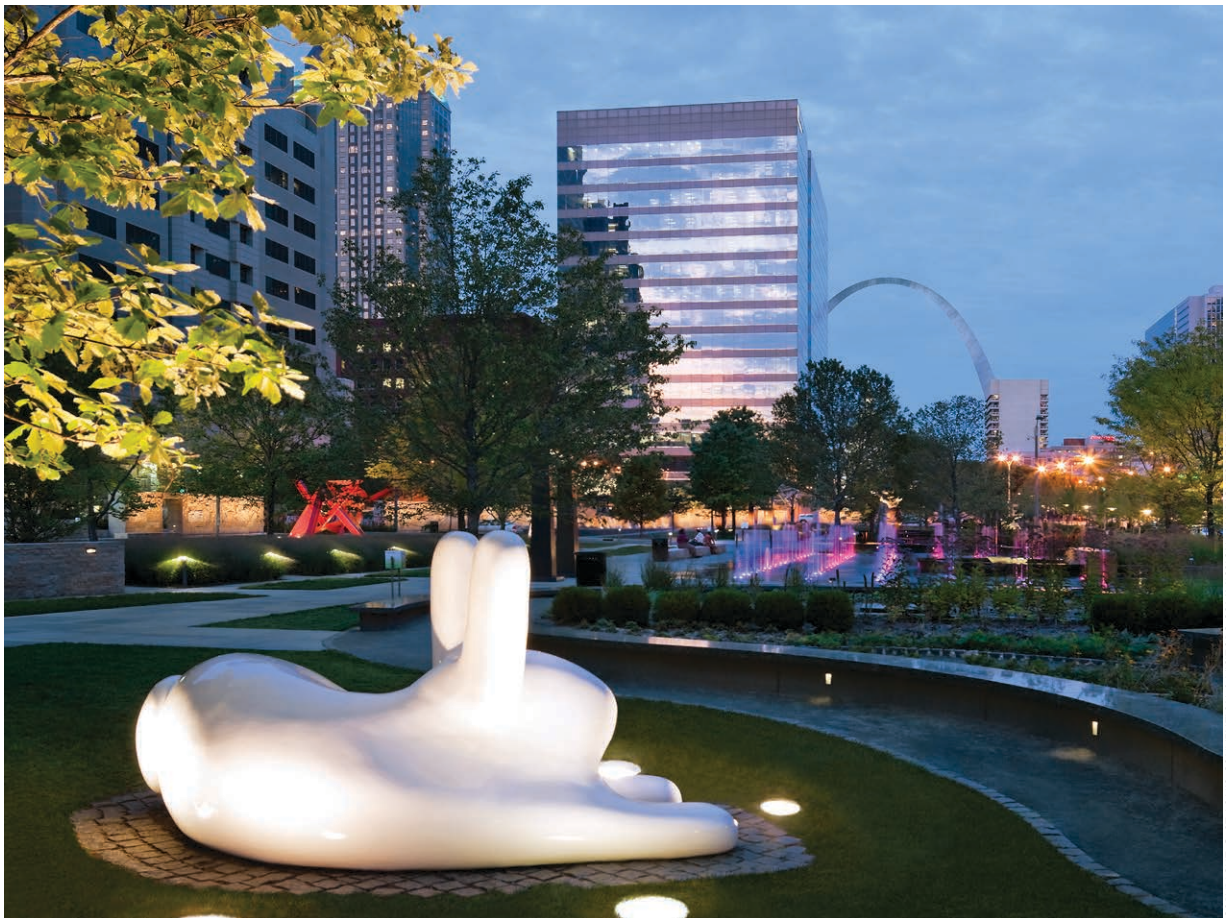
- Whether you are a new NCTM member or a seasoned veteran, you can learn more about what your membership can do for you at **Member Services**. We can walk you through your benefits, including your online access to lessons, classroom-ready activities, online journal articles, and more. Make sure to stop by and pick up sample journals and other materials! Not a member or wish to renew your membership? Make sure to sign up onsite and receive a free $25 NCTM gift certificate! While supplies last.

- Browse the **NCTM Bookstore** and save **25% off the list price** on all purchases! View firsthand all the publications that NCTM has to offer. You will also find a variety of specialty products that you can use as gifts, prizes, and incentives to spread the word about the importance of mathematics. Start your wish list today by previewing NCTM's wealth of resources at **www.nctm.org/catalog**. The NCTM Bookstore is not equipped to handle shipping; the business center can assist you with your shipping needs.

  Note on Sales Tax Exemptions: To be considered exempt from sales tax in the NCTM Bookstore, you must provide a copy of a Missouri 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 Missouri exemption certificate is issued. NCTM cannot accept personal checks, personal credit cards, or cash in conjunction with tax exemption certificates. Tax exemption certificates for states other than Missouri are not valid for this Innov8 Conference.

- At **The Math Forum**, purchase or renew your Problems of the Week (PoW) membership. Pick up information about our scheduled online PD courses, samples of problem-solving resources, and more. Visit **www.mathforum.org**.

- Discover available funding and resources to support you in your career and professional development through the **Mathematics Education Trust (MET)** grants, scholarships, and awards.



HIGHLIGHTS

Opening Session: Redefining Success: Supporting All Students to Reach Their Full Potential

GET SOCIAL

Stay informed and get connected with attendees by using **#NCTMinnov8** on social media.

Conference App
www.nctm.org/confapp

Twitter
@NCTM

Instagram
@NCTM.math

Facebook
www.facebook.com/TeachersofMathematics

REGISTRATION HOURS

4:00 p.m.–7:00 p.m.

NCTM CENTRAL HOURS

5:00 p.m.–7:00 p.m.

FIRE CODES

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

5:30 P.M.–7:30 P.M.

1

Redefining Success: Supporting All Students to Reach Their Full Potential

Major Keynotes – General Interest

Juli, Alex, and Jessica provide a unique perspective on how to support ALL students to learn. Juli, a university mathematics educator, provides the viewpoint of both the educator and the parent of children with special needs. Alex, a college freshman, shares her story related to both medical and educational struggles. Jessica, a high school junior, provides the position of both the sibling and the subject and connects her experiences to a new perspective on Universal Design for Learning.

Juli K. Dixon
Twitter Handle: @thestrokeofluck
University of Central Florida, Orlando

Alexis P. Dixon
University of Central Florida, Orlando

Jessica R. Dixon
Melbourne High School, Florida

America's Ballroom 220–229

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Twitter
@NCTM

Instagram
@NCTM.math

Facebook
www.facebook.com/TeachersofMathematics

REGISTRATION HOURS

7:00 a.m.–3:00 p.m.

EXHIBIT HOURS

12:00 p.m.–5:00 p.m.

NCTM CENTRAL HOURS

12:00 p.m.–5:00 p.m.

FIRE CODES

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8:30 A.M.–9:45 A.M.

2–4
Providing Access to Mathematics by Supporting Students' Learning and Engagement

Major Keynotes – General Interest

We will share different approaches to provide learners who struggle with access to engaging mathematics: implementing multi–tiered systems of support, using problems that support differentiated learning while modifying tasks to activate interest, and promoting rough draft talk to create a safe classroom culture.

Amanda Jansen
Twitter Handle: @MandyMathEd
University of Delaware, Newark, Delaware

Karen S. Karp
Twitter Handle: @ksquaredmath1
Johns Hopkins University, Baltimore, Maryland

Fawn Phuong Nguyen
Mesa Union Junior High School, Somis, California

***Choose any of the rooms below. The presenters will rotate through the three rooms.**

- **100–105**
- **America's Ballroom 220/221**
- **America's Ballroom 228–229**

10:00 A.M.–12:00 P.M.

Team Time

Team Time – Elementary, Middle, High

This session is designed to guide teams in defining and deepening their understanding of a challenge they face related to mathematics instruction and struggling learners. Facilitators will guide teams in creating an action plan for addressing this challenge and in selecting conference sessions that will be beneficial in refining the action plan. Team Time assignments are printed on badges.

5
Team Time 1

Delise Andrews
Twitter Handle: @deliseandrews
2016 Innov8 Program Committee
Lincoln Public Schools, Nebraska
100–105

6
Team Time 2

Susie Katt
Twitter Handle: @susiekatt
Lincoln Public Schools, Lincoln, Nebraska
230

7
Team Time 3

Jim Lynn
University of Illinois at Chicago, Chicago, Illinois
231

8
Team Time 4

Amy L. Nebesniak
University of Nebraska–Kearney, Kearney, Nebraska
232

9
Team Time 5

Laila Nur
Manual Arts Senior High School, Los Angeles, California
240

10
Team Time 6

Jennifer M. Suh
George Mason University, Fairfax, Virginia
241

11
Team Time 7

Peg Cagle
Los Angeles Unified School District, California
242

10:00 A.M.–12:00 P.M.

12
Team Time 8

Beth McCord Kobett
Twitter Handle: @bkobett
2016 Innov8 Program Committee
Stevenson University, Baltimore, Maryland

Jon Wray
Howard County Public Schools, Ellicott City, Maryland

Francis (Skip) Fennell
McDaniel College, Westminster, Maryland
260/267

13
Team Time 9

Jennifer M. Bay–Williams
University of Louisville, Kentucky
263/264

14
Team Time 10

Cindy G. Bryant
LearnBop, New York, New York

Joann Barnett
Missouri State University, Springfield, Missouri
265/266

15
Team Time 11

Beverly J. Ferrucci
2016 Innov8 Program Committee
Keene State College, New Hampshire
274

16
Team Time 12

Raymond James
2016 Innov8 Program Committee
Forest High School, Ocala, Florida
275

17
Team Time 13

John J. SanGiovanni
Twitter Handle: @JohnSanGiovanni
Board of Directors, National Council of Teachers of Mathematics, Reston, Virginia; Howard County Public School System, Ellicott City, Maryland
276

12:15 P.M.–12:45 P.M.

18 INNOVATION LOUNGE
Author-Led Book Talk: Mandy Jansen/ Jim Middleton

Book Talks – Elementary, Middle, High

Amanda Jansen and James Middleton will lead a discussion around their NCTM publication, *Motivation Matters and Interest Counts: Fostering Engagement in Mathematics*.

Book Description: Why do smart people disengage from mathematical pursuits… and how can we reverse the trend? This book is designed to be the go-to source for information on mathematical motivation. It presents the full body of research on motivation in a useful, interesting, and provocative manner.

Amanda Jansen
Twitter Handle: @MandyMathEd
University of Delaware, Newark, Delaware

James A. Middleton
Arizona State University, Tempe, Arizona
The Book Nook (Innovation Lounge in Exhibit Hall 2)

19 INNOVATION LOUNGE
Twitter 101

TNT – Elementary, Middle, High

Explore Twitter and learn how it can be used as a learning tool! This hands–on, how–to session will guide participants in creating and using a Twitter account. Participants will also learn how Twitter can be used to enhance instruction and build professional learning networks.

Eric Milou
Twitter Handle: @drMi
Rowan University, Glassboro, New Jersey

Peg Cagle
Los Angeles Unified School District, Los Angeles, California
Teachers Networking Together (Innovation Lounge in Exhibit Hall 2)

12:15 P.M.–1:30 P.M.

The following Innovators will be available in the Innov8 Bar during the designated time slot. Individuals and/or teams can sign up for 10-minute time slots at the Innov8 Bar information desk:

20 INNOVATION LOUNGE
Motivation Innovator: Steven Leinwand

Innovators – Elementary, Middle, High

Steve Leinwand is a Principal Research Analyst at the American Institutes for Research in Washington, D.C., where he serves as mathematics expert on a wide range of AIR projects that focus on high–quality mathematics instruction, turning around underperforming schools, evaluating programs, developing assessments, and providing technical assistance. Prior to joining AIR, Steve was math consultant in the Connecticut Department of Education.

Steven Leinwand
American Institutes for Research, Washington, D.C.
Innov8 Bar (Innovation Lounge in Exhibit Hall 2)

21 INNOVATION LOUNGE
MTSS Innovator: Amy Brodesky

Innovators – Elementary, Middle

Amy Brodesky leads projects on improving mathematics instruction for struggling learners at Education Development Center, a nonprofit organization. With NSF funding, she has created PD programs and resources for general and special educators. She is a co–author of the IES Report, *Mathematics Education Practices for Students with Disabilities and Other Struggling Learners: Case Studies of Six Schools.*

Amy Brodesky
Education Development Center, Waltham, Massachusetts
Innov8 Bar (Innovation Lounge in Exhibit Hall 2)

21.1 INNOVATION LOUNGE
Productive Struggle Innovator: Cindy Bryant

Innovators – Elementary, Middle, High

Cindy is currently the LearnBop Director of Learning. She is a retired mathematics teacher, a former member of the NCTM Board of Directors, past Director of Missouri K–12 Mathematics, and a Presidential Awardee for Excellence in Mathematics Teaching. She has participated in extensive training related to brain-based learning, problem solving, and critical thinking.

Cindy Bryant
LearnBop, New York, New York
Innov8 Bar (Innovation Lounge in Exhibit Hall 2)

21.2 INNOVATION LOUNGE
Assessment Innovator: Anne Collins

Innovators – Elementary, Middle, High

Anne Collins is the Director of Mathematics Programs and of the Center for Mathematics Achievement at Lesley University. She is the author of the books *Using Classroom Assessment to Improve Student Learning* and *Assessment Resources for Professional Learning Communities*, and she was the series editor for NCTM's Assessment Sampler series.

Anne Collins
Lesley University, Cambridge, Massachusetts
Innov8 Bar (Innovation Lounge in Exhibit Hall 2)

21.3 INNOVATION LOUNGE
The Math Forum: Annie Fetter & Max Ray-Riek

Innovators – Elementary, Middle, High

Max and Annie of the Math Forum at NCTM may be best known for what Ignites them: their passionate 5-minute talks on subjects such as "I Notice, I Wonder," or on why 2 is greater than 4. At the Math Forum, they've read every student submission to the featured Math Forum Problems of the Week, and they spend lots of time online (where they regularly host #elemmathchat) and in schools listening to students, asking questions, and doing math.

Annie Fetter
The Math Forum at NCTM, Reston, Virginia

Max Ray-Riek
The Math Forum at NCTM, Reston, Virginia
Innov8 Bar (Innovation Lounge in Exhibit Hall 2)

12:30 P.M.–1:30 P.M.

The scheduled sessions below will be presented during the first half hour of the time slot. During the last half hour, one 10-minute spot will be available to an attendee to share a story related to the topic. Attendees will need to sign up in the Narrate area in order to secure a spot. During the last 15 minutes, there will be a concluding discussion.

22 INNOVATION LOUNGE
Jump-Start Algebraic Thinking

Narrate: Stories from the Classroom – Middle, High

Stories from the classroom: Productive Struggle

Through working with basic structures with the defintion of exponents, students look for connections and develop exponent multiplication rules on their own and then develop a rule for powers of powers. The goal is that a student will never ask, "Should I add the exponents or multiply them?"

Barbara L. Lynch
Twitter Handle: @stelladuma
Lakewood City Schools, Lakewood, Ohio
Narrate – Stories from the Classroom (Innovation Lounge in Exhibit Hall 2)

23 INNOVATION LOUNGE
Transforming Thinking through Mathematics

Narrate: Stories from the Classroom – Middle, High

Stories from the classroom: Productive Struggle

This session will be about how I have transformed the thinking through mathematics in several students. I will discuss the real–life connection of mathematical problem solving to how my students have learned how to solve problems in real life. The thinking process is the same; it's just the application that changes. I will use several key students and show the development in thinking as they become more successful.

Samuel Haber
New York City Department of Education, New York
Narrate – Stories from the Classroom (Innovation Lounge in Exhibit Hall 2)

1:00 P.M.–1:30 P.M.

24 INNOVATION LOUNGE
Informal Book Talk: Judy Storeygard

Book Talks – Elementary, Middle, High

Judith Storeygard will lead an informal book talk around Interventions in mathematics. She will highlight the NCTM publication, *Models of Intervention in Mathematics: Reweaving the Tapestry,* but participants are encouraged to share their favorite books on the topic.

Book Description: Explore successful models of intervention. No Child Left Behind has set the high expectation that every child meet grade level expectations. This publication synthesizes the research on intervention programs and best practices related to mathematical instructional pedagogy and differentiation to assist teachers, schools, and school districts in improving the manner in which they serve children with challenges in mathematics.

Judith S. Storeygard
TERC, Cambridge, Massachusetts
The Book Nook (Innovation Lounge in Exhibit Hall 2)

25
3 Parts to a K–5 Student Centered Intervention Program

Intervention Convention Session – Elementary

Are you stuck using an intervention program that you and your students don't find engaging? We found a way to make intervention engaging and student centered. Come learn how we created an intervention with number talks/strings, story problems, and games, and how each is backed by research.

Christina Tondevold
Twitter Handle: @BuildMathMinds
Mathematically Minded, Orofino, Idaho
230

THURSDAY

Download speaker handouts!

Visit **nctm.org/planinnov8**
to access available presentation handouts.

1:00 P.M.–1:30 P.M.

26
4 Games to Build Number Sense Fluency

Intervention Convention Session – Elementary, Middle, High

Best practice suggests struggling students need ten minutes of numeracy practice daily. In this fast–paced session, you will experience four numeracy activities while playing, sharing and building your fact fluency. You need to be ready to take an active role in this session.

Matt Hayden
Middleton–Cross Plains Area School District, Wisconsin

Jay Larson
Middleton–Cross Plains Area School District, Wisconsin

274

27
Anxiety in the Mathematics Classroom

Intervention Convention Session – Elementary, Middle, High

Many of our students fear math to varying degrees. What is a healthy amount of anxiety? What's normal? What should we do? Are accommodations helpful or harmful? Should families intervene? We will look at the stress response cycle and different strategies to help our students cope with varying levels of anxiety.

Danielle Marchand
IWK Health Centre, Halifax, Nova Scotia, Canada

276

28
Math Intervention & Instructional Gaps

Intervention Convention Session – Elementary, Middle

This session will address the collaborative Data Inquiry Team work of teachers in a pre–K–8 school in Harlem, New York, to address struggling learners in mathematics. A grade 2 team and a grade 6–8 team will present their work in analyzing math data and diagnosing specific math difficulties, their collaborative development of intervention action plans, and the successful outcomes for students.

Elizabeth Irwin
Southern Cross Consultancy, New York, New York

Danielle Romanello
New York City Board of Education, New York

Lana Fleming
New York City Department of Education, New York

275

29
Differentiating Instruction through Open Tasks

Lifesaver Session – Elementary, Middle, High

Often teachers think of differentiation as giving students multiple tasks or activities that meet students' individual needs. This idea leads teachers to being overwhelmed and student isolation. This session will provide opportunities for teachers to investigate ways to differentiate their instruction by opening problem tasks to multiple solutions or solution pathways.

Basil Conway
Jacksonville State University, Opelika, Alabama

240

Get social! Stay informed and get connected with attendees by following #NCTMINNOV8 on social media.

EW Exhibitor Workshop

1:00 P.M.–1:30 P.M.

30
Engaging Every Learner through the Workshop Model

Lifesaver Session – Elementary

During this engaging hands–on session, participants will experience how the workshop model can differentiate for all learners as they rotate through an abbreviated lesson as an elementary student. Stations will include manipulatives (virtual and concrete), journal response, independent practice, online video, visual representations/graphic organizers, and small group with a formative assessment.

Janel Madely
Twitter Handle: @JanelMadeley
Little Elm ISD, Little Elm, Texas

Taren Latta
Little Elm ISD, Little Elm, Texas

231

31
Homework That Empowers All Students

Lifesaver Session – Elementary, Middle, High

This session will include a brief summary of what current research says about homework followed by a flurry of ideas for nontraditional homework assignments and strategies that give students choices and help them to grow as mathematical thinkers.

Tyler P. Auer
Twitter Handle: @mathfireworks
Fay School, Southborough, Massachusetts

220/221, 228–229

32
Redo and Retakes: Grading for Mastery

Lifesaver Session – Elementary, Middle, High

This presentation focuses on how to grade for mastery using redos (allowing students to redo assignments), retakes (allowing students to retake assessments), and descriptive feedback that motivates the struggling learning and reduces their frustration, while producing more meaningful grades as well as reducing the teacher workload in this age of increasing curricular rigor and standardized testing.

Mary Webb
North College Hill Elementary School, Ohio

232

33
Student Stakeholder 1 – Elementary/ Middle School

Student Stakeholder – Elementary, Middle

During this session, a panel of elementary and middle grades students will share their stories of struggle in mathematics and their perspectives on how students can and should be supported. Learn how the teachers of these students helped them find success in mathematics.

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

263/264

34
Student Stakeholder 1 – High School

Student Stakeholder – High

During this session, a panel of high school students will share their stories of struggle in mathematics and their perspectives on how students can and should be supported. Learn how the teachers of these students helped them find success in mathematics.

Jon Wray
Twitter Handle: @jonathanwray
Howard County Public Schools, Ellicott City, Maryland

260/267

35
Deepen Student Understanding: Make Connections among Mathematical Representations

Video Interactive Session – Elementary

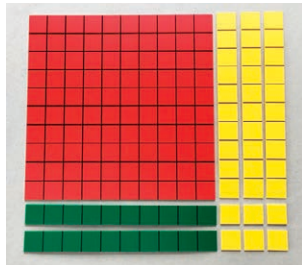
During this interactive session, we will do math together and use videos to show how to engage students that struggle. We will identify the mathematical connections between student approaches and representations. You'll learn practical tips that leverage rich tasks and the connections among student pathways. The strategies used can be applied in your classroom to have a profound impact on math discussions.

Meghan Hearn
LearnZillion, Washington, D.C.

Meka Wilhoit
Grainger County Schools, Washburn, Tennessee

242

BRIDGES® INTERVENTION



A NEW K–5 INTERVENTION PROGRAM

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

To learn more, stop by The Math Learning Center booth or visit

mathlearningcenter.org/**intervention**

40 YEARS

We're giving away 40 Bridges Intervention sets in 40 days to celebrate our 40th anniversary!
Stop by The Math Learning Center booth to enter or visit www.mathlearningcenter.org/offers/drawing.

1:00 P.M.–1:30 P.M.

36
Prove It! Helping Struggling Learners Become Independent Thinkers

Video Interactive Session – Elementary

After watching short clips of small group instruction, teams will identify strategies the teacher uses to differentiate instruction, to build and reinforce sociomathematical norms, and to support struggling learners in becoming independent thinkers. As a larger group we will discuss the ways in which these strategies can be used/generalized to any mathematics content.

Denise A. Spangler
Twitter Handle: @dspangler811
Board of Directors, National Council of Teachers of Mathematics, Reston, Virginia; University of Georgia, Athens

Kirsten Keels
University of Georgia, Athens
241

36.1 EW
Embracing *Principles to Actions*

Exhibitor Workshop—Middle, High

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

CPM Educational Program
Elk Grove, California
261/262

36.2 EW
10 Minutes of Code

Exhibitor Workshop—Middle, High

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

Texas Instruments
Dallas, Texas
265/266

1:00 P.M.–2:30 P.M.

37 INNOVATION LOUNGE
Math Circles

TNT – Elementary, Middle, High

Let's do some math! Come and work with others in solving rich mathematical problems that are designed to offer a variety of entry points and varied solution strategies. Gain insight into your students' problem solving strategies, experience a bit of productive struggle, and have fun!

Julie Kriezel
Lincoln County Public Schools

Anne Schmidt
Lincoln Public Schools
Teachers Networking Together (Innovation Lounge in Exhibit Hall 2)

1:45 P.M.–3:00 P.M.

37.1
Wellness Workshop: Be Well—The Science and Practice of Mindful Self-Care

Major Keynotes – General Interest

You cannot serve from an empty vessel. Learn about the science and biology behind burnout and self-care, along with tips and tools that you can use to take care of yourself on a daily basis. Simple yoga poses for stretching and stress relief will be reviewed (many that can be done in your chair!) as well as simple breathing and mindfulness practices.

Elle Potter
Yoga Buzz, St. Louis, Missouri

Donna Jones
Yoga Buzz, St. Louis, Missouri
263/264

1:45 P.M.–3:00 P.M.

The following Innovators will be available in the Innov8 Bar during the designated time slot. Individuals and/or teams can sign up for 10-minute time slots at the Innov8 Bar information desk.

38 INNOVATION LOUNGE
Assessment Innovator: Matt Larson

Innovators – Elementary, Middle, High

Matt Larson is president of the National Council of Teachers of Mathematics (NCTM). Previously, Larson was the K–12 curriculum specialist for mathematics in the Lincoln (Nebraska) Public Schools for more than 20 years. Larson has taught mathematics at the elementary through college level and has held an appointment as an honorary visiting associate professor at Teachers College, Columbia University.

Matt Larson
President, National Council of Teachers of Mathematics, Reston, Virginia
Innov8 Bar (Innovation Lounge in Exhibit Hall 2)

39 INNOVATION LOUNGE
MTSS Innovator: Karen S. Karp

Innovators – Elementary, Middle

Karen Karp is a visiting professor at the School of Education at Johns Hopkins University. She was a former member of the Board of Directors for the National Council of Teachers of Mathematics and the former president of the Association of Mathematics Teacher Educators. Besides holding certifications in the teaching of mathematics K–12, she is a certified special education teacher.

Karen S. Karp
Twitter Handle: @ksquaredmath1
Johns Hopkins University, Baltimore, Maryland
Innov8 Bar (Innovation Lounge in Exhibit Hall 2)

40 INNOVATION LOUNGE
Motivation Innovator: Eric Milou

Innovators – Middle, High

Eric Milou is a professor of mathematics at Rowan University in Glassboro, New Jersey. He has taught at Rowan for the past 20 years and served as the president of the Rowan University Senate for six years. He also served as president of the Association of Mathematics Teachers of New Jersey and as the program chairperson of the 2007 NCTM Annual Meeting. He was the recipient of the Max Sobel Outstanding Mathematics Educator Award in 2009.

Eric Milou
Twitter Handle: @drMi
Rowan University, Glassboro, New Jersey
Innov8 Bar (Innovation Lounge in Exhibit Hall 2)

40.1 INNOVATION LOUNGE
Productive Struggle Innovator: Cathy Martin

Innovators – Middle, High

Cathy Martin is the Director of Mathematics in Denver Public Schools and a member of the NCTM Board of Directors. A former Presidential Awardee in Mathematics, she taught secondary mathematics in Texas, Virginia, and Colorado. She currently is on the mathematics advisory board for the Council of Great City Schools, a member of the Urban Mathematics Leaders Network, and on the board of Teachers Development Group.

Cathy Martin
Denver Public Schools, Colorado
Innov8 Bar (Innovation Lounge in Exhibit Hall 2)

1:45 P.M.–3:00 P.M.

42
Impasses Are Inevitable: Supporting Productive Struggle toward the Solution

Master Class – Elementary

When high–level tasks are used, students often reach an impasse. How a teacher supports the student determines if the impasse is overcome. We will name teaching strategies that support students to engage in productive struggle. We will apply these strategies to cases of students who have reached an impasse related to understanding of fractions.

Victoria Bill
University of Pittsburgh, Pennsylvania
240

43
Putting "Action" into Technology to Support the Mathematics Teaching Practices

Master Class – High

While many uses of technology can be useful, this session will focus on what *Principles to Actions* describes as "mathematical action technologies." Students can use such applications to actively explore mathematics and share their thinking, thus supporting the Mathematics Teaching Practices. Extended examples from algebra and geometry will be explored; bring your own device so you can play along!

W. Gary Martin
Twitter Handle: @wgarym
Auburn University, Alabama
242

43.2
Moving to Action: Mathematics Teaching Practices to Support Diverse Learners

Master Class—Middle

This master class will engage middle school teachers in exploring the eight research-based Effective Mathematics Teaching Practices in NCTM's *Principles to Actions*. We will use narrative and video artifacts of practice to identify evidence of the practices. For each practice, we will consider the ways in which practices can support students who have historically struggled with mathematics.

Michael Steele
Twitter Handle: @mdsteele47
University of Wisconsin–Milwaukee
241

44
The Neuroscience of Productive Struggle and Deep Learning

Research & Practitioner's Paired Session – Elementary, Middle, High

When math education moves beyond how and into why, you hear it happening. "Oh, now I get it. Yes!" This is the sound of deeper engagement, thought, and learning. How do you get there? In this session, we share insights on how our brains learn and how to create active learning environments that encourage deeper learning and foster student success.

Matthew Peterson
Twitter Handle: @MIND_Research
MIND Research Institute, Irvine, California

Meagan Erwin
Gables Elementary School, Columbus, Ohio
America's Ballroom 220/221
America's Ballroom 228–229

1:45 P.M.–3:00 P.M.

45
Using Research on Children's Thinking with the 5 Teaching Practices

Research & Practitioner's Paired Session – Elementary

A teacher educator and a grade 2 PLC in a school with a large number of struggling learners will share ideas on on how they collaborate to enhance their teaching practices by effectively using student responses in whole–class discussions based on Smith and Stein's *5 Practices* (NCTM 2011) and the research ideas from childrens' thinking (Carpenter 1999; Behrends 2001, 2003) that include struggling learners.

Cheryl Lubinski
Illinois State University, Normal, Illinois

Katie Lieser
Hazelwood School District, Missouri

Amanda Rayfield
Hazelwood School District, Missouri

Amber Rutherford
Hazelwood School District, Missouri

260/267

THURSDAY

46
The Adventures of Lucy: A Rich Task for Primary Students

Task Talks – Elementary

An engaging story/situation will capture the interest of young students and promote mathematical reasoning, representation, and discourse. This task, which focuses on number, operations, and algebraic thinking, can be easily modified for grades K, 1, and 2. Standards for Mathematical Practice 1, 2, and 3 and pedagogical implications will be explored.

Susie Katt
Twitter Handle: @susiekatt
Lincoln Public Schools, Nebraska

230

A big **thank you** to our exhibitors, sponsors, volunteers, and speakers!

47
Visual Pattern Tasks: A Vehicle for Promoting Algebraic Reasoning

Task Talks – Middle, High

In this session, participants will consider the potential of visual patterns tasks for promoting reasoning and problem solving. Participants will engage in several activities, including solving a visual pattern task, anticipating the ways students will solve the task, and considering how to support students' learning without taking over the thinking for them.

Margaret Smith
University of Pittsburgh, Pennsylvania

232

48
"What Were You Thinking?"

Task Talks – Middle

Familiar words/thoughts of any educator! Apply this question to students' work. Engage in a challenging yet accessible hands–on task requiring creative, analytical thinking while engaging in mathematical practices. Designed to create intellectual need and mathematical curiosity, this task unveils conceptual understandings in the context of ratio, proportionate design, geometry, and rational number.

Marilyn D. Cannon
Raytown School District, Missouri

231

49
Addressing Numeracy with the Struggling Learner in K–2

Topical Session – Elementary

How do we begin supporting struggling learners with numeracy development? This session focuses on how students learn to compose and decompose whole numbers. We will view student video to assess what students know and can do; discuss how to nudge their thinking towards flexible, efficient, and accurate ways of computing; and focus on the gate–keeping concepts that hold students back in classroom instruction.

Paula L. Muehler
Math Learning Center, Menomonee Falls, Wisconsin

274

ew Exhibitor Workshop

1:45 P.M.–3:00 P.M.

50
Art as Context and Motivation for Mathematics

Topical Session – Middle

Participants will engage in two different math lessons revolving around art. One will use fractions to compose a picture, and one will use mathematics to interpret and enlarge a painting. We will discuss the use of art to create engaging problems, to lower the risk of participation, and to increase student ownership of results.

John Golden
Twitter Handle: @mathhombre
Grand Valley State University, Allendale, Michigan
275

51
Convince Me?!

Topical Session – Middle, High

Constructing viable arguments in the math classroom is a tool to engage learners. Argumentation aids in increasing the conceptual understanding of the struggling learner by helping them process ideas and justify conclusions. Learn how to adapt existing classroom tasks to incorporate argumentative writing.

Lea Ann Pitcher
Raytown C–2 Schools, Missouri
Melissa Morawitz
Raytown C–2 Schools, Missouri
Melanie Dowell
Raytown C–2 Schools, Missouri
276

52
Making the Most of Mistakes

Topical Session – Middle, High

We need to do more than normalize errors in our classrooms—we need to leverage them! Examine ways to capitalize on student mistakes to drive instruction, deepen homework, and frame quizzes/tests as assessments *of* and *as* learning, leading to increased conceptual understanding and procedural fluency, greater student agency, and lower risk aversion.

Peg Cagle
Los Angeles Unified School District, Los Angeles, California
100–105

53
Rethinking MTSS Using a Continuum of Instruction Model for Math

Topical Session – Elementary, Middle, High

This workshop will articulate the distinctions between differing levels of instructional intensity within a Continuum of Instruction as part of a Multi–Tiered System of Supports (MTSS) model. Specific descriptors and examples will be provided for both assessment and instruction at the universal, targeted, and intensive levels of math intervention. Participants will have time to reflect upon their system's continuum to identify next steps.

Jennifer Patenaude
North Country Supervisory Union, Newport, Vermont
Jeanne Bonin
North Country Supervisory Union, Newport, Vermont
America's Ballroom 222–227

53.1 EW
Rethinking Ratios and Proportional Relationships: Implications for Teachers

Exhibitor Workshop—Middle, High

An interactive discussion will focus on a technology-leveraged approach for teaching ratios that brings coherence across grades for content that is tough to teach and tough to learn. The session will consider the shifts necessary to develop real understanding of proportions, the research behind the shifts, and teachers' role in carrying out these shifts.

Texas Instruments
Dallas, Texas
265/266

53.2 EW
Hands-On Operations: Using Manipulatives for Understanding of ALL Four Operations

Exhibitor Workshop – Elementary

Come use place-value manipulatives to understand and practice addition, subtraction, multi-digit multiplication and long division algorithms for whole numbers and decimals. Learn how to help all learners master the move from concrete to the representation to the ultimate abstract algorithm with a deep understanding of regrouping and place value.

Singapore Math Inc.
Tualatin, Oregon
261/262

2:00 P.M.–2:30 P.M.

54 INNOVATION LOUNGE
Author-Led Book Talk: Juli Dixon

Book Talks – Elementary, Middle, High

Opening session speakers Juli Dixon and Jessica Dixon will lead discussion around their publication, *A Stroke of Luck*.

Book Description: At a critical juncture during brain surgery, Alex Dixon, age 12, had a stroke . . . Alex was a normal, bright, and healthy little girl, when the sudden onset of a mysterious illness began to take over her life. Months of physical therapy and medication failed to provide relief from acute pain and muscle spasms. Doctors across the country were at a loss for answers. A last-ditch attempt at treatment—brain surgery—ended up stopping the spasms but with unexpected, dire consequences. *A Stroke of Luck* is the remarkable true story of a close-knit family that meets challenge after challenge with resilience, hope, and love.

Juli K. Dixon

Twitter Handle: @thestrokeofluck
University of Central Florida, Orlando, Florida
The Book Nook (Innovation Lounge in Exhibit Hall 2)

2:00 P.M.–3:00 P.M.

These scheduled sessions will be presented during the first half hour of the time slot. During the last half hour, one 10-minute spot will be available to an attendee to share a story related to the topic. Attendees will need to sign up in the Narrate area in order to secure a spot. During the last 15 minutes, there will be a concluding discussion.

55 INNOVATION LOUNGE
NCTM Grant Money at Work

Narrate: Stories from the Classroom – Elementary

Stories from the classroom: Inspiring Teachers

A math specialist and a music teacher collaborated to help struggling students learn addition facts, as they used NCTM grant money to buy percussion instruments. See how students add to the beat of a different drummer.

Sarah Baxter
McLean School of Maryland, Potomac, Maryland
Narrate – Stories from the Classroom (Innovation Lounge in Exhibit Hall 2)

56 INNOVATION LOUNGE
Student–Teacher Collaboration: Expect the Unexpected

Narrate: Stories from the Classroom – Elementary, Middle, High

Stories from the classroom: Effective Interventions

The algebraic thinking of my college algebra developmental student (with the pseudonym of Banjo) was impoverished. I met with Banjo in a computer lab over two weeks to address this. I prepared a notebook with readings about graphing and function that showed mathematics' real–world and humanistic side. We learned from each other. Dialogue excerpts and Banjo's written responses will bring the interaction alive.

Janet St. Clair
Alabama State University, Montgomery, Alabama
Narrate – Stories from the Classroom (Innovation Lounge in Exhibit Hall 2)

2:30 P.M.–3:00 P.M.

57 INNOVATION LOUNGE
Blog 101

TNT – Elementary, Middle, High

Blogs can extend the learning environment beyond the classroom! This hands–on, how–to session will introduce participants to the use of blogs as educational tools and as sources of professional development for teachers. Come learn from experienced bloggers about how they've used this tool in their own work.

Ilana S. Horn
Vanderbilt University, Nashville, Tennessee

David C. Wees
New Visions for Public Schools, New York, New York
Teachers Networking Together (Innovation Lounge in Exhibit Hall 2)

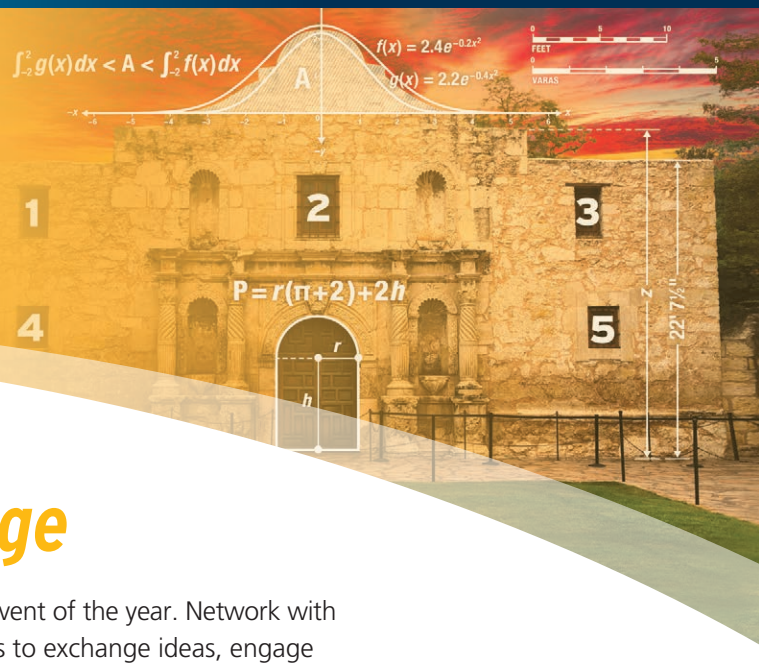
NCTM® NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS

Save the Date!

PREMIER MATH EDUCATION EVENT

NCTM ANNUAL MEETING & EXPOSITION 2017

April 5–8 | San Antonio



Creating Communities and Cultivating Change

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

The latest teaching trends and topics will include:

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

Register by Feb. 24 for Early-Bird Discount

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MATH RESEARCHERS
SCHOOL AND DISTRICT ADMINISTRATORS

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

3:15 P.M.–3:45 P.M.

58 INNOVATION LOUNGE
Informal Book Talk: Anne Collins

Book Talks – Elementary, Middle, High

Ann Collins will lead an informal discussion on assessment in mathematics. She will highlight some of her favorite books, but participants are also encouraged to share their favorite books on the topic.

Anne M. Collins
Lesley University, Cambridge, Massachusetts
The Book Nook (Innovation Lounge in Exhibit Hall 2)

3:15 P.M.–4:30 P.M.

The following Innovators will be available in the Innov8 Bar during the designated time slot. Individuals and/or teams can sign up for 10-minute time slots at the Innov8 Bar information desk.

59 INNOVATION LOUNGE
Assessment Innovator: Diane J. Briars

Innovators – Elementary, Middle, High

Diane J. Briars is NCTM's Immediate Past President. Previously, she was a mathematics education consultant, senior developer/research associate on the NSF–funded Intensified Algebra Project, and Mathematics Director for Pittsburgh Public Schools. Using high–quality assessments to improve teaching and learning has been a focus of her work throughout her career.

Diane J. Briars
Past President, National Council of Teachers of Mathematics, Reston, Virginia
Innov8 Bar (Innovation Lounge in Exhibit Hall 2)

60 INNOVATION LOUNGE
Motivation Innovator: James A. Middleton

Innovators – Elementary, Middle, High

Jim Middleton is an internationally known expert in mathematical motivation. He is best known for examining the relationships among factors determining motivation in school mathematics and relating them to achievement and persistence in STEM fields. Among his many publications is the NCTM–published book *Motivation Matters and Interest Counts*. He also plays guitar and sings in a rock band.

James A. Middleton
Arizona State University, Tempe, Arizona
Innov8 Bar (Innovation Lounge in Exhibit Hall 2)

3:15 P.M.–4:30 P.M.

61 INNOVATION LOUNGE
MTSS Innovator: Anne Foegen

Innovators – Middle, High

Anne Foegen is Professor of Special Education at Iowa State University. Her research explores the development and use of progress–monitoring assessments in mathematics, most recently focusing on the secondary level and algebra in particular. She has been an author of two IES Practice Guides related to mathematics (*RTI, Algebra*).

Anne Foegen
Iowa State University, Ames, Iowa
Innov8 Bar (Innovation Lounge in Exhibit Hall 2)

61.1 INNOVATION LOUNGE
Productive Struggle Innovator: Cathy Martin

Innovators – Middle, High

Cathy Martin is the Director of Mathematics in Denver Public Schools and a member of the NCTM Board of Directors. A former Presidential Awardee in Mathematics, she taught secondary mathematics in Texas, Virginia, and Colorado. She currently is on the mathematics advisory board for the Council of Great City Schools, a member of the Urban Mathematics Leaders Network, and on the board of Teachers Development Group.

Cathy Martin
Denver Public Schools, Colorado
Innov8 Bar (Innovation Lounge in Exhibit Hall 2

61.2 INNOVATION LOUNGE
The Math Forum: Annie Fetter & Max Ray-Riek

Innovators – Elementary, Middle, High

Max and Annie of the Math Forum at NCTM may be best known for what Ignites them: their passionate 5-minute talks on subjects such as "I Notice, I Wonder," or on why 2 is greater than 4. At the Math Forum, they've read every student submission to the featured Math Forum Problems of the Week, and they spend lots of time online (where they regularly host #elemmathchat) and in schools listening to students, asking questions, and doing math.

Annie Fetter
The Math Forum at NCTM, Reston, Virginia

Max Ray-Riek
The Math Forum at NCTM, Reston, Virginia
Innov8 Bar (Innovation Lounge in Exhibit Hall 2)

62
Wellness Workshop: Connect. Create. Change. How to Juggle More and Define New Possibilities

Major Keynotes – General Interest

Ever feel like you are struggling to keep all the balls in the air? Work-life balance out of control? We must connect and collaborate to find new solutions for balancing our personal and professional lives in the midst of change. In this interactive session, participants will (1) leave with 4 strategies for improved balance and stress management in the face of change; with less stress, we are more creative team players; (2) get out of their comfort zones to try something new; (3) convert obstacles to opportunities through creative problem solving and effective collaboration; (4) learn to focus on results, analyze cause and effect, and modify actions and strategies accordingly; and (5) embrace the Power of Practice; finding balance takes time and consistent effort.

Jen Slaw
Twitter Handle: @jenslawjuggles
Jen Slaw Speaks, New York, New York
263/264

3:15 P.M.–4:30 P.M.

63
Principles to Actions' Effective Teaching Practices in High School Classrooms

Master Class – High

This session will examine *Principles to Actions'* (P2A) effective teaching practices in secondary mathematics classrooms, featuring "The Case of Ms. Bassham and the Missing Functions Task" from the NCTM P2A Toolkit materials. Participants will analyze a task and video clip for the effective practices of posing purposeful questions, eliciting and using students' thinking, and promoting productive struggle.

Melissa D. Boston
Duquesne University, Pittsburgh, Pennsylvania
242

64
Fostering Reasoning and Sense Making via Multiple Entry Level Task

Master Class – Middle, High

Participants will experience and see how the use of equitable mathematics tasks, such as multiple entry level and group worthy, can help students to reason and make sense of mathematics. Implement tasks that promote reasoning and problem solving and support productive struggle in learning mathematics of NCTM's Mathematics Teaching Practices will be illuminated.

Marilyn E. Strutchens
Auburn University, Alabama
241

64.1
Assessing to Inform—Every Lesson Every Day!

Master Class—Elementary

This Master Class will engage participants in considering the importance of assessment literacy with a focus on using particular formative assessment strategies. Presentations, group discussion, and next-step planning will center around the role of observations, interviews, and show me as formative assessment techniques used to monitor instruction and planning.

Francis (Skip) Fennell
McDaniel College, Westminster, Maryland
240

65
Encouraging the Struggling Learner's Mindset through Reform Grading Practices

Research & Practitioner's Paired Session – Middle, High

This session will include an exploration of the concerns, purposes, interpretations, and impacts of grading practices on students, specifically their mindset development. The sharing of specific grading strategies that can enhance students' mindsets and learning, including the experiences of students in math and algebra classrooms, will provide participants with practical strategies to use in their classrooms.

Julie Thiele
Kansas State University, Manhattan, Kansas
Kathy Slaman
Cedar Rapids Community School District, Cedar Rapids, Iowa
America's Ballroom 220/221, 228–229

66
Teaching Geometry to Young Children

Research & Practitioner's Paired Session – Elementary

A recent study illustrates how young children score higher in geometry assessments if they are taught mathematical attributes. Participants will view video of and engage in complementary classroom activities that establish a solid foundation for children, including struggling learners.

Douglas H. Clements
University of Denver, Colorado
Heather Blizzard
University of Denver, Colorado
Laura Dietert
University of Denver, Colorado
Ksenia Polson
University of Denver, Colorado
Julie Sarama
University of Denver, Colorado
Carrie Germeroth
University of Denver, Colorado
260/267

3:15 P.M.–4:30 P.M.

67
Crossing the River of Expressions and Equations

Task Talks – Middle

Participants will engage in a math task that can be adapted to meet CCSSM in grades 6, 7, and 8. The task builds from recognizing patterns to writing algebraic expressions, with potential for connections to writing linear equations. We will discuss various entry points and possible ways to differentiate the task.

Amy L. Nebesniak
University of Nebraska–Kearney, Nebraska
231

68
Elementary Tasks Don't Need to Be So Elementary

Task Talks – Elementary, Middle

Rich mathematical tasks give every student a chance to engage in mathematics. These tasks should be designed to facilitate the opportunity to problem solve, communicate, and thrive. In this session, learn about the key features of a good task, experience a few tasks yourself, and plan for the future.

Jeanine L. Haistings
William Jewell College, Liberty, Missouri
230

69
Promoting Positive Struggle: The Playground Task

Task Talks – High

The Playground Task asks students to find the point(s) that are equidistant from two schools where a playground may be built. There are different forms of the task—why would you pick each one? What do you expect your students to know for each? How will you keep students engaged, even when they struggle? Work the task, watch a video of implementation, and discuss how you will help all your students learn with this lesson.

Fred Dillon
IdeaStream/PBS, Cleveland, Ohio
232

70
Guided Math Groups: Promising Strategy for Engaging and Supporting Students

Topical Session – Elementary

Often teachers are daunted by the concept of differentiation. A promising strategy for students who need extra support with a particular activity, concept, or skill, is the guided math group. In this interactive session, we will use videos of guided math groups from a second–grade and a fourth–grade classroom. Participants will identify the teachers' strategies and analyze what the students are learning.

Judith S. Storeygard
TERC, Cambridge, Massachusetts
Myriam Steinback
TERC, Cambridge, Massachusetts
274

71
Many Concepts, Few Numbers: A Novel Approach to Math Interventions

Topical Session – Elementary, Middle

Participants will learn of a research–based novel approach for teaching struggling math students that presents many concepts with a few familiar numbers (e.g., using only halves to introduce fraction concepts). Participants will engage in intervention activities, analyze student work, and plan instructional trajectories based on this approach.

Nancy I. Dyson
University of Delaware, Newark, Delaware
Jessica Carrique
University of Delaware, Newark, Delaware
America's Ballroom 222–227

Mingle, explore, and learn in the **Exhibit Hall** and **NCTM Central!**

3:15 P.M.–4:30 P.M.

72
Engaging the Struggling Learner through a Math Escape Room Experience

Topical Session – Middle

Experience an escape room with a series of clues, linear equations, and word problems that will reveal hidden lock combinations. Escape Math Class is an engaging problem–based lesson design sure to engage the struggling learner.

Cheryl Montgomery
Parkway School District, St. Louis, Missouri

Brock Montgomery
Pattonville School District, St. Louis, Missouri
275

73
How We Use Number Talks to Engage All Learners

Topical Session – Elementary

Learn how to use Number Talks to engage all learners in mathematical discussions focused on how students think. We will share how we are successfully using Number Talks in our district with students, teachers, and parents and how math teaching is changing.

Samantha Wuttig
Twitter Handle: @swuttig
Fairbanks North Star Borough School District, Alaska

Michelle Daml
Fairbanks North Star Borough School District, Alaska
100–105

74
Scaffolding a Progression for Proof in High School Geometry

Topical Session – High

This session focuses on scaffolding student learning of proof using a five–part progression: reasoning with diagrams, proof puzzles, fill–in proofs, proofs without words, and writing proofs. This classroom–tested progression also affords teachers the ability to differentiate instruction to maximize student achievement for struggling learners.

Wayne Nirode
Troy High School, Troy, Ohio
276

74.1 EW
Bridges Intervention—Delivering Clear and Systematic Instruction

Exhibitor Workshop—Elementary

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

The Math Learning Center
Salem, Oregon
261/262

74.2 EW
Mathspace—Why You'll Never Grade Math Assignments Again. Seriously.

Exhibitor Workshop – Middle, High

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

Mathspace
New York, New York
265/266

3:30 P.M.–5:00 P.M.

75 INNOVATION LOUNGE
Math Circles

TNT – Elementary, Middle, High

Let's do some math! Come and work with others in solving rich mathematical problems that are designed to offer a variety of entry points and varied solution strategies. Gain insight into your students' problem solving strategies, experience a bit of productive struggle, and have fun!

Fawn Phuong Nguyen
Twitter Handle: @fawnpnguyen
Mesa Union Junior High School, Somis, California

Joshua Zucker
Stanford University, ,
Teachers Networking Together (Innovation Lounge in Exhibit Hall 2)

EW Exhibitor Workshop

4:00 P.M.–4:30 P.M.

75.1 INNOVATION LOUNGE
Article Talk: Thomas Hodges

Book Talks – Elementary

Thomas Hodges will lead a discussion around the *Teaching Children Mathematics* article "Interviews as RTI Tools" (August 2012, vol. 19, issue 1). This article provides a series of diagnostic questions that have helped the author to better assess and comprehend the misconceptions of third graders who struggle with multiplication.

Thomas Hodges
University of South Carolina, Columbia
The Book Nook (Innovation Lounge in Exhibit Hall 2)

4:00 P.M.–5:00 P.M.

The scheduled sessions below will be presented during the first half hour of the time slot. During the last half hour, one 10-minute spot will be available to an attendee to share a story related to the topic. Attendees will need to sign up in the Narrate area in order to secure a spot. During the last 15 minutes, there will be a concluding discussion.

76 INNOVATION LOUNGE
Building Bridges in Math Class

Narrate: Stories from the Classroom – Middle, High

Stories from the classroom: Motivating Students

In the past ten years I have been teaching secondary math classes with the theme of "Building Bridges." When I introduce myself and my passion for bridges, I establish expectations for the class for the year. The yearlong theme creates an atmosphere that stimulates discussion and increases student engagement in learning. "Building Bridges" has transformed my classes into collaborative learning communities.

Kathleen P. Carter
North Hunterdon High School, Annandale, New Jersey
Narrate – Stories from the Classroom (Innovation Lounge in Exhibit Hall 2)

77 INNOVATION LOUNGE
Getting Students to Love Math!

Narrate: Stories from the Classroom – High

Stories from the classroom: Motivating Students

This year I taught a class of seniors who were going for a College Ready score on the NYS Algebra Regents. Most of the students in my class had no desire to be in the class. Most of my students do not love math but hate it! I have taken the challenge to teach my students to love math. This is something that all math educators can benefit from and is one of the most common obstacles to effective learning. I will share my success.

Samuel Haber
New York City Department of Education, New York, New York
Narrate – Stories from the Classroom (Innovation Lounge in Exhibit Hall 2)

4:15 P.M.–5:00 P.M.

78 INNOVATION LOUNGE
Book Signing: Peg Smith

Book Talks – Elementary, Middle, High

Meet and greet Margaret Smith, author of *Five Practices for Orchestrating Productive Mathematics Discussions.* Peg will be available to sign your copies of her book and answer questions about her book.

Margaret Smith
University of Pittsburgh, Pittsburgh, Pennsylvania
The Book Nook (Innovation Lounge in Exhibit Hall 2)

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CASIO

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REGISTRATION HOURS

7:00 a.m.–4:00 p.m.

EXHIBIT HOURS

8:00 a.m.–4:00 p.m.

NCTM CENTRAL HOURS

8:00 a.m.–4:00 p.m.

FIRE CODES

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

8:00 A.M.–9:15 A.M.

79
Moving beyond Mile-Wide, Inch-Deep Learning with Struggling Learners

Major Keynotes – General Interest

Adapting mathematical tasks by changing the questions we ask gives students the opportunity to think more deeply about significant ideas. Participants in this session explore a questioning framework that can be used with skill or traditional tasks to change them into ones that focus on big ideas and significant concepts to help students retain skills and apply them to other problems.

Barbara J. Dougherty

University of Missouri, Columbia
100–105

80
Supporting Productive Struggle in Mathematics Classrooms

Major Keynotes – General Interest

This session will focus on what productive struggle is and how to support it in the classroom. Video– and text–based examples will be used to illustrate ways to support productive struggle. Participants will discuss general principles for supporting students' productive struggle that can be applied in their own classrooms.

Margaret Smith

University of Pittsburgh, Pennsylvania
222–227

80.1
This Very Moment: Creating Opportunities for Productive Mathematics Engagement

Major Keynote – General Interest

Findings from research on motivation, affect, and classroom climate will be presented, with stories from practice, to assist teachers and other education engineers in designing productive learning environments that promote engagement in mathematics. Emphasis is put on changing that very moment when students choose to quit or to persevere.

James Middleton

Arizona State University, Tempe
America's Ballroom 220/221, 228-229

9:30 A.M.–10:00 A.M.

81 INNOVATION LOUNGE
Author-Led Book Talk: Jo Boaler

Book Talks – Elementary, Middle, High

Closing session speaker Jo Boaler will lead a discussion around her book *Mathematical Mindsets: Unleashing Students' Potential through Creative Math, Inspiring Messages and Innovative Teaching.*

Jo Boaler
Stanford University, California
The Book Nook (Innovation Lounge in Exhibit Hall 2)

9:30 A.M.–10:30 A.M.

82
Deepening Algebraic Understanding Using Formative Assessment Tasks with Technology

Content Session – 6–8, 9–12

This session will have teachers engaging in several formative assessment algebriac tasks using free formative assessment technology from Desmos to Nearpod. The tasks will demonstrate that we can engage students in their learning and assess their understanding in real time using such technology.

Eric Milou
Twitter Handle: @drMi
Rowan University, Glassboro, New Jersey
100–105

FRIDAY

EW Exhibitor Workshop

9:30 A.M.–10:30 A.M.

83
Deepening Place Value: The Key to Successful Understanding of Operations

Content Session – 3–5

Our research indicates that many students' struggle with multiplication and division operations is due to their lack of deep place value understanding. Using case studies, this session will describe a three–step process of identifying, remediating, and monitoring students' place value understanding when learning operations. Successfully implemented activities and assessments will be shared.

Barbara Child
Logan City School District, Utah
Arla Westenskow
Utah State University, Logan
Patricia Moyer–Packenham
Utah State University, Logan
242

84
Developing Early Number Sense for the Struggling Learners

Content Session – Pre-K–2

During this session, participants will be introduced to students' levels of thinking for number sense tasks that focus on numerical magnitude. Challenges struggling learners experience with numerical magnitude will be discussed and instructional strategies for remediating difficulties will be provided.

Delinda van Garderen
University of Missouri, Columbia
Tiffany Hill
Emporia State University, Kansas
John K. Lannin
University of Missouri, Columbia
230

85
Engaging and Differentiated Lesson Discussions on Solving Systems of Equations

Content Session – 9–12

Planning and implementation of engaging and differentiated lessons can be challenging. Participate in a discussion about creating highly engaging, differentiated, and mathematically rich learning environment and explore various methods for solving systems of equations!

Elif Safak
Florida Gulf Coast University, Normal, Illinois
263/264

86
Engaging the Struggling Learner to Grasp Growing Sequences

Content Session – 6–8

Support productive struggle and motivate the struggling learner in algebraic thinking by examining growing pattern activities. Differentiation opportunities, assessment strategies, multiple representation approaches, and open–ended tasks accessible and meaningful for all learners will help close the gap in mathematics achievement.

José Francisco Sala García
Twitter Handle: @JoseFSala
IES Santa Maria d'Eivissa, Ibiza, Spain
241

87
Leveraging Arithmetic to Build Infrastructure for Algebraic Success

Content Session – 6–8, 9–12

Too often, students struggle with algebra, seeing it as a bunch of disconnected procedures and tools—and this can put their future school prospects at risk. We'll practice several strategies that leverage students' prior arithmetic knowledge (even if it's imperfect) to build powerful algebraic habits of mind to help them succeed.

Sendhil Revuluri
Twitter Handle: @revuluri
University of Illinois at Chicago, Illinois
America's Ballroom 220/221, 228–229

9:30 A.M.–10:30 A.M.

88
Moving beyond Fraction Misconceptions with Composing and Decomposing Fractions

Content Session – 3–5

This session focuses on exploring composing and decomposing strategies using the tape diagram and number bonds to convert between improper fractions and mixed numbers. The hands–on activities will offer elementary math teams the opportunity to deepen their understanding of how using composing and decomposing strategies help struggling learners to make connections and move beyond their misconceptions.

Michelle Williams
Twitter Handle: @theignitedteach
Houston ISD, Texas
260/267

89
Powerful Accessibility Strategies for Building Conceptual Understanding of Decimal Standards

Content Session – 3–5

Explore ways to help struggling learners build understanding of key decimal standards for grades 4–6. Use diagnostic probes to identify students' understandings, misconceptions, and difficulties. Try powerful strategies for targeting students' learning needs and promoting their success with foundational decimal concepts and operations. Leave with ideas and materials to use with your students.

Amy Brodesky
Education Development Center, Waltham, Massachusetts
240

90
Middle School Statistics: Teaching Inference for Understanding

Content Session – 6–8

Experience a task that allows all students to make sense of the concept of informal statistical inference. Participants will collect sample data, perform a simulation, and infer the results to a larger population. Leave the presentation with an activity you can use tomorrow to teach your students about informal inference.

Sara Brown
Brookhill Institute of Mathematics, Waukesha, Wisconsin
Jeff Ziegler
Brookhill Institute of Mathematics, Waukesha, Wisconsin
231

91
Take the Number Sense Journey

Content Session – Pre-K–2

Participants will identify, experience, assess, and reflect the interrelated aspects of early numerical knowledge, the learning trajectory for counting, and the number relationships that will establish a strong foundation for number operations. Using this content knowledge, Cognitively Guided Instruction will be modeled to provide an explicit and systematic format for students who struggle.

Lynn Rule
MathRack, Wheaton, Illinois
275

92
Take the Plunge into Transformations

Content Session – 9–12

Have you ever felt like geometry needed to transform but were scared to try? So did we, yet we jumped in. (Actually, Christa pushed me in and we haven't sunk yet.) The classroom is now student centered and teacher facilitated. The students explore and discover geometry through transformations using a hands–on approach that incorporates the use of multiple modalities to achieve success for the struggling learner.

Christa Brundage
Red Bud High School, Illinois
Melissa Wiegand
Red Bud High School, Illinois
232

ew Exhibitor Workshop

9:30 A.M.–10:30 A.M.

93
Using Appropriate Tools Strategically: Algebra Tiles Aren't Just for Factoring

Content Session – 6–8

Learn how to use algebra tiles to make algebra into a concrete visual experience for your students. Teachers will have a chance to explore algebra tiles and learn how to use them to show area and perimeter, combining like terms, evaluating expressions, and polynomial multiplication. Factoring can be done, if time allows.

Christine Mikles
CPM Educational Program, Sacramento, California

Sharon Rendon
CPM Educational Program, Rapid City, South Dakota

274

94
Using Visualization to Develop Understanding

Content Session – 6–8, 9–12

Connecting visual models to mathematical ideas and notation can help struggling learners make sense of mathematical concepts. Such models can then become the platform for developing procedural skills and for applying the concepts across contexts and grades as ideas grow and deepen. Participants will work through examples from ratios, proportional relationships, algebra, and statistics.

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

B. Michelle Rinehart
Region 18 Education Service Center, Midland, Texas

276

95
Walk the Number Line for Research–Based Results for K–5!

Content Session – Pre-K–2, 3–5

Elementary learners need a number line for powerful math concepts like skip counting, adding on, alternative algorithms for regrouping, making change, elapsed time, rounding, factoring, and fractions. You will experience unique ideas with number lines and be amazed how you can immediately use them with all students including struggling learners.

Ruth Harbin Miles
Mary Baldwin College, Staunton, Virginia

Kim Sutton
Creative Mathematics, Arcata, California

222–227

9:30 A.M.–10:30 A.M.

The following Innovators will be available in the Innov8 Bar during the designated time slot. Individuals and/or teams can sign up for 10-minute time slots at the Innov8 Bar information desk.

96 INNOVATION LOUNGE
Motivation Innovator: Ilana Horn

Innovators – Middle, High

Ilana Horn is a professor of mathematics education at Vanderbilt University. She studies secondary mathematics teachers' workplace learning. Her research aims to improve mathematics education for students and supports for teachers, particularly in urban schools. She is the author of two books for teachers, *Strength in Numbers* (NCTM 2012) and *What Do You Think and Why?* (Heinemann, in press).

Ilana S. Horn
Vanderbilt University, Nashville, Tennessee
Innov8 Bar (Innovation Lounge in Exhibit Hall 2)

97 INNOVATION LOUNGE
MTSS Innovator: Robin F. Schumacher

Innovators – Elementary

Robin F. Schumacher is a Research Associate at Instructional Research Group. Her research experience includes working on large–scale IES and NSF intervention projects as well as developing specially designed intervention programs for students struggling in mathematics. Her work has focused on fraction concepts and procedures, word problems, algebra foundations, and developing explanations.

Robin Schumacher
Instructional Research Group, Long Beach, California
Innov8 Bar (Innovation Lounge in Exhibit Hall 2)

97.1 INNOVATION LOUNGE
Assessment Innovator: Anne Collins

Innovators – Elementary, Middle, High

Anne Collins is the Director of Mathematics Programs and of the Center for Mathematics Achievement at Lesley University. She has served on the Board of Directors for NCTM and as president of the Association of Teachers of Mathematics in Massachusetts as well as for the Association of Teachers of Mathematics in New England. Anne is the author of the books Using Classroom Assessment to Improve Student Learning and Assessment Resources for Professional Learning Communities, and she was the series editor for NCTM's Assessment Sampler series.

Anne Collins
Lesley University, Cambridge, Massachusetts
Innov8 Bar (Innovation Lounge in Exhibit Hall 2)

97.2 INNOVATION LOUNGE
Productive Struggle Innovator: Cathy Martin

Innovators – Elementary, Middle, High

Cathy Martin is the Director of Mathematics in Denver Public Schools and a member of the NCTM Board of Directors. A former Presidential Awardee in Mathematics, she taught secondary mathematics in Texas, Virginia, and Colorado. She currently is on the mathematics advisory board for the Council of Great City Schools, a member of the Urban Mathematics Leaders Network, and on the board of Teachers Development Group.

Cathy Martin
Denver Public Schools, Colorado
Innov8 Bar (Innovation Lounge in Exhibit Hall 2

9:30 A.M.–10:30 A.M.

The scheduled sessions below will be presented during the first half hour of the time slot. There will be an opportunity for attendees to share their stories related to the topic. The presentation should be no more than 10 minutes. Attendees will need to sign up in the Narrate area in order to secure a spot. During the last 15 minutes, there will be a concluding discussion.

98 INNOVATION LOUNGE
We Teach Who We Are

Narrate: Stories from the Classroom – Elementary, Middle, High

Stories from the classroom: From My Students I Learned

Humility. Empathy. Connection. Three ingredients that allow us as educators to be more caring and effective with our most vulnerable youth. When we create space for stories to be told and heard, we allow students to feel safe to co–create a learning community that is rich with mathematical discourse. Struggling students don't struggle with math skills. Struggling students struggle with belonging in math class.

Andre ChenFeng
LAUSD/UCLA Community School, Los Angeles, California
Narrate – Stories from the Classroom (Innovation Lounge in Exhibit Hall 2)

99 INNOVATION LOUNGE
Stories of Caring Mathematics Instruction

Narrate: Stories from the Classroom – High

Stories from the classroom: From My Students I Learned

What does it mean as a teacher to engage in "caring mathematics instruction" and why does it matter? Why is there a huge disconnect between what teachers and students perceive to be caring instruction?

Andrew Spires
Georgia State University, Atlanta, Georgia
Narrate – Stories from the Classroom (Innovation Lounge in Exhibit Hall 2)

9:30 A.M.–10:00 A.M.

100 INNOVATION LOUNGE
Twitter 101

TNT – Elementary, Middle, High

Explore Twitter and learn how it can be used as a learning tool! This hands–on, how–to session will guide participants in creating and using a Twitter account. Participants will also learn how Twitter can be used to enhance instruction and build professional learning networks.

Peg Cagle
Los Angeles Unified School District, California

Annie Fetter
The Math Forum at NCTM, Reston, Virginia

Max Ray-Riek
The Math Forum at NCTM, Reston, Virginia
Teachers Networking Together (Innovation Lounge in Exhibit Hall 2)

9:30 A.M.–10:30 A.M.

100.1 EW
Inspire Your Kids with Hands-On Equations® and Developing Fractions Sense®!

Exhibitor Workshop—Elementary, Middle

Our most important task as educators is to inspire our students to succeed by leading them to change their self-perception from one of "I can't" to one of "I can!" Come and see how even your struggling third to fifth graders can solve equations such as $4x + 3 = 3x + 9$, figure out 2 1/3 divided by 1/3, and feel empowered. Class sets to be raffled!

Borenson and Associates, Inc.
Allentown, Pennsylvania
261/262

100.2 EW
STEM behind Sports: Field Goal for the Win

Exhibitor Workshop—Middle, High

The kick is up . . . and it's good! Get your students fired up about math with interactive lessons that model a game-winning field goal. Learn how technology can be used to engage your students in challenging mathematics they experience every day. Get free resources for middle grades through precalculus that can be used in your classroom right away.

Texas Instruments
Dallas, Texas
265/266

10:15 A.M.–10:45 A.M.

101 INNOVATION LOUNGE
Book Signing: Matt Larson

Book Talks – Elementary, Middle, High

Meet and greet NCTM president, Matt Larson, one of the author of NCTM's landmark publication *Principles to Actions: Ensuring Mathematical Success for All.* Matt will be available to sign your copies of *Principles to Actions* and answer questions about the book.

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

The Book Nook (Innovation Lounge in Exhibit Hall 2)

101.1 INNOVATION LOUNGE
Twitter 101

TNT—Elementary, Middle, High

Explore Twitter and learn how it can be used as a learning tool! This hands-on, how-to session will guide participants in creating and using a Twitter account. Participants will also learn how Twitter can be used to enhance instruction and build professional learning networks.

Laila Nur
Manual Arts Senior High School, Los Angeles, California

May Ray-Riek
The Math Forum at NCTM, Reston, Virginia

Annie Fetter
The Math Forum at NCTM, Reston, Virginia

Teachers Networking Together (Innovation Lounge in Exhibit Hall 2)

10:45 A.M.–11:15 A.M.

102 INNOVATION LOUNGE
Author-Led Book Talk: Matt Larson

Book Talks – Elementary, Middle, High

One of the authors on the NCTM publication *Principles to Actions: Ensuring Mathematical Success for All*, Matt Larson will lead a discussion on this landmark publication. Book Description: Continuing its tradition of mathematics education leadership, NCTM has defined and described the principles and actions, including specific teaching practices, that are essential for a high-quality mathematics education for all students.

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

The Book Nook (Innovation Lounge in Exhibit Hall 2)

10:45 A.M.–12:00 P.M.

The following Innovators will be available in the Innov8 Bar during the designated time slot. Individuals and/or teams can sign up for 10-minute time slots at the Innov8 Bar information desk.

104 INNOVATION LOUNGE
Assessment Innovator: David Wees

Innovators – Middle, High

David is a formative assessment specialist for New Visions for Public Schools in New York City. He has worked in New York, London, Bangkok, and Vancouver. David has presented at many conferences on mathematics and educational technology. David's focus of his career is on the intersection of mathematics, education, and technology. He blogs at http://davidwees.com/ and tweets at @davidwees.

David C. Wees
Twitter Handle: @davidwees
New Visions for Public Schools, New York, New York

Innov8 Bar (Innovation Lounge in Exhibit Hall 2)

105 INNOVATION LOUNGE
Motivation Innovator: Amanda Jansen

Innovators – Elementary, Middle, High

Amanda Jansen works at the University of Delaware, and she was formerly a middle school mathematics teacher. Mandy studies students' voices about what motivates and engages them during mathematics class. She also works with teachers to help them understand and promote productive engagement in mathematics classroom discourse. She co–authored NCTM's book *Motivation Matters and Interest Counts*.

Amanda Jansen
Twitter Handle: @MandyMathEd
University of Delaware, Newark, Delaware

Innov8 Bar (Innovation Lounge in Exhibit Hall 2)

10:45 A.M.–12:00 P.M.

106 INNOVATION LOUNGE
MTSS Innovator: Amy Brodesky

Innovators – Elementary, Middle

Amy Brodesky leads projects on improving mathematics instruction for struggling learners at Education Development Center, a nonprofit organization. With NSF funding, she has created PD programs and resources for general and special educators. She is a co–author of the IES Report, *Mathematics Education Practices for Students with Disabilities and Other Struggling Learners: Case Studies of Six Schools.*

Amy Brodesky
Education Development Center, Waltham, Massachusetts
Innov8 Bar (Innovation Lounge in Exhibit Hall 2)

106.1 INNOVATION LOUNGE
Productive Struggle Innovator: John Lannin

Innovators – Middle, High

John Lannin is a professor and associate dean in the College of Education at the University of Missouri. His research focuses on working with struggling learners and the development of teacher knowledge. He is a former middle and high school mathematics teacher.

John Lannin
University of Missouri, Columbia
Innov8 Bar (Innovation Lounge in Exhibit Hall 2

107
Wellness Workshop: Yoga for the Mind, Body, and Soul

Major Keynotes – General Interest

Need help managing your stress? Want to learn how to slow down during the fast pace of today's society? Come learn the breath awareness and mindfulness meditation that I use in my own math classroom and when teaching yoga to athletes to help instill a sense of calmness in pressure situations. We will also learn some basic yoga postures and discuss the connection between breath and movement. Come with an open mind, and be ready to take time out of your day for yourself.

Gina Caruso
Parkway School District, St. Louis, Missouri
263/264

108
All In the Family of Functions: Building Student Understanding

Master Class – High

Help students to understand the concept of function and explore the characteristics of families of functions. By repeatedly using variations on the Three Point problem, students were presented with a task that encouraged productive stuggle, had multiple access points, had use of multiple representations, and had ways for students to self–assess. We will look at student work and discuss how you may use the task.

Kyle Eller
Wheaton Warrenville South High School, Illinois

Fred Dillon
IdeaStream/PBS, Cleveland, Ohio
242

108.1
Moving to Action: Mathematics Teaching Practices to Support Diverse Learners

Master Class—Middle

This master class will engage middle school teachers in exploring the eight research-based Effective Mathematics Teaching Practices in NCTM's *Principles to Actions*. We will use narrative and video artifacts of practice to identify evidence of the practices. For each practice, we will consider the ways in which practices can support students who have historically struggled with mathematics.

Michael Steele
Twitter Handle: @mdsteele47
University of Wisconsin–Milwaukee
241

Hear what's new from exhibitors—attend an exhibitor workshop. Look for the ew symbol throughout the program book.

10:45 A.M.–12:00 P.M.

108.2
Quality Mathematics Tasks for Productive Struggle

Master Class—Elementary

Effective mathematics teaching uses tasks to motivate student learning and helps students build knowledge through problem solving (*Principles to Actions*; NCTM 2014). In this session, participants will investigate qualities of mathematics tasks. Participants will apply their understanding to determine task quality. The session will also explore task modification and how tasks can be leveraged for productive struggle.

John SanGiovanni
Twitter Handle: @JohnSanGiovanni
Howard County Public School System, Ellicott City, Maryland
240

109
Growth Mindset: Building Excitement/ Engagement

Research & Practitioner's Paired Session – Elementary, Middle, High

Dr. Jo Boaler (author of *Mathematical Mindsets* and professor at the Stanford Graduate School of Education), Tara Beams (Assistant Superintendent, Edison, New Jersey), and Meera Vaidyanathan (TenMarks, an Amazon Company) discuss success using growth mindset research to build positive engagement and excitement with students in math.

Jo Boaler
Stanford University, California

Meera Vaidyanathan
TenMarks, an Amazon Company, Burlingame, California

Tara Beams
Edison Township Public Schools, New Jersey
America's Ballroom 220/221,228/229

110
I–THINK: Engaging All Students in Productive Struggle Using Metacognitive Processing

Research & Practitioner's Paired Session – Elementary, Middle

Join a mathematics teacher educator, a special ed teacher educator, an intervention specialist, and a fourth–grade teacher to discuss the I–THINK problem–solving framework. Using discourse, it supports struggling students in task analysis, solution strategy selection, self–regulation, and solution justification. We will discuss research to practice in grades 1–8 in general education and RTI Tier 2.

Sararose D. Lynch
Westminster College, New Wilmington, Pennsylvania

Jeremy M. Lynch
Slippery Rock University, Slippery Rock, Pennsylvania

Elizabeth Wimer
Seneca Valley School District, Harmony, Pennsylvania

Rachel McMaster
Seneca Valley School District, Harmony, Pennsylvania
America's Ballroom 260/267

10:45 A.M.–12:00 P.M.

111
Linear or Quadratic? Let's Engage in a Rich Task!

Task Talks – Middle, High

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

Jennifer A. Outzs
2016 Innov8 Program Committee
Seminole Middle School, Florida
231

112
Structural Thinking in Three Easy Steps: Chunk, Change, Connect

Task Talks – Elementary, Middle, High

Come and learn the instructional routine, *Contemplate then Calculate*. Designed to provide access to a wide range of learners, C then C integrates research–based pedagogies in order to develop structural thinking in ALL students. Experience the routine. Curate tasks and plan for the routine. Discuss embedded supports for struggling learners.

Grace Kelemanik
Twitter Handle: @GraceKelemanik
Boston Teacher Residency, Massachusetts
232

113
The Gap Trap . . . and Other Risky Reasoning with Fractions

Task Talks – Elementary

When comparing fractions, students often get correct answers using risky reasoning such as gap reasoning or whole number reasoning. Engage in a task designed to confront the disappointing results that can occur when comparing fractions using gap or whole number reasoning. Examine student work illustrating how this task initiates development and articulation of dependable fraction comparison strategies.

Joann Barnett
Twitter Handle: @Joannbarnett
Missouri State University, Springfield, Missouri

Patrick L. Sullivan
Missouri State University, Springfield, Missouri
230

114
A Problem–Solving Approach to Differentiated Instruction and Response to Intervention

Topical Session – Elementary

If you're struggling with how to differentiate instruction and provide tier 1 and 2 interventions without writing 25 separate lesson plans, this session is for you! This session will help early career teachers learn strategies for differentiating instruction and using effective intervention to support struggling learners in the elementary grades.

Denise A. Spangler
Twitter Handle: @dspangler811
Board of Directors, National Council of Teachers of Mathematics, Reston, Virginia; University of Georgia, Athens, Georgia

Sara Forrester
W.C. Britt Elementary School, Gwinnett County Public Schools, Snellville, Georgia
America's Ballroom 222–227

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to learn more

ORIGO EDUCATION

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10:45 A.M.–12:00 P.M.

115
IEPs + SMPs = Success!

Topical Session – Middle

Focusing on singular math concepts rarely pushes students to see the big picture, so why write IEP goals around one specific skill? Beneficial to general and special education teachers, participants will challenge the current beliefs by using the Standards for Mathematical Practice to promote thinking and independence for all students who struggle.

Emily McCaffrey
Evanston/Skokie School District 65, Evanston, Illinois
274

116
Problem Strings: A Lesson Format for All Students

Topical Session – Elementary, Middle, High

A problem string is a powerful lesson format where all students learn, have access to the problems, and are challenged. The success hinges on the order, the discussion, and the teacher modeling student strategies to build connections. Come experience strings of problems that promote success for struggling students for everything from numeracy and proportions to solving equations and graphing functions.

Pamela Weber Harris
Twitter Handle: @pwharris
University of Texas at Austin, Austin, Texas
275

117
Revamp Your Review Day

Topical Session – Elementary, Middle, High

Throw out those old, dull review worksheets. Our session will explain alternative protocols to shift how review of content is structured in your class. Using formative assessments with high–interest activities, you'll see how to give your struggling students the targeted concept development they need. We will help you shift traditional review day to a personalized learning experience for your students.

Kelly Rooney
Twitter Handle: @andsoonandsoon
Evanston/Skokie School District 65, Evanston, Illinois

Tyrone Martinez–Black
Independent Educator, Oak Lawn, Illinois
276

118
Some Research–Affirmed Practical Strategies for Making Math Far More Accessible

Topical Session – Elementary, Middle, High

This fast–paced, example–laden presentation will focus on our questioning, their discourse, and how alternative approaches, ongoing cumulative review, and multiple representations are the key to maximizing access to mathematical understanding regardless of age, course, or grade.

Steven Leinwand
American Institutes for Research, Washington, D.C.
100–105

118.1 EW
The Probabilities of *Wheel of Fortune*—A Contestant's Perspective

Exhibitor Workshop—Middle, High

How do English language letter frequencies and Wheel dollar values affect player strategy? How many "safe" spins can you expect to make before going bankrupt or losing a turn? Come explore, play, and simulate with a recent Wheel contestant.

Casio America, Inc.
Dover, New Jersey
265/266

118.2 EW
Mathematics Intervention for an Urban School

Exhibitor Workshop – Elementary

When CCSS testing showed gaps in math knowledge at one elementary school, staff implemented a problem-solving-based curriculum to address those needs. After a year, students demonstrated success but lacked grade-level skills. Then a mathematics intervention program was created for students in fifth grade. Learn what worked to help students go from memorizing procedures to developing problem-solving skills.

Singapore Math Inc.
Tualatin, Oregon
261/262

10:45 A.M.–12:15 P.M.

119 INNOVATION LOUNGE
Math Circles

TNT – Elementary, Middle, High

Let's do some math! Come and work with others in solving rich mathematical problems that are designed to offer a variety of entry points and varied solution strategies. Gain insight into your students' problem solving strategies, experience a bit of productive struggle, and have fun!

Julie Kriezel
Lincoln County Public Schools, Nebraska

Anne Schmidt
Lincoln Public Schools, Nebraska

Teachers Networking Together (Innovation Lounge in Exhibit Hall 2)

11:00 A.M.–12:00 P.M.

The scheduled session below will be presented during the first 15 minutes of the time slot. There will be an opportunity for attendees to share their story related to the topic. The presentation should be no more than 10 minutes. Attendees will need to sign up in the Narrate area in order to secure a spot. During the last 15 minutes, there will be a concluding discussion.

120 INNOVATION LOUNGE
Geometry Sequencing to Improve Understanding

Narrate: Stories from the Classroom – High

Stories from the classroom: From My Students I Learned

Sometimes, the easist way to help students make stronger connections in geometry is to sequence the content in a way that leads to a more understandable flow of the most important topics. A discussion of the sequencing currently employed at our school will hopefully lead others to rethink their current sequencing and lead to prodcutive discussions of additional options.

Michael Sondgeroth
University High School; Illinois State University, Normal

Narrate – Stories from the Classroom (Innovation Lounge in Exhibit Hall 2)

11:30 A.M.–12:00 P.M.

121 INNOVATION LOUNGE
Informal Book Talk: Lani Horn

Book Talks – Elementary, Middle, High

Ilana Horn will lead an informal discussion around her publication *Strength in Numbers: Collaborative Learning in Secondary Mathematics* as well as other recommendations on books related to motivation.

Ilana S. Horn
Vanderbilt University, Nashville, Tennessee

The Book Nook (Innovation Lounge in Exhibit Hall 2)

12:15 P.M.–12:45 P.M.

122 INNOVATION LOUNGE
Informational Article Talk: Amy Brodesky

Book Talks – Elementary, Middle, High

Amy Brodesky will lead an informal discussion on motivation in mathematics. She will highlight some of her favorite books, but participants are also encouraged to share their favorite books on the topic.

Amy Brodesky
Education Development Center, Waltham, Massachusetts

The Book Nook (Innovation Lounge in Exhibit Hall 2)

122.1 INNOVATION LOUNGE
Twitter 101

TNT—Elementary, Middle, High

Explore Twitter and learn how it can be used as a learning tool! This hands-on, how-to session will guide participants in creating and using a Twitter account. Participants will also learn how Twitter can be used to enhance instruction and build professional learning networks.

Laila Nur
Manual Arts Senior High School, Los Angeles, California

May Ray-Riek
The Math Forum at NCTM, Reston, Virginia

Annie Fetter
The Math Forum at NCTM, Reston, Virginia

Teachers Networking Together (Innovation Lounge in Exhibit Hall 2)

12:15 P.M.–1:30 P.M.

The following Innovators will be available in the Innov8 Bar during the designated time slot. Individuals and/or teams can sign up for 10-minute time slots at the Innov8 Bar information desk.

123 INNOVATION LOUNGE
Assessment Innovator: Matt Larson

Innovators – Elementary, Middle, High

Matt Larson is president of the National Council of Teachers of Mathematics (NCTM). Previously, Larson was the K–12 curriculum specialist for mathematics in the Lincoln (Nebraska) Public Schools for more than 20 years. Larson has taught mathematics at the elementary through college level and has held an appointment as an honorary visiting associate professor at Teachers College, Columbia University.

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

Innov8 Bar (Innovation Lounge in Exhibit Hall 2)

124 INNOVATION LOUNGE
Motivation Innovator: Eric Milou

Innovators – Middle, High

Eric Milou is a professor of mathematics at Rowan University in Glassboro, New Jersey. He has taught at Rowan for the past 20 years and served as the president of the Rowan University Senate for six years. He also served as president of the Assosication of Mathematics Teachers of New Jersey and as the program chairperson of the 2007 NCTM Annual Meeting. He was the recipient of the Max Sobel Outstanding Mathematics Educator Award in 2009.

Eric Milou
Twitter Handle: @drMi
Rowan University, Glassboro, New Jersey

Innov8 Bar (Innovation Lounge in Exhibit Hall 2)

125 INNOVATION LOUNGE
Productive Struggle Innovators: Juli, Alexis, and Jessica Dixon

Innovators – Elementary, Middle, High

The Dixons provide a unique perspective on supporting ALL students to learn. Juli, a professor at University of Central Florida, provides the viewpoint of a parent of children with special needs. Alex, a college freshman, shares her story related to educational struggles. Jessica, a high school junior, provides the position of a high–achieving student with disabilities.

Juli K. Dixon
Twitter Handle: @thestrokeofluck
University of Central Florida, Orlando, Florida

Alexis P. Dixon
University of Central Florida, Oviedo, Florida

Jessica R. Dixon
Melbourne High School, Melbourne, Florida

Innov8 Bar (Innovation Lounge in Exhibit Hall 2)

125.1 INNOVATION LOUNGE
MTSS Innovator: John Lannin

Innovators – Middle, High

John Lannin is a professor and associate dean in the College of Education at the University of Missouri. His research focuses on working with struggling learners and the development of teacher knowledge. He is a former middle and high school mathematics teacher.

John Lannin
University of Missouri, Columbia

Innov8 Bar (Innovation Lounge in Exhibit Hall 2)

12:30 P.M.–1:30 P.M.

125.2 INNOVATION LOUNGE
Narrate – MTSS/RtI Open Forum

This session is available for participants that want to share a 10-minute story from your classroom related to MTSS and/or RtI. There will be three time slots available. Attendees will need to sign up in the Narrate area in order to secure a spot. During the last 15 minutes, there will be a concluding discussion.

Narrate – Stories from the Classroom (Innovation Lounge in Exhibit Hall 2)

1:00 P.M.–1:30 P.M.

126 INNOVATION LOUNGE
Informal Book Talk: Mark Ellis

Book Talks – Elementary, Middle, High

Mark Ellis will lead an informal discussion on productive struggle in mathematics. He will highlight some of his favorite books, but participants are also encouraged to share their favorite books on the topic.

Mark Ellis
Twitter Handle: @ellismathed
California State University, Fullerton, California

The Book Nook (Innovation Lounge in Exhibit Hall 2)

127
An Intervention Structure to Support the Struggling Learner

Intervention Convention Session – Elementary

Participants will learn about a specific structure that was build to support students at every grade level in the area of mathematics intervention. A discussion about the components as well as how data is collected around these areas will be shared. Participants will have the opportunity to review the structure and determine how these elements will work in their own environments.

Jennifer Balzer
School District of Waukesha, Wisconsin

274

128
Motivate Me!

Intervention Convention Session – Elementary, Middle, High

Studies show that effective motivation has a greater impact on mathematical achievement than the choice of textbooks or the provision of computer–assisted technology. How can we effectively motivate struggling learners? Learn how a simple intervention can help your students succeed, and discuss how to easily evaluate its effectiveness.

Linda L. Forbringer
Southern Illinois University Edwardsville, Illinois

275

129
When Students Say "This Doesn't Make Sense"

Intervention Convention Session – High

Many students believe that math is a set of nonsensical procedures that must be memorized. When students are given the opportunity to build procedural fluency on a foundation of conceptual understanding, they discover that math can be engaging as well as logical. This presentation will follow the evolution of one struggling student's mathematical growth as he works through a well–designed task in a math class.

Janet May Sutorius
Twitter Handle: @MVPmath
Mathematics Vision Project, Salt Lake City, Utah

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

276

1:00 P.M.–1:30 P.M.

130
Changing Mathematical Mindsets and Engaging All Learners

Lifesaver Session – Elementary, Middle, High

Want to know how to better incorporate the practice standards and foster 21st–century skills? Learn how we are using 3–act lessons in the elementary math classroom to get students engaged in real–world problem solving and rich mathematical conversation. Learn about the shifts we have seen in mathematical mindsets of our most struggling learners. Attendees will participate in a 3–act lesson, so bring your device!

Catherine Castillo
Twitter Handle: @MsCastillosMath
Springfield Public Schools, Missouri

Chelsey Meyer
Springfield Public Schools, Missouri

231

131
MET Grants and Scholarships: What They Are, How to Apply

Lifesaver Session—Elementary, Middle, High

The Mathematics Education Trust supports teachers with funds for materials, lesson development, conferences, courses, professional development, technology in-service, and action research. Learn what's available and how to apply. You'll also hear tips for choosing the most appropriate award for you and enhancing your chances to win it.

Richard Seitz
Retired High School Teacher, Helena, Montana

230

132
Rethinking Assessment: Focusing on Student Learning, Not Student Achievement

Lifesaver Session – Elementary, Middle, High

Changing focus from student achievement to student learning will transform your teaching. Traditional assessments convey little information to the learner about how she or he can build on what she or he knows to develop true understanding. Self– and peer–assessments, non–graded assessments, and groupworthy tasks have truly transformed my teaching!

Barbara Swartz
Twitter Handle: @baswartz23
McDaniel College, Westminster, Maryland

100–105

133
Shared Teaching: Response for Intervention (RTI) Math for ALL Students

Lifesaver Session – Elementary, Middle

This is the story of how a shared teaching approach including classroom teachers, special educators, and teaching assistants utilizes a Response to Intervention (RTI) model for all students with a combination of observations, assessments, conversation, professional learning, a professional learning community (PLC), and strategic process to lead student success in flexible, responsive ways.

Maureen A. Devlin
Twitter Handle: @lookforsun
Wayland Public Schools, Massachusetts

Jaclyn Mattson
Wayland Public Schools, Massachusetts

Alyssa Candini
Wayland Public Schools, Massachusetts

232

Looking for lessons, activities, and teacher resources? Check out **www.nctm.org/ARCs**

1:00 P.M.–1:30 P.M.

134
Noticing and Wondering: Unlocking Sense Making in Elementary & Middle School

Lifesaver Session – Elementary, Middle

Inviting students to share what they notice and wonder about open–ended audio, visual, or written prompts has transformed my classroom. More students are engaged and share their ideas. When we solve problems, students are motivated to work on them and they understand what the problem is asking. In this session, we will notice and wonder together and share tips that work in elementary and middle school classrooms.

Melynee Naegele
Twitter Handle: @buffalogal03
Catalayah Elementary School, Claremore, Oklahoma

Andrew Gael
Cooke Center Academy, New York, New York

240

135
Student Stakeholder 2 – Elementary/ Middle School

Student Stakeholder – Elementary, Middle

During this session, a panel of elementary and middle grades students will share their stories of struggle in mathematics and their perspectives on how students can and should be supported. Learn how the teachers of these students helped them find success in mathematics.

Francis (Skip) Fennell
Twitter Handle: @SkipFennell
McDaniel College, Westminster, Maryland

263/264

136
Student Stakeholder 2 – High School

Student Stakeholder – High

During this session, a panel of high school students will share their stories of struggle in mathematics and their perspectives on how students can and should be supported. Learn how the teachers of these students helped them find success in mathematics.

Jon Wray
Twitter Handle: @jonathanwray
Howard County Public Schools, Ellicott City, Maryland

260/267

137 INNOVATION LOUNGE
Blog 101

TNT – Elementary, Middle, High

Blogs can extend the learning environment beyond the classroom! This hands–on, how–to session will introduce participants to the use of blogs as educational tools and as sources of professional development for teachers. Come learn from experienced bloggers about how they've used this tool in their own work.

Ilana S. Horn
Vanderbilt University, Nashville, Tennessee

David C. Wees
New Visions for Public Schools, New York, New York

Teachers Networking Together (Innovation Lounge in Exhibit Hall 2)

138
Number Talks: A Strategy to Impact High Schoolers' Mindsets

Video Interactive Session – Middle, High

In this session you will learn about Number Talks and watch videos of these talks with students. These talks were used to improve number fluency and academic mindsets with high school students who struggle with math. You will get to look in on the journey of a group of students in an extended algebra 1 class. You will learn about the findings from watching these students engage in Number Talks over a course of six weeks.

Sharon Rendon
Twitter Handle: @srendon2
CPM Educational Program, Rapid City, South Dakota

Christine Mikles
CPM Educational Program, Sacramento, California

Mark Ray
CPM Educational Program, Elk Grove, California

242

139
Why? I Wonder? What If?

Video Interactive Session – Elementary

We hope to lead you on a journey of how we engaged third–grade students to wonder, explore and enjoy math by creating real life videos of mathematical problems. Our goal was to get students asking Why? I wonder? What if?

Deborah Carter
Twitter Handle: @DAdamCarter
Concordia College, Bronxville, New York

Susan Luther
DoDEA West Point, West Point, New York

241

NCTM | NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS

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San Diego | February 3–4, 2017

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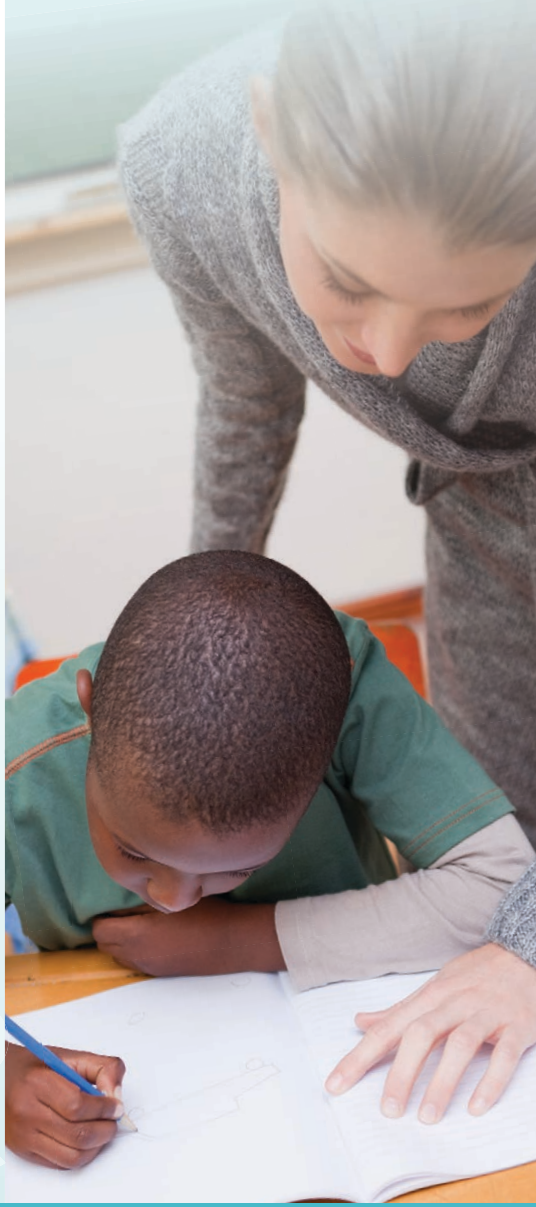

For more information visit nctm.org/institutes

#NCTMinst

1:00 P.M.–1:30 P.M.

139.1 ew
What Is the Role of Practice to Build Mastery?

Exhibitor Workshop—Elementary, Middle, High

Through collaborative, hands-on activities and conversation, we will explore your ideas about mastery and how practice can support its development. Your insights will help inform future development of Renaissance products. In appreciation, all participants will receive a free math T-shirt!

Renaissance
Wisconsin Rapids, Wisconsin
261/262

139.2 ew
Path to Coding and STEM

Exhibitor Workshop—Middle, High

Do you want to engage your students by doing STEM projects with exciting applications? This hands-on session will introduce TI's new STEM solution, the TI-Innovator™ System. Learn how combining coding and STEM into your math classroom can improve students' reasoning and problem-solving skills.

Texas Instruments
Dallas, Texas
265/266

FRIDAY

ew Exhibitor Workshop

The following Innovators will be available in the Innov8 Bar during the designated time slot. Individuals and/or teams can sign up for 10-minute time slots at the Innov8 Bar information desk.

140 INNOVATION LOUNGE
Assessment Innovator: David Wees

Innovators – Middle, High

David is a formative assessment specialist for New Visions for Public Schools in New York City. He has worked in New York, London, Bangkok, and Vancouver. David has presented at many conferences on mathematics and educational technology. David's focus of his career is on the intersection of mathematics, education, and technology. He blogs at http://davidwees.com/ and tweets at @davidwees.

David C. Wees
Twitter Handle: @davidwees
New Visions for Public Schools, New York, New York
Innov8 Bar (Innovation Lounge in Exhibit Hall 2)

141 INNOVATION LOUNGE
Motivation Innovator: Steven Leinwand

Innovators – Elementary, Middle, High

Steve Leinwand is a Principal Research Analyst at the American Institutes for Research in Washington, DC, where he serves as mathematics expert on a wide range of AIR projects that focus on high–quality mathematics instruction, turning around underperforming schools, evaluating programs, developing assessments, and providing technical assistance. Prior to joining AIR, Steve was math consultant in the Connecticut Department of Education.

Steven Leinwand
American Institutes for Research, Washington, D.C.
Innov8 Bar (Innovation Lounge in Exhibit Hall 2)

142 INNOVATION LOUNGE
Productive Struggle Innovator: Margaret Smith

Innovators – Middle, High

Peg Smith is the lead author of the book *5 Practices for Orchestrating Productive Mathematics Discussion*. She was a member of the writing team for *Principles to Actions* and is currently the chair of a team that is creating materials to support implementation of the effective teaching practices in P2A. She was a member of the NCTM Board of Directors and the founding editor of the journal *Mathematics Teacher Educator*.

Margaret Smith
University of Pittsburgh, Pennsylvania
Innov8 Bar (Innovation Lounge in Exhibit Hall 2)

142.1 INNOVATION LOUNGE
MTSS Innovator: John Lannin

Innovators – Middle, High

John Lannin is a professor and associate dean in the College of Education at the University of Missouri. His research focuses on working with struggling learners and the development of teacher knowledge. He is a former middle and high school mathematics teacher.

John Lannin
University of Missouri, Columbia
Innov8 Bar (Innovation Lounge in Exhibit Hall 2)

142.2 INNOVATION LOUNGE
Math Circles

TNT – Elementary, Middle, High

Let's do some math! Come and work with others in solving rich mathematical problems that are designed to offer a variety of entry points and varied solution strategies. Gain insight into your students' problem-solving strategies, experience a bit of productive struggle, and have fun!

Fawn Phuong Nguyen
Twitter Handle: @fawnpnguyen
Mesa Union Junior High School, Somis, California

Joshua Zucker
Stanford University, California
Teachers Networking Together (Innovation Lounge in Exhibit Hall 2)

1:45 P.M.–3:15 P.M.

Team Time

Team Time – Elementary, Middle, High

This session will provide the opportunity for teams to receive feedback on the action plans they've created and to finalize their action plans using the knowledge and strategies they've gained from conference sessions. Teams will leave with a plan for continued action toward addressing their challenge. Team Time assignments are printed on badges.

143
Team Time 14

Delise Andrews
Twitter Handle: @deliseandrews
2016 Innov8 Program Committee
Lincoln Public Schools, Nebraska
100–105

144
Team Time 15

Susie Katt
Twitter Handle: @susiekatt
Lincoln Public Schools, Nebraska
230

145
Team Time 16

Jim Lynn
University of Illinois at Chicago
231

146
Team Time 17

Amy L. Nebesniak
University of Nebraska–Kearney
232

147
Team Time 18

Laila Nur
Manual Arts Senior High School, Los Angeles, California
240

148
Team Time 19

Jennifer M. Suh
George Mason University, Fairfax, Virginia
241

149
Team Time 20

Peg Cagle
Los Angeles Unified School District, California
242

150
Team Time 21

Beth McCord Kobett
Twitter Handle: @bkobett
2016 Innov8 Program Committee
Stevenson University, Baltimore, Maryland

Francis (Skip) Fennell
McDaniel College, Westminster, Maryland

Jon Wray
Howard County Public Schools, Ellicott City, Maryland
260/267

151
Team Time 22

Jennifer M. Bay–Williams
University of Louisville, Louisville, Kentucky
263/264

152
Team Time 23

Cindy G. Bryant
LearnBop, New York, New York

Joann Barnett
Missouri State University, Springfield, Missouri
265/266

ew Exhibitor Workshop

1:45 P.M.–3:15 P.M.

153
Team Time 24

Beverly J. Ferrucci
2016 Innov8 Program Committee
Keene State College, New Hampshire
274

154
Team Time 25

Raymond James
2016 Innov8 Program Committee
Forest High School, Ocala, Florida
275

155
Team Time 26

John J. SanGiovanni
Twitter Handle: @JohnSanGiovanni
Board of Directors, National Council of Teachers of Mathematics, Reston, Virginia; Howard County Public School System, Ellicott City, Maryland
276

2:00 P.M.–2:30 P.M.

156 INNOVATION LOUNGE
Author-Led Book Talk: Barbara Dougherty

Book Talks – Elementary, Middle, High

Barbara Dougherty will lead a discussion around the Developing Essential Understandings and Putting Essential Understandings into Practice series. Barb was the grade editor and author on the Essential Understanding books and the series editor and author on the Putting Essential Understandings into Practice books.

Barbara J. Dougherty
Twitter Handle: @DoughertyBarb
University of Missouri, Columbia, Missouri
The Book Nook (Innovation Lounge in Exhibit Hall 2)

2:00 P.M.–3:15 P.M.

156.1 INNOVATION LOUNGE
Narrate—Open Forum

This session is available for participants who want to share a 10-minute story from your classroom. There will be three time slots available. Attendees will need to sign up in the Narrate area in order to secure a spot. During the last 15 minutes, there will be a concluding discussion.

Narrate—Stories from the Classroom (Innovation Lounge in Exhibit Hall 2)

2:45 P.M.–3:15 P.M.

157 INNOVATION LOUNGE
Best Book I Ever Read

Book Talks – Elementary, Middle, High

Grace Kelemanik and Kyndall Brown will lead an informal discussion about the best books they ever read. Participants are encouraged to share theirs!

Grace Kelemanik
Boston Teacher Residency, Massachusetts

Kyndall Brown
UCLA, Los Angeles, California
The Book Nook (Innovation Lounge in Exhibit Hall 2)

3:30 P.M.–4:30 P.M.

158 CLOSING SESSION
The Mindset Revolution: Teaching Mathematics for a Growth Mindset

Major Keynotes—General Interest

New knowledge from brain science is showing a clear path for mathematics learning, one that is both exciting and inspiring for teachers. Recent scientific studies have also demonstrated that student and teacher "mindsets" have a profound impact on learning. Students with a "growth mindset" can grow from exercise to learn more effectively, displaying a desire for challenge and showing resilience in the face of failure. Such behaviors encourage greater math persistence, engagement, and high achievement. This session will review the ways to teach for a growth mindset, including attention to classroom norms, math tasks, questions, and other aspects of the math classroom.

Jo Boaler
Stanford University, California
America's Ballroom

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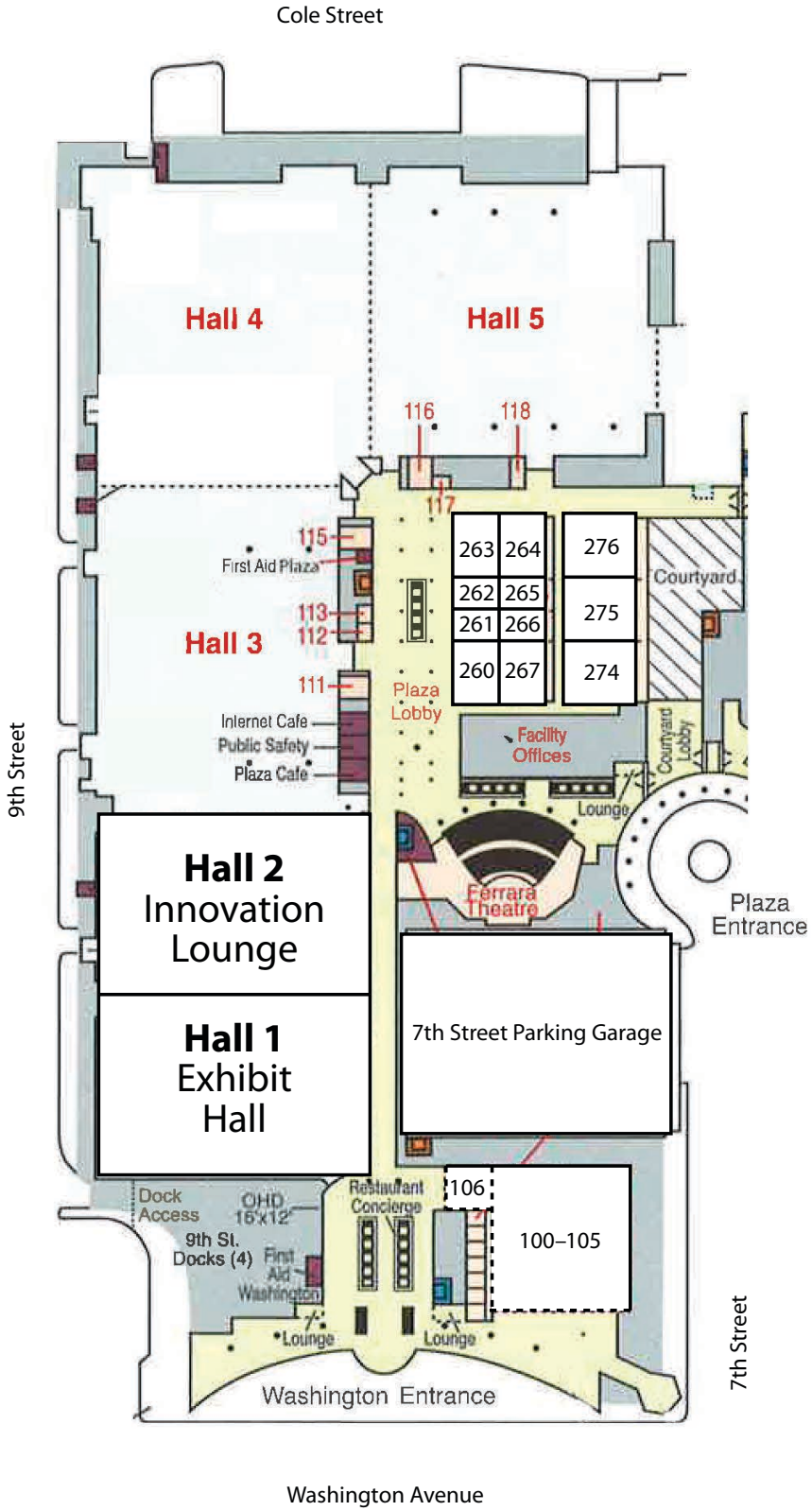

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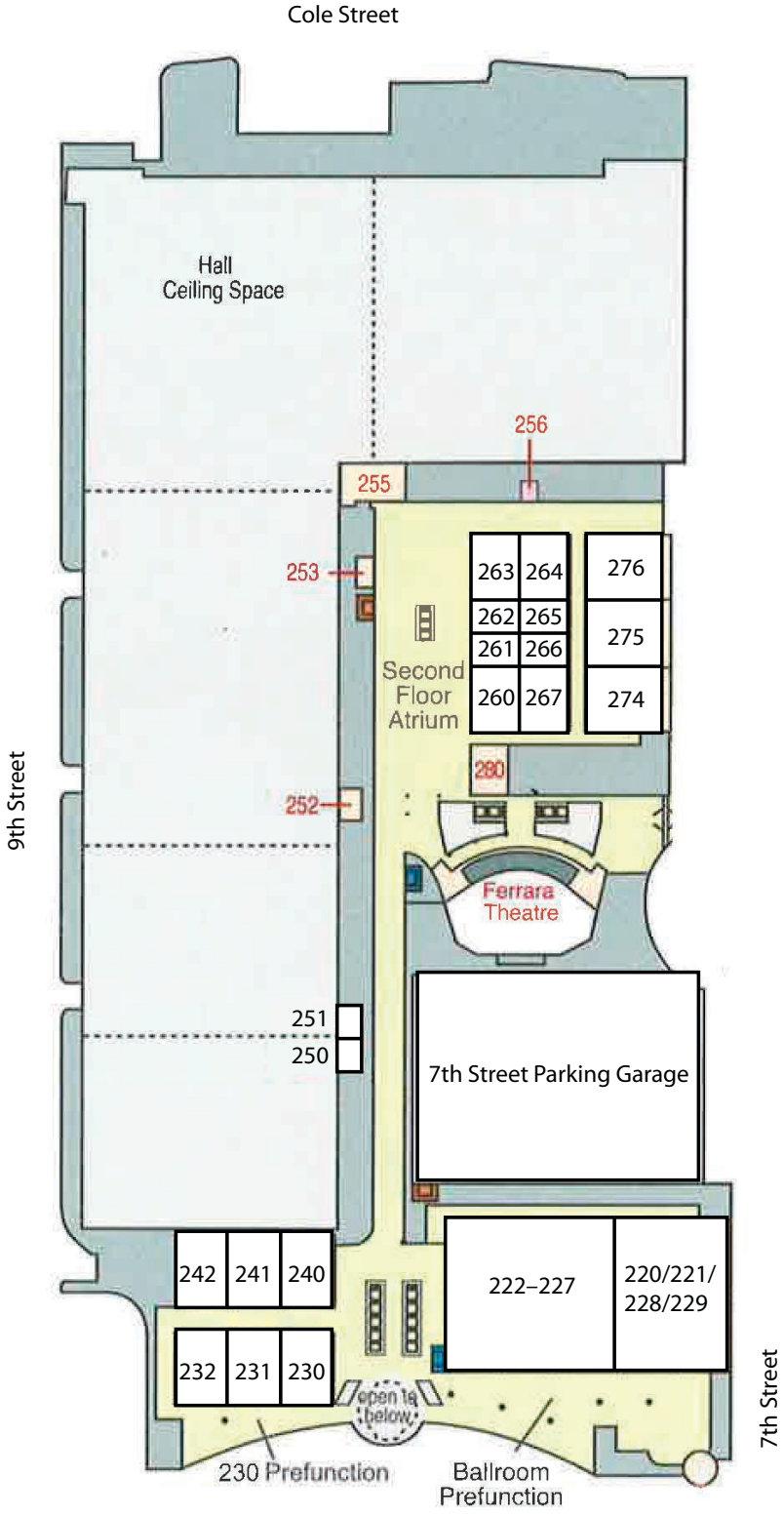

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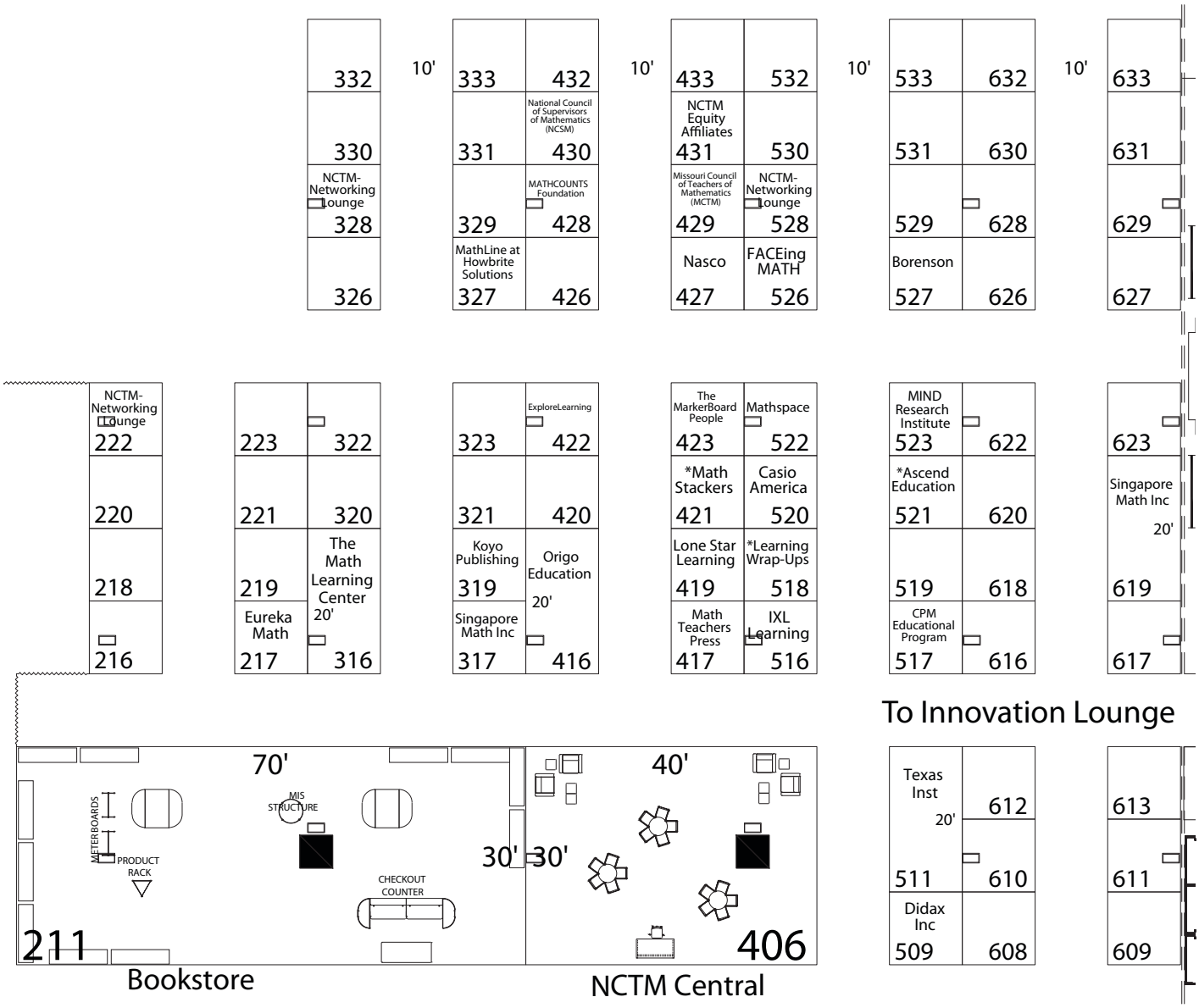

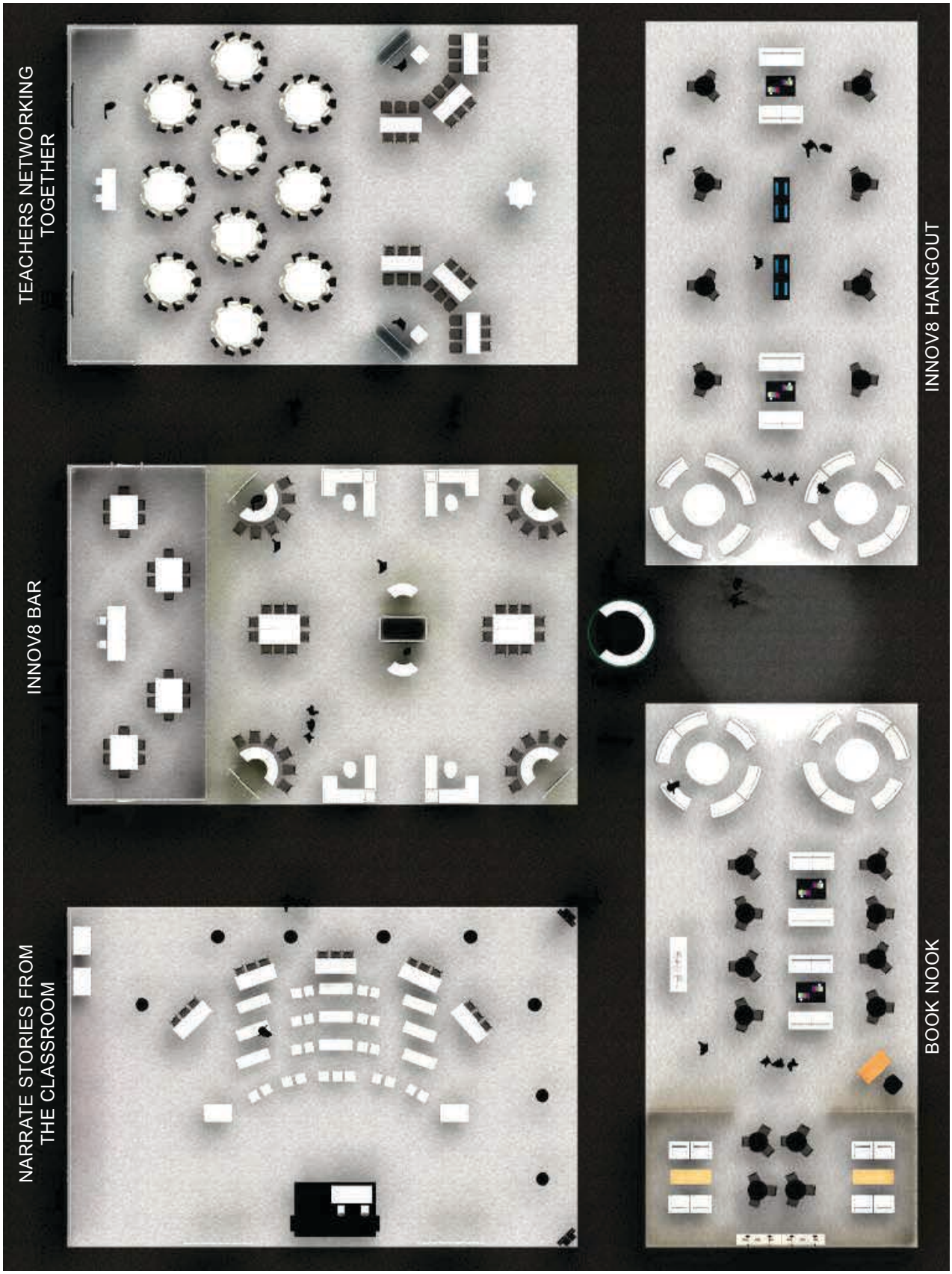
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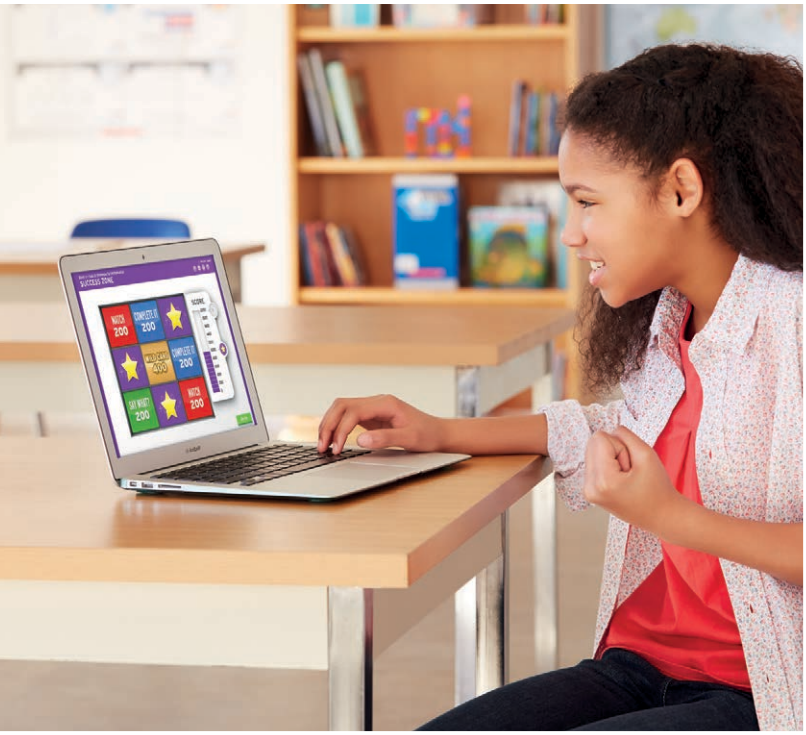

English Language, Tier 3, and Special Education **students using *MATH 180* OUTPERFORMED** students in other intervention programs by **more than 75%.**

*Based on a Early Outcomes study in two large urban and two suburban districts across the U.S.

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