

PREMIER MATH EDUCATION EVENT



Regional Conference & Exposition

#NCTMSEA24

FEBRUARY 7-9

2024

SEATTLE, WA

nctm.org/seattle2024



NATIONAL COUNCIL OF
TEACHERS OF MATHEMATICS



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Contents



Regional Conference & Exposition
SEATTLE • FEBRUARY 7–9, 2024

The NCTM 2024 Regional Conference & Exposition theme, *Everyone Belongs Here*, aims to celebrate and embrace the experiences and differences that make each child unique.

Uplifting, Valuing, and Belonging in Mathematics is rooted in knowing each student brings a unique source of knowledge to the mathematics classroom, representative of their authentic experiences of family, community, and culture.

HOST
Washington State Mathematics Council

MEETING FACILITY
All presentations will be held in the Seattle Convention Center. See pages 75–80 for floor plans.

REGISTRATION (all times PACIFIC)

Wednesday	7:30 AM–7:00 PM
Thursday	7:00 AM–5:00 PM
Friday	7:00 AM–2:00 PM

EXHIBITS (all times PACIFIC)

Wednesday	4:00–6:00 PM
Thursday	9:00 AM–5:00 PM
Friday	9:00 AM–2:00 PM

The dedicated exhibit hall time is scheduled from 12:00–1:00 PM on Thursday and Friday.

NCTM CENTRAL (all times PACIFIC)

Wednesday	4:00–6:00 PM
Thursday	9:00 AM–5:00 PM
Friday	9:00 AM–2:00 PM

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nctm.org/Seattle2024

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

Welcome to Seattle!



With great excitement, we welcome you to the **NCTM Regional Conference & Exposition in Seattle, Washington**. Our conference home boasts of tranquil surrounding areas filled with lush greenery, yielding its nickname the Emerald City. We invite you to enter this space to learn, network, reflect, and grow as a math friend, lover, and educator. The program committee worked diligently to craft an engaging, innovative conference, giving careful consideration to what it means to accept and respect authentic funds knowledge, as well as to what it means to belong. We kickstart our conference with an interactive opening session that centers the voices and stories of a diverse panel: Dr. Cathery Yeh, Dr. Filiberto Barajas-López, Dr. Pam Seda, Hanaa Elmi, and RunningHorse Livingston. Their unique stories and perspectives on what it means to foster an inclusive environment for all learners set the stage for the imaginative and insightful sessions you will attend.

In the spirit of our theme, the program committee selected workshops, sessions, and bursts representing these six strands:

- Fostering Belonging and Value for All Students through Instructional Practices and Systemic Initiatives
- Valuing Students' Authentic Funds of Knowledge to Enhance Deep Mathematical Learning and Belonging
- Improving Students' Sense of Value and Belonging through Assessment
- Developing Effective Advocacy Practices to Affect Students' Sense of Value and Belonging within Mathematics

- Using Innovative Technology to Enrich Students' Value and Sense of Belonging in Mathematics
- Eliminating Barriers to Inspire Creative Pathways Rooted in Students' Authenticity, Value, and Sense of Belonging in Mathematics

We carefully curated the presentations for this outstanding program to ensure that there's something for everyone — classroom teachers, math coaches, administrators, math teacher educators, new and prospective teachers, and math specialists. As you flow in and out of sessions, we encourage you to reflect on what it truly means to belong and our role in creating that sense of belonging in others.

New and unique to our Seattle conference is the opportunity for you to relax, rejuvenate your mind, and creatively explore mathematics via the activities provided and facilitated by the Seattle Museum of Mathematics and MathHappens. Be sure to check them out in the Skybridge Lobby located on Level 4.

Last but not least, remember to schedule time to visit the Exhibit Hall. You'll find a variety of exhibits featuring resources and products designed to support student learning and enhance the teaching and learning of mathematics.

At the end of the day, save time to unwind, connect with new and old friends, and enjoy the city. Seattle is home to the Space Needle and known for its coffee. Visit the location of the first Starbucks or explore the city from a different angle by taking an underground walking tour. Spend some time in the lush nature surrounding it or explore its grunge music scene. Whatever your interest, you're sure to find something in this amazing city.

On behalf of the NCTM Board of Directors, the Program Committee, the Volunteer Committee, the NCTM staff, and the many volunteers who worked to make our conference happen, we thank you and trust you will have a wonderful conference experience!



Karen Riley Jeffers
PROGRAM CHAIR
Anne Arundel County
Public Schools, Maryland



Daniel Herforth
HOST AFFILIATE LIAISON
Washington State
Mathematics Council

Program Information



Insightful Education Sessions, Dynamic Exhibits

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

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

You will walk away with the following:

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

Registration and Access to Presentations

Registration will be located at the Seattle Convention Center in Hall 4D. You must wear your badge to attend all presentations and to enter the NCTM Exhibit Hall. You will need to show a picture ID to have your badge reprinted.

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

Tips for a Rewarding Regional Conference & Exposition

- Access the **conference app** for program and speaker information, to connect with other attendees, and to share your feedback. Visit nctm.org/confapp.
- Get available speaker handouts at nctm.org/planSeattle and on the conference mobile app.
- Keep the conversations going, connect with other attendees and speakers, access and share session resources, ask questions, and more in the MyNCTM online community at my.nctm.org/seattle2024.
- If you're experiencing the conference with your colleagues, attend different presentations and share ideas with one another after the conference.
- Silence your cell phone during presentations.
- Be safe! Remove your name badge when you leave the conference facilities.

Event Code of Conduct

All communication at NCTM events should be appropriate for a professional audience, including people of many different backgrounds regardless of gender, gender identity and expression, age, sexual orientation, disability, physical appearance, body size, race, ethnicity,



or religion. By attending an NCTM event, you agree to adhere to our Code of Conduct policies, which can be found at nctm.org/policies.

Program Information

New and Preservice Teachers Workshop

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

Thursday	10:00–11:00 AM	Room: 3A
Friday	10:00–11:00 AM	Room: 4C4

Session Content Level

To also help you find appropriate presentations to attend, each presentation lists the presentation's intended audience:

- Intro to the Topic
- Intermediate
- In-depth

Grade Bands

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

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

Types of Presentations

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



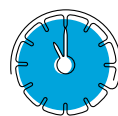
SESSIONS (60 minutes) allow speakers to convey information about multiple topics or broad ideas in lecture format. Rooms are set in either theater or classroom style.



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



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



EXHIBITOR WORKSHOPS (60 minutes) allow exhibitors to showcase their products and services. Look for the (insert Exhibitor Workshop symbol) symbol indicating exhibitor workshops in the program book. Rooms are set in either theater or classroom style.

Regional Conference Overview & Orientation

Whether this is your first NCTM Regional Conference or your twentieth, we have something for you! Hosted by members of the Board of Directors, this orientation will help you get the most out of your time at the NCTM 2024 Regional Conference. Learn about the new features of this year's meeting or discover something you missed at previous ones. Find out how to navigate presentations, learn to use our conference app, and network with other attendees.

Thursday	Presentation #1	7:15–7:45 AM	Room: 4C4
Friday	Presentation #146	7:15–7:45 AM	Room: 4C4

Program Information

NCTM Central

Visit NCTM Central at the Seattle Convention Center in Hall 4E during exhibit hours to learn how NCTM supports you and the field of mathematics education:

- Explore NCTM's **Classroom Resources** and learn about NCTM's collection of lesson plans, problems, and more.
- Get sample journals and more at **Member Services**.
- Update your membership information and learn about your benefits.
- Discover available funding and resources to support you in your career and professional development through the **Mathematics Education Trust (MET)**.
- Connect with peers, speakers, NCTM committee members, and authors in the **Networking Lounge**.
- Learn about NCTM's **Professional Development** offerings, including upcoming events (Annual Meetings, Regional Conferences, and Virtual Conferences) and NCTM's **Professional Learning Services**.



The BOOKSTORE at NCTM Central

Check out the totally redesigned and cashless Bookstore at NCTM Central. Shop NCTM's newest titles, best-sellers, and math-themed products for great gifts and incentives. **Get your Notice and Wonder merch here!**

Save up to 35% off the list-price books on all books purchased on site or through the Online Bookstore. Preview at nctm.org/catalog.

Bookstore Hours inside the Exhibit Hall: *(all times Pacific)*

Wednesday	4:00–6:00 PM
Thursday	9:00 AM–5:00 PM
Friday	9:00 AM–2:00 PM

Note on Sales Tax Exemptions: To qualify for sales tax exemption in the NCTM Bookstore, you must provide NCTM with a copy of a tax exemption certificate, issued by Seattle, WA at the time of purchase, which they will retain for their records.

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 marked with the symbol .

Exhibit Hall *(all times Pacific)*

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

Wednesday	4:00–6:00 PM
Thursday	9:00 AM–5:00 PM
Friday	9:00 AM–2:00 PM

The dedicated exhibit hall time is scheduled 12:00–1:00 PM PT on Thursday and Friday. Check out the map of the exhibit hall on page 79 and the Exhibitor Directory on pages 81–83.

PlaySpace

Come enjoy a creative math making and play space during the conference. Take the Hexagon Challenge, build big with Space Chips, make math doodles, solve puzzles collaboratively or on your own, and so much more.

The Seattle Universal Math Museum (SUMM) and the MathHappens Foundation will provide activities you can enjoy, sample materials to take, and ideas for adapting for use in your school or other learning spaces. PlaySpace will be open during Exhibit Hall hours.

About the MathHappens Foundation

MathHappens creates and facilitates active learning opportunities outside the classroom that are physical, easy to share, and personally meaningful.

About the Seattle Universal Math Museum (SUMM)

Seattle Universal Math Museum (SUMM) aspires to become a center for math learning and education on the West Coast, engaging visitors through interactive experiences, exhibits, programs, and play. SUMM's mission is to spark each and every person to love math. Our current programs are focused on educational outreach, prioritizing underrepresented groups to enhance math-related educational experiences and attitudes.

Program Information

STRANDS



Fostering Belonging and Value for All Students through Instructional Practices and Systemic Initiatives

We must all challenge the practices and structures that deny access and perpetuate separation. In this strand, we will focus on instructional practices and structures/systems that are inclusive, diverse, and equitable. Through culturally rich and diverse mathematical experiences, each and every student can learn from and contribute to the mathematics community. What is possible when we ground our instructional and systemic practices in honoring the whole student? What do we all stand to gain from situating our decision-making, instruction, and student learning in the values, norms, knowledge, beliefs, practices, experiences, and language that are the foundation to students' cultural identity? Sessions in this strand might include, but are not limited to, the following:

- Practices that promote and foster diversity, inclusion, and/or equity in order to invite every student into mathematics while cultivating strong mathematical agency, authentic belonging, and joy
- Strategies for fostering belonging in the classroom and school
- Ideas for authentically conveying that every child brings value into the classroom, school, and community



Valuing Students' Authentic Funds of Knowledge to Enhance Deep Mathematical Learning and Belonging

This strand will focus on instructional practices that value and use students' prior mathematical, personal, and cultural experiences to enhance deep mathematical learning, as well as practices and routines that provide opportunities to help students see the function of mathematics in their everyday lives. Instructional routines can uplift students' classroom experiences, promote their sense of belonging, and value their unique lived experiences. What methods can foster students' growth and confidence in math? What types of strategies, routines, and tasks can be used to promote meaningful student mathematical discourse, elicit student thinking, and provide opportunities for students to engage in the Standards for Mathematical Practice? Sessions in this strand will provide participants with strategies to deepen students' mathematics knowledge by promoting active engagement through mathematics practices. Sessions may include, but are not limited to, the following:

- Higher-order thinking tasks

- Real-world connections
- Hands-on engagement
- Mathematical representations
- Effective questioning strategies
- Productive struggle to promote deep mathematical learning and understanding.



Improving Students' Sense of Value and Belonging through Assessment

In this strand, we will focus on formative and summative assessments as tools to support students in navigating their learning, promoting a positive mathematical identity, and nurturing a growth mindset. Assessment is often viewed as a grade, not a learning opportunity but should reflect the instructional shift that embraces students' unique educational, personal, and cultural experiences. How might we use assessment to break the cycle of grade captivity while evaluating what we value? Sessions in this strand may include, but are not limited to the following:

- Using student-centered assessment
- Focusing on the Standards for Mathematical Practice
- Implementing alternative assessment practices
- Providing asset-based feedback
- Leveraging multiple points of data to support every child.
- Dismantling grade-driven motivation



Using Innovative Technology to Enrich Students' Value and Sense of Belonging in Mathematics

In this strand, we focus on innovative instructional strategies that improve and enhance learning through the use of technology. The use of technology, both inside and outside the mathematics classroom, can support sense making and reasoning while also honoring multiple ways to communicate thinking. How can we use technology to create a greater sense of belonging for all students as they learn mathematics? Sessions in this strand may include, but are not limited to, the following:

- Virtual reality, artificial intelligence, and other technological tools to investigate real-world problems and support student learning.
- Technology as a pedagogical tool for differentiation
- Technological tools that support visualizing mathematics, student engagement, and collaboration to achieve a deeper understanding of mathematics.
- Equitable access for all students through the use of technology
- Integration with other content areas with technology

Program Information

STRANDS (continued)

Eliminating Barriers to Inspire Creative Pathways Rooted in Students' Authenticity, Value, and Sense of Belonging in Mathematics.

When students view mathematics as relevant and essential to solve worthwhile problems, they are more likely to engage, productively struggle, and succeed. In this strand, we will focus on ways to remove mathematics as a barrier to success. Graduation pathways are essential in honoring students' interests and aspirations while providing them with opportunities to see mathematics as valuable. Sessions in this strand may include, but are not limited to, the following:

- Improving mathematical identities
- Ensuring every student makes progress.
- Providing student choice in mathematics course sequence
- Elevating pathways while dismantling tracks and deficit mindsets.
- Examining desired skills from different perspectives (trade, workforce, services, higher education)
- Modernizing mathematics

Developing Effective Advocacy Practices to Affect Students' Sense of Value and Belonging within Mathematics

In this strand, we will focus on the components that are necessary for an equitable and sustainable system of mathematics education for all students. Effective advocacy work can take many forms, and all educational partners can participate and contribute to positive change. What is possible when we attend to, value, and connect the cultural capital of our students, families, and communities to schools? In what ways do we advocate for the teachers and learners of mathematics? Sessions in this strand might include, but are not limited to, the following:

- Interrogating current practices (classroom to systemic) of inequity and oppression
- Empowering educators to reconceptualize and transform classrooms, schools, and systems to ones that promote the just teaching and learning of mathematics.
- Uplifting teachers to make decisions and take action in their classrooms.

Wi-Fi Access

Complimentary Wi-Fi will be available throughout public spaces of the Seattle Convention Center:

Username: **NCTM**

Password: **NCTM2024**

Mobile App

The NCTM conference mobile app, **NCTM Central**, keeps you connected with every aspect of the Regional Conference including sessions, speakers, and exhibits. This free app allows you to view the exhibit hall floor plan, highlight your favorite presentations, rate presentations, and connect with other attendees. Visit nctm.org/confapp for more information.

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

Speaker Handouts

Attendees can access electronic speaker presentation handouts through the conference app and itinerary planner.

Itinerary Planner

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

Program Updates

Visit nctm.org/Seattle2024 for program updates, including all the latest changes, cancellations, and additions. You can also follow along with the conference app to view event alerts and up-to-the-minute information.

Contactless Payments

NCTM will provide contactless payment options at NCTM registration, the NCTM Bookstore, and NCTM Central. Accepted credit card payments will include any US- and most internationally issued magstripe or chip cards bearing a Visa, Mastercard, American Express, or Discover logo. Checks may be accepted for exact amount at registration only. **All payments are to be made in United States Dollars (USD\$). No cash payments.** Please check with individual exhibitors and sponsors regarding their onsite payment policies.

Program Information

Information Booth

The NCTM Information Booth is located on level 4. Staff can answer your questions about the conference program and assist you with housing questions, 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 located on level 4. At the end of the conference, lost-and-found items will be turned over to the Seattle Convention Center Security.

Lactation Room

A Lactation Room will be located in Room 416 at the Seattle Convention Center.

All Gender Restrooms

All gender restrooms are located throughout the Seattle Convention Center. See floorplans on pages 78 and 80 for locations.

First Aid

A first aid station is located inside Exhibit Hall 4E. If you need medical services while in Seattle, WA please check with your hotel concierge for the closest medical facilities. For any medical emergency, call 911 without hesitation.

For Your Child's Safety

During installation and dismantlement, no one under the age of 16 will be allowed in the Exhibit Hall. Due to the size and professional nature of the conference, and for your child's safety, children under the age of 16 are not permitted in the Exhibit Hall during show hours.

Parking

Follow the links below for a Google map to the Center's garages. Click on Directions and enter your starting point; a map and directions will be provided.

- Arch (Main) Garage
- Summit Garage
- Freeway Park Garage

Upon entry to the garages, please keep your ticket with you and pay before you return to your vehicle.

Accessible Parking

Arch Garage: There are 16 ADA-compliant parking spaces located at the end of Aisle F on the Blue level. If you are parking in one of the ADA-compliant spaces you can use the adjacent blue ramp to enter the Center. There is no elevator access inside the Arch Garage. As you enter the Center from the parking structure you will be on level 3. An accessible elevator is on your right-hand side, adjacent to Room 310.

Summit Garage: There are 18 ADA-compliant spaces available, six spaces on each of the three levels near the elevators.

Freeway Park Garage: There are 16 ADA-compliant spaces available, four spaces on each of the four levels, near the elevators. If you park in the ADA-compliant spaces in Freeway Park Garage and need wheelchair accessibility, take the elevator to the PARK Level. As you exit the elevator you will turn to the right and proceed across Freeway Park Plaza to the Level 4 entrance of the Center. Please note that Freeway Park Plaza is an uncovered area open to the elements.



Wednesday Evening

SESSION

5:30–7:00 PM



1 Opening Session: Embracing All through Mathematics: Putting Value and Belonging at the Core

Gen Int Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, Ballroom 6E

In what ways can mathematics educators and institutions promote a sense of belonging among students, especially those who historically have been and may feel marginalized or underrepresented? As the field of mathematics education evolves to meet the diverse needs of our students, it's crucial that we adapt to ensure not only access to mathematics for everyone but also that every student feels heard and recognizes themselves as integral members of the mathematics classroom. During the 2024 NCTM Seattle Regional Opening Session, discover insights from real-life experiences on fostering an inclusive environment for all learners in mathematics. Hear panelists unveil their personal experiences, shedding light on how we can collectively prioritize value and a sense of belonging in our decision-making, instruction, relationships, and feedback.

Abel Maestas, Modesto City Schools, California; Ceres Unified School District, California
Cathery Yeh, Board of Directors, National Council of Teachers of Mathematics, Reston, Virginia;
University of Texas at Austin
Filiberto Barajas-Lopez, University of Washington
Hanaa Elmi, Elementary Educator, Ontario, Canada
Pamela Seda, Seda Education Consulting, LLC, Ellenwood, Georgia
RunningHorse Livingston, Education Northwest, Portland, Oregon

 *Opening Session sponsored by XtraMath*



Fostering Belonging and Value for All Students through Instructional Practices and Systemic Initiatives



Valuing Students' Authentic Funds of Knowledge to Enhance Deep Mathematical Learning and Belonging



Improving Students' Sense of Value and Belonging through Assessment



Using Innovative Technology to Enrich Students' Value and Sense of Belonging in Mathematics



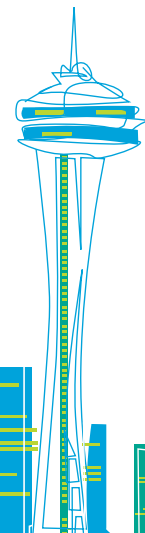
Eliminating Barriers to Inspire Creative Pathways Rooted in Students' Authenticity, Value, and Sense of Belonging in Mathematics



Developing Effective Advocacy Practices to Affect Students' Sense of Value and Belonging within Mathematics



Exhibitor Workshop



Thursday Morning

SESSIONS

8:00–9:00 AM

NOTE: Session 2 runs from 7:15–7:45 AM

2 Regional Conference Overview and Orientation

Gen Int Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 4C4

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

Board of Directors, National Council of Teachers of Mathematics, Reston, Virginia

3 Inclusive and Engaging Teaching Strategies That Develop All Students Into Mathematical Thinkers

PreK–2 Session • CONTENT LEVEL: Intermediate
Seattle Convention Center, 4C2

How do we empower every student to engage in problem-solving and mathematical thinking? We'll discuss teaching practices that create inclusive classrooms, build student agency, and promote access for ALL students to participate in mathematical thinking, discourse, and meaningful connections. Ready-to-use resources will be provided.

Danielle Curran, Curriculum Associates, Reading, Massachusetts
X (formerly Twitter): @danigirl1216

4 Math Storytelling in PreK–Grade 2 Classrooms

PreK–2 Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 611

How might storytelling support young children in connecting mathematics to their daily lives and the world around them? In this session, ideas for extending problem-solving to problem-posing and storytelling experiences will be shared. Examples of classroom practices that will be shared include using numberless word problems, compelling materials, and equation types to inspire problem-posing.

Janice Novakowski, Richmond School District, British Columbia
X (formerly Twitter): @jnovakowski38

5 Making Sense of Math: Strategies That Stick

3–5 Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 4C3

How does dyslexia affect math skills, and how can we help students make sense of math when it may seem out of reach? How can we help students with dyslexia learn their basic facts, build number sense skills, and learn core math concepts in a K–8 setting? Emphasizing a focus on strategy development rather than memorization of procedures is imperative. Explore a variety of strategies, games, and practices that can be used to help students with dyslexia feel confident approaching math concepts.

Katie Madigan, The Odyssey School, Lutherville, Maryland
Jason Cvach, The Odyssey School, Lutherville Timonium, Maryland

6 Linking Mathematics to Science & Literacy for ALL Learners

6–8 Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 618/620

With special attention to instructional support, Multimodal STEM Text Sets can address Science, Mathematics, and ELA standards to meet the needs of diverse learners. We will look at a Multimodal STEM Text Set that includes an anchor text, instructional scaffolds, content scaffolds, and a line of inquiry for students. Come see how using Multimodal STEM Text Sets can open doors to students in multiple career paths by transferring learning to future resume and workforce pathways.

Dee Leible, CCLS, Saint Louis, Missouri
X (formerly Twitter): @DeeLeible



Fostering Belonging and Value for All Students through Instructional Practices and Systemic Initiatives



Valuing Students' Authentic Funds of Knowledge to Enhance Deep Mathematical Learning and Belonging



Improving Students' Sense of Value and Belonging through Assessment



Using Innovative Technology to Enrich Students' Value and Sense of Belonging in Mathematics



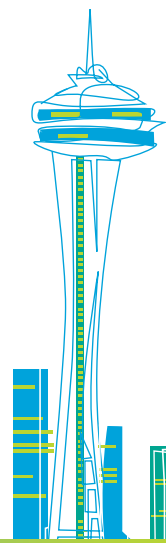
Eliminating Barriers to Inspire Creative Pathways Rooted in Students' Authenticity, Value, and Sense of Belonging in Mathematics



Developing Effective Advocacy Practices to Affect Students' Sense of Value and Belonging within Mathematics



Exhibitor Workshop



Thursday Morning

SESSIONS

8:00–9:00 AM

7 Making Math Matter – It’s All About Engagement!



6–8 Session • CONTENT LEVEL: Intermediate
Seattle Convention Center, Ballroom 6B

Create a classroom where learning flows around your students (not at them), and the math matters! This session focuses on “how” teachers can turn up the volume with hands-on engagement to improve student success, spark interest and excitement about math, and promote deep, meaningful learning that is relevant. Topics include a variety of engagement strategies, understanding different types of engagement, differentiated instruction, cultivating a hands-on class, and building student confidence.

Laura Bamberger, Volusia County Schools, Ormond Beach, Florida

10 Building Belonging Communities That Transform Equity Into Self-Efficacy



Gen Int Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, Ballroom 6C

Self-efficacy is a product of a learner’s internalized belief in their mathematical capabilities. Equitable teaching practices in mathematics empower learners to explore math concepts, take risks, and dig deep into complexity. This student experience is supported through a larger math community focused on the student’s self-efficacy. Join us as we explore instructional practices, powerful student artifacts, and the stories that built belonging within our learning community.

Elisabeth Bankhead, Altar Valley School District, Tucson, Arizona

Lochani Senia, Tucson Unified School District, Arizona

11 Enliven Your Geometry Lessons with Art!



Gen Int Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 201

Looking for fresh ideas to enliven your geometry class? Consider art! Spatial reasoning has connected math and art for hundreds of years. Sacred geometry was used in the architecture of Hindu and Buddhist temples. Since the beginning of Islamic art, geometry has been utilized to produce distinctive designs that have the power to communicate and illuminate spiritual and unchanging truths. Come to this session to learn more about this amazing art and leave with strategies for sharing it with students.

Beenish Iqbal, Western Washington University, Bothell
X (formerly Twitter): @Beelqbal05

Rebecca Borowski, Western Washington University, Bellingham

12 The Rock and Roll of Mathematics!



Gen Int Session • CONTENT LEVEL: In-Depth
Seattle Convention Center, Ballroom 6E

The parallels between great mathematics and great rock music have been historically uncanny. In the end, for both to have meaningful engagement and resonance, only the quality of the content is important. Topics like algebra, number theory, math history, brute force thinking, and the beauty of mistakes can all be linked to and illuminated by The Beatles, Pink Floyd, Blues/Jazz, Motorhead, and The Rolling Stones, respectively. Come and rock with the highest quality mathematics!

Sunil Singh, Eureka Math, Washington, District of Columbia

X (formerly Twitter): @Mathgarden



Fostering Belonging and Value for All Students through Instructional Practices and Systemic Initiatives



Valuing Students’ Authentic Funds of Knowledge to Enhance Deep Mathematical Learning and Belonging



Improving Students’ Sense of Value and Belonging through Assessment



Using Innovative Technology to Enrich Students’ Value and Sense of Belonging in Mathematics



Eliminating Barriers to Inspire Creative Pathways Rooted in Students’ Authenticity, Value, and Sense of Belonging in Mathematics



Developing Effective Advocacy Practices to Affect Students’ Sense of Value and Belonging within Mathematics



Exhibitor Workshop

Thursday Morning

WORKSHOPS

8:00–9:15 AM

13 Dipping into Data Science: Positioning Young Learners to Understand and Explain Their World



PreK–2 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 204

Data science is a crucial tool for building critical thinking and helping children understand their world. Data science is also an exciting way to leverage young students' "funds of knowledge" while reinforcing counting and cardinality. Come and experience ways we can infuse principles of data science into early childhood math explorations and build a strong class community.

Melissa Hosten, University of Arizona Center for Recruitment and Retention of Mathematics Teachers, Tucson
X (formerly Twitter): @hosten_m

14 Growing Young Children's Sense of Belonging, Empathy, and Justice with Community-Based Math Modeling



PreK–2 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 613/614

This interactive workshop focuses on culturally responsive mathematical modeling that cultivates belonging, empathy, and justice in the early grades. Interact with K–3 classroom teachers and hear their stories about implementing community-based tasks with students to promote positive change. Topics include library diversity, raising salmon, and clean water access.

Julia Aguirre, University of Washington Tacoma, Renton
Elzena McVicar, University of Washington, Seattle
Tanna Tingstad, Kent School District, Washington
Maria Franchino-Minami, Kent School District, Washington
Janaki Nagarajan, Renton School District, Washington

15 Making Math a Festival: Student Engagement



3–5 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 3A

Are you looking to create magical math moments that encourage your diverse students? If so, join us for free materials and training for hands-on, play-based, and standards-aligned activities. This session will empower teachers to promote open-ended problem-solving with low-floor/high-ceiling problems.

Laurie James, UH–West Oahu, Kapolei, Hawaii
Nick Rauh, Julia Robinson Mathematics Festival, Seattle, Washington

16 Math in Action: Utilizing a Career-Oriented NCTM Toolkit in Your Classroom



3–5 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 3B

Participants will review the resources associated with the Math in Action Career Oriented Three-Act Task Kits for Grades 2–6, available to NCTM members via its website. While the pre-designed lessons target grades 2–6, the associated video interviews conducted with career professionals incorporate mathematics that spans kindergarten through college-level applications. Ample time will be provided for participants to collaboratively plan for ways to utilize the resources in their own classrooms.

Corinne Day, Pryor Public Schools, Billings, Montana

17 Advancing Algebraic Thinking



6–8 Workshop • CONTENT LEVEL: Intermediate
Seattle Convention Center, 608

The Common Core Standards place an emphasis on algebraic thinking, including using algebraic expressions, constructing functions from tables and graphs, and solving systems of linear equations. This workshop will present several hands-on activities and ideas that develop students' algebraic thinking abilities beyond what is found in the typical middle school curriculum.

Brian Beaudrie, Northern Arizona University, Flagstaff
Barbara Boschmans, Northern Arizona University, Flagstaff

18 Leveraging Technology to Unleash the Potential of Peer Tutoring in Math Education



6–8 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 604

Dive into the power of peer tutoring in this interactive workshop based on our research at Stanford. Learn how to train students as effective peer tutors, explore key considerations for matching pairs, and engage in hands-on activities to integrate peer tutoring into your curriculum. By the end of this workshop, you'll have all the tools you need to empower your students to become better leaders, helpers, and communicators in math class.

Soren Rosier, Stanford University, California
Haddie Lueddeke, PeerTeach, Albany, California
Kreg Moccia, PeerTeach, Albany, California



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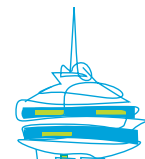
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Exhibitor Workshop



19 **Activating Agency for Emerging Multilingual Learners**



8–10 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 211

Uncover the potential of Mathematical Language Routines (MLRs) in supporting Emerging Multilingual Learners (EMLs) in math. This session challenges the misconception of excluding EMLs from rigorous math due to limited English proficiency. Discover strategies to empower EMLs as active doers of mathematics. Through reflection, discussion, and a collaborative math task, gain insights into positioning Emerging Multilingual Learners as knowledgeable and active participants in the math classroom.

Brianna Ruiz, CPM Educational Program, Elk Grove, California
Susan Hoffmier, CPM Educational Program, Elk Grove, California

20 **Mathropology – (Math and Anthropology)—Topics and Activities That Enhance Interest and Equity.**



8–10 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 607

Mathropology invites ethnomathematics beyond exemplars on classroom posters and raises the interest in math topics to the ultimate level: survival of the species. Students will be asked to think about not only their cultural heritage but about all cultures from a mathematics perspective.

Richard Bramer will present based on his background in Anthropology and Mathematics, with an eye toward developing a curriculum that supports modern goals, from 5E Lesson Planning to UDL.

Richard Bramer, Kern High School District, Bakersfield, California

21 **Standards-Based Grading in Math Classes: How Does It Work and How Does It Foster Student Belonging?**



8–10 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 606

Why does a growth mindset end when assessments begin? Come learn how to make standards-based grading work with traditional report cards. Let's discuss best practices, how to make grading student-centered, and how to reward mastery over time. We will learn how to align grading to the standards to better understand student progress, target interventions, and provide multiple attempts at mastery via a Grading for Learning protocol. Bring your current assessments, and let's start this transition!

Sean Nank, National Council of Supervisors of Mathematics, Carlsbad, California
X (formerly Twitter): @Sean_Nank

22 **Fair Divisions: Life at the Intersection of Mathematics and Politics**



10–12 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 609

This workshop offers the chance to explore the mathematical assumptions of fair divisions related to apportionment, redistricting, and gerrymandering. We will look at these topics from a mathematical perspective using current data from the 2020 US Census, allowing participants to make informed, fair division analyses. This workshop will model a classroom activity that participants may replicate. A computer or tablet is required for data analysis.

Nancy Woller, Waterford School, Sandy, Utah
X (formerly Twitter): @mommamath13
Abby Ross, Waterford School, Sandy, Utah
Andy Larsen, The Salt Lake Tribune, Salt Lake City, Utah



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Exhibitor Workshop

Need funding for professional development?
Check out grant opportunities from the
Mathematics Education Trust at nctm.org/grants.
The next deadline to apply is **May 1**. Visit the
MET area in NCTM Central to learn more.

Thursday Morning

WORKSHOPS

8:00–9:15 AM

23 The Thinking Classroom in Calculus



10–12 Workshop • CONTENT LEVEL: Intermediate
Seattle Convention Center, 4C4

Our Calculus team went all-in on Peter Liljedahl's Thinking Classroom model – we didn't "give notes" all year. Students loved it, and we did, too! We'll share a couple of our favorite lessons, as well as our overall approach to adapting lessons to this format.

Elizabeth Stafford, Washington Latin Public Charter School, District of Columbia

Thomas Splisbury, Georgetown Day School, Washington, District of Columbia

24 Leading from Within – Improving the Instructional System While Remaining in the Classroom



Coaches/Leaders/Teacher Educators Workshop
CONTENT LEVEL: In-Depth
Seattle Convention Center, 307/308

This session will provide mathematics leaders with the vision, the work, and the tools to be bold leaders for mathematics while continuing as classroom teachers. Through exploring engines of change, the power of data and goal setting, and the unique opportunities of a classroom teacher, participants will explore effective methods for improving mathematics instruction in a school or district while maintaining their role in the classroom.

Thomas Stricklin, McKay High School, Salem, Oregon
Brent McClain, Oregon City School District

25 Shifting Teacher Mindset and Practice to Shatter the Illusion of Learning and Grow Mathematicians



Coaches/Leaders/Teacher Educators Workshop
CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 602/603

When what we do in the classroom doesn't feel like it is working, we often revert to how we were taught: giving hints, showing how to do the work/solve the problem, etc. While this comes from the best of intentions and might feel like learning is happening, what often occurs is a cycle of less and less empowerment, identity, and agency for our students (and teachers). We propose a shift to supporting students' thinking and sharing ideas with each other, and teachers becoming a mediator of students' thinking.

Jana Sanchez, Everett Public Schools, Washington

X (formerly Twitter): @jsanchezmath

Kathy Anderson, Everett Public Schools, Washington



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Exhibitor Workshop

Thursday Morning

SESSIONS

9:30–10:30 AM

26 From Textbook Problems to Culturally Relevant Math Tasks: Centering Student Experiences



PreK–2 Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 615/617

How can I make textbook problems culturally responsive for my students? Let's face it: most textbooks are not culturally responsive. Participants will learn how to tweak the adopted curriculum in ways that draw on students' multiple knowledge bases. Presenters will share instructional routines that utilize students' agencies and lived experiences to increase engagement and promote their sense of belonging.

Bryan Street, Seattle Schools, Washington
Jeff Freiberg, Seattle Public Schools, Washington
Claire Engelhard, Seattle Public Schools, Washington
Taylor King, Seattle Public Schools, Washington
Chloe Reed, Seattle Public Schools, Washington

27 Math Play Is for EVERY Classroom



PreK–2 Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 611

This session will explore the why and how of mathematical play. Learn to use this simple but powerful strategy in your classroom and beyond to transform student and family relationships with math and to strengthen math identities. We will explore how math play started small in one elementary school and spread throughout the system.

Molly Daley, Education Service District 112, Vancouver, Washington
X (formerly Twitter): @mdaley15
Tawny Malone, Ridgefield School District, Washington

28 Teaching Using Quilts and the Underground Railroad



3–5 Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 2AB

This session will talk about how to connect the Underground Railroad to studying geometry and fractions. Learn how quilt blocks were used to communicate messages along the Underground Railroad and how students can create their own quilt blocks representing a sense of safety to them. Then, hear about how the quilt blocks can be studied to explore finding area and perimeter as well as how they can act as a way to talk about fractions, percents, and decimals.

Chris Haren, Seattle Country Day School, Washington

30 Culturally Relevant Teaching and Social Media: Connecting Statistics to Students' Identities



8–10 Session • CONTENT LEVEL: Intermediate
Seattle Convention Center, 618/620

Developing engaging and inclusive mathematics content for students requires technology and social media savvy. This session incorporates trending topics and statistics learning. Attendees will analyze data and graphs from social media on popular topics and connect them to the Common Core State Standards. Together, we will explore how modernizing statistics connects to students' diverse identities.

Lesa Covington Clarkson, University of Minnesota, Woodbury
Jialu Fan, University of Minnesota, Minneapolis

31 Scoring and Grading – Where Does an “A” End and a “B” Begin?



10–12 Session • CONTENT LEVEL: Intermediate
Seattle Convention Center, Ballroom 6B

In this session, participants will look at alternatives to the traditional 0–100% grading system. A variety of rubric-based scoring systems will be shared to promote discussion on methods for calculating final end-of-grading-period letter grades based on the student scores received. Discussion will center on the wide range of possible scenarios that can occur with each student and how to determine fair and equitable methods for calculating a final letter grade that is representative.

Brent McClain, Oregon City School District
Tom Stricklin, CPM Educational Program, Eugene, Oregon

32 Solving the Algebra 2 Problem: Washington's Approach to Developing Modern Algebra 2



10–12 Session • CONTENT LEVEL: Intermediate
Seattle Convention Center, 201

Around the country, many are trying to improve Algebra 2. In this session, we share what happened when we asked, “What mathematics should all of our students see before digging into algebraic topics that not all students need?” and “How can we offer all students high-quality mathematics instruction that feels relevant?” The result was a state-level modern Algebra 2. Learn from our experiences, understand the value of what we are calling the QEV Framework, and see our open-source curriculum.

Arlene Crum, Office of Superintendent of Public Instruction, Tacoma, Washington
Ted Coe, NWEA, Portland, Oregon



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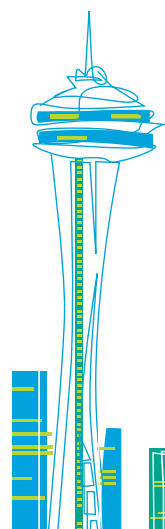
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Exhibitor Workshop



Thursday Morning

SESSIONS

9:30–10:30 AM

33 Answers to Your Questions About Routines That Build Thinking and Foster Equity

Coaches/Leaders/Teacher Educators Session
CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, Ballroom 6C

The routines you use to make your class run smoothly are more than instructional practices. Routines can help build students' identities, make sure each and every student is an important part of the class, and can foster productive struggle and communication skills. Join us to experience several mathematical routines and discuss how they have a positive impact on your students.

Fred Dillon, Fred Dillon, Strongsville, Ohio
X (formerly Twitter): @fdizzle1955

34 Implementing an Equity Framework: First Year Lessons Learned

Coaches/Leaders/Teacher Educators Session
CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 4C2

Seattle Public Schools set a strategic plan goal to improve math outcomes for African American boys in middle school math. Seattle partnered with Dr. Pam Seda and Dr. Kyndall Brown, authors of *Choosing to See: A Framework for Equity in the Math Classroom*, to train teachers in their ICUCARE framework. This session will describe the partnership, the design of the professional development, and the different components of teacher and leader support. We will share our successes and lessons learned.

Elissa Farmer, Seattle Public Schools, Washington
Pamela Seda, Seda Educational Consulting, LLC, Stockbridge, Georgia
Kyndall Brown, Board of Directors, National Council of Teachers of Mathematics, Reston, Virginia; University of California, Los Angeles

35 Problem Strings: An Instructional Routine for ALL Students

Gen Int Session • CONTENT LEVEL: Intermediate
Seattle Convention Center, Ballroom 6A

The powerful teaching tool, Problem Strings, is a purposeful sequence of related problems designed to help students mentally construct mathematical relationships. It is an intriguing lesson structure in which teachers and students interact to construct important mathematics. The power of a problem string lies in the carefully crafted conversation as the teacher makes student thinking visible and draws out students' important connections. Math is figureoutable and we can teach it that way!

Pamela Harris, Math is Figureoutable, Kyle, Texas
X (formerly Twitter): @pwharris

36.1 Enhancing Mathematical Instruction with Models and Manipulatives in Elementary Math (K–6)

3–5 Exhibitor Workshop

CONTENT LEVEL: Introduction to the Topic
Seattle Convention Center, 303

Students learn best as they verbalize and discuss mathematical thinking through the use of manipulatives. Come explore how students can work collaboratively and transform their learning through the Concrete, Pictorial/Representational, and Abstract (CPA/CRA) approach by using models and manipulatives in classrooms.

STEMscopes Math & Math Nation, Houston, Texas

36.2 Introduction to Bridges in Mathematics Third Edition

Coaches/Leaders/Teacher Educators Exhibitor Workshop

CONTENT LEVEL: Introduction to the Topic
Seattle Convention Center, 612

The Math Learning Center develops student-centered K–5 materials based on visual models and problem solving. Bridges in Mathematics Third Edition was created with equity in mind so students have choices, feel included, and can be heard. See how our relevant, open-ended tasks support student sensemaking and develop positive math identities.

The Math Learning Center, Salem, Oregon



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Exhibitor Workshop

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

37 **Make It Count: Imagine, Explore, and Discover Math in the PK–2 Classroom**



PreK–2 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 606

We know Number Sense is CAUGHT not TAUGHT. In this session, learn ways to leverage highly engaging activities with your students. Promote purposeful play and elevate student voice through the use of choral counting, counting collections, and integrating children's literature. Imagine, explore, and discover as we make early learning count!

Arcy Alafa, Tulare County Office of Education, Visalia, California
X (formerly Twitter): @aalafa04
Kim Webb, Tulare County Office of Education, Visalia, California

39 **Number Talks, Enhanced for Multilingual Learners**



3–5 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 602/603

Join us for an interactive workshop on facilitating whole-class discussions that invite multilingual learners to develop language for learning mathematics. You will learn to facilitate Number Talks with enhancements specifically designed to make it accessible to language learners while building their mathematical competence. Number Talks invite MLLs to voice their mathematical ideas and develop the deep, flexible number sense that opens doors to math achievement at high levels.

Jana Dean, OSD & Mathematics Education Collaborative, Olympia, Washington
Heather Byington, North Thurston Public Schools, Lacey, Washington

40 **Students' Rights to Have Wonderful Mathematical Ideas: An Equity and Social Justice Perspective**



3–5 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 4C4

The Rights of the Learner will be the framework that assures all citizens in a democratic learning community will be active participants who will collaborate and negotiate conditions for learning that produce wonderful mathematical ideas, cultivate strong mathematical agency, authentic belonging, and appreciation for diversity. Participants will engage in a cognitively demanding mathematical task, share their learning, and then examine and be validated by students' artifacts for the same task.

Olga Torres, Retired, Tucson, Arizona
X (formerly Twitter): @OlgaGTorres1

41 **The Power of ADHD: Unleashing the Strengths of ADHD Learners in the Intermediate Math Classroom**



3–5 Workshop • CONTENT LEVEL: Intermediate
Seattle Convention Center, 204

Approximately 6.1 million school-aged children have been diagnosed with ADHD (Attention Deficit Hyperactivity Disorder) in the US. Despite its prevalence in our schools, ADHD often remains misunderstood and is viewed from a deficit perspective. However, ADHD learners bring incredible strengths and unique perspectives to the math classroom. Join us to examine highly effective instructional practices that engage, unleash, and leverage the strengths of ADHD learners to deepen math learning for all.

Lindsay Kapek, Sagepoint Education, Lynnwood, Washington
Katrina Tabari, Sagepoint Education, Lynnwood, Washington



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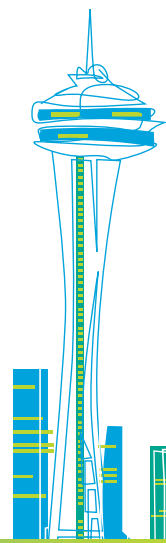
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Exhibitor Workshop



42 Geospatial Pathways in Math Class



6–8 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 613/614

This session will highlight an instructional sequence in which students learn about geospatial tools, engage in data collection, and then design their data collection as they engage in geospatial inquiry. The participants will be a part of an interactive process of designing, collecting data, reviewing data, and then refining their design and implementation processes as they complete the lab activity for their community and classrooms.

Dee Leible, CCLS, Saint Louis, Missouri
X (formerly Twitter): @DeeLeible

43 Building Deep Mathematical Learning and Belonging Through Mathematical Modeling



8–10 Workshop • CONTENT LEVEL: Intermediate
Seattle Convention Center, 609

Students bring prior mathematical, personal, and cultural experiences to bear when they model with mathematics. We'll learn to leverage modeling to build deep content knowledge and belonging. We'll engage in an instructional routine to build students' capacities to interpret a real-world context and to interpret and analyze a mathematical model of it. Then, we'll analyze strategies woven throughout the routine that promote discourse and provide all students access to this important math practice.

Grace Kelemanik, Board of Directors, National Council of Teachers of Mathematics, Reston, Virginia; Fostering Math Practices, Natick, Massachusetts
X (formerly Twitter): @gracekelemanik
Amy Lucenta, Fostering Math Practices, Natick, Massachusetts

44 Embedding Mathematical Uncertainty into Problemized Instruction



8–10 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 3B

Problemizing instruction and providing students opportunities to wrestle with their work can lead to deeper understanding and stronger application of concepts. However, planning problemized or uncertain tasks can be a challenge. This workshop will dive into why mathematical uncertainty can support students' learning and how to embed problemized and uncertain elements into instruction. Teachers will have the opportunity to adapt their own lessons and/or design new problemized lessons.

Emily Starrett, Arizona State University, Tempe

45 Factoring Activities to Promote Growth in the Math Practices



8–10 Workshop • CONTENT LEVEL: Intermediate
Seattle Convention Center, 604

Factoring— it's a persistent struggle! You may feel that this topic is essential for student understanding OR that it commands too much time in our curriculum. Either way, this session is for you! Come experience several activities centering growth in the math practice standards designed to help students make sense of factoring and quadratic functions.

Nolan Fossum, Mount Miguel High School, Spring Valley, California
X (formerly Twitter): @NolanFossum



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Exhibitor Workshop

46 **Collaborative Calculus: Ensuring Contributions from All Students**
 10–12 Workshop • CONTENT LEVEL: Intermediate
Seattle Convention Center, 608


The focus of this session is collaborative problem-solving in calculus. The tasks require direct contributions from all students and are formulated around big ideas in calculus. Participants will experience tasks that support students through productive struggle in an environment that promotes equity, engagement, and agency while students develop deep mathematical understanding, vocabulary, and communication skills. Task resources and group work facilitation strategies will be provided.

Megan Alexander, Creighton University, Omaha, Arizona

47 **Project-Based Learning for Statistics: Connecting Real-World Issues to the New 2+1 Pathway**
 10–12 Workshop • CONTENT LEVEL: Intermediate
Seattle Convention Center, 607

Statistics has been proposed as a replacement for Algebra 2 in the 2+1 pathway to graduation. Teachers must develop projects that tie rich mathematical concepts together with real-world issues. No more M&Ms for chi-squared tests! Students should learn how to interpret real polls, conduct their own polls, evaluate real observational studies and experiments, and design their own. Participants will leave with several ideas for projects to use immediately in their classroom.

T Russell Hanes, Northwest Academy, Portland, Oregon

48 **Change Agents: Leverage Your Sphere of Influence to Impact Mathematics Teaching and Learning**
 Coaches/Leaders/Teacher Educators Workshop
CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 307/308


The status quo of education is not working for every learner. However, the fear of change and its resistance can be reduced if everyone sees themselves as leaders and agents of change in their spheres of influence. How can mathematics teachers and leaders empower those they serve to implement change? **Mona Toncheff** will explore ideas and strategies to leverage your sphere of influence to impact change.


Mona Toncheff, Adjunct Instructor and Supervisor
Teacher, Phoenix, Arizona
X (formerly Twitter): @toncheff5


49 **New & Pre-Service Teachers Workshop**
Gen Int Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 3A

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


Board of Directors, National Council of Teachers of Mathematics, Reston, Virginia


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 Exhibitor Workshop

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

Thursday Morning

SESSIONS

11:00 AM–12:00 PM

51 **Collective Math Legacy: Exploring Communal Math Knowledge with Young Mathematicians**



3–5 Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 4C2

Through the exploration of the communal math knowledge that young mathematicians arrive to school with educators can make space for students to reflect upon their mathematical histories, gifts, & experiences. They will also be able to deeply connect with the math legacies of their peers and see how math connects us all. Through the use of cultural games and community-based math stories students can see themselves as connected mathematicians, sense-makers, problem solvers, and community builders.

Hanaa Elmi, Greater Essex County District School Board, Windsor, Ontario
X (formerly Twitter): @MissHElmi

52 **Reframing How We Think About Math Intervention**



3–5 Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 618/620

How can we reframe math intervention as an opportunity for all students to engage in rigorous, complex, and joyful mathematics? How can we shift our mindset about the purpose of math intervention and the categorization of students in “ability-based” groups? In this session, we will explore how teachers can work within the systems of their schools to provide and advocate for math intervention that builds students’ math identities as deep thinkers and sense-makers of mathematics.

Janaki Nagarajan, Renton School District, Seattle, Washington
X (formerly Twitter): @janaki_aaleena

54 **An Introduction to Mathematics for Social Justice**



8–10 Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, Ballroom 6A

In this session, we will explore mathematics for social justice. An introduction to this pedagogy will be provided. The session will include a presentation on the subject and the research that supports its use, as well as an acknowledgment of the barriers to its widespread implementation. There will be ample opportunities for the participants to engage in math for social justice activities and to reflect on how they might incorporate math for social justice in their classrooms.

Lidia Gonzalez, York College, CUNY, Brooklyn, New York
X (formerly Twitter): @LidiaGonzalez66

55 **Pythagoras, Music, and the Mathematics of Harmony**



10–12 Session • CONTENT LEVEL: Intermediate
Seattle Convention Center, 2AB

How can we use mathematics to create sound? In this session, we will look at the difference between Pythagorean tuning and equal temperament, creating a 12-tone scale using simple ratios. Exponential and trigonometric functions can be combined to synthesize the sound of a xylophone; will you be able to hear the difference?

Greta Mills, The Greene School, West Palm Beach, Florida

56 **The Reckoning, Rumble, and Revolution: Charting Modern High School Pathways in Oregon**



10–12 Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 611

The Oregon Department of Education is committed to a bold shared vision for mathematics teaching and learning. Reimagining math pathways is a challenging journey that requires working through the reckoning, rumble, and revolution of innovation. Participants will learn more of the Oregon journey to establish innovative modern pathways within a “2+1 Course Model” as well as systemic challenges and solutions identified in creating pathway options across the state.

Mark Freed, Oregon Department of Education, Salem



Fostering Belonging and Value for All Students through Instructional Practices and Systemic Initiatives



Valuing Students’ Authentic Funds of Knowledge to Enhance Deep Mathematical Learning and Belonging



Improving Students’ Sense of Value and Belonging through Assessment



Using Innovative Technology to Enrich Students’ Value and Sense of Belonging in Mathematics



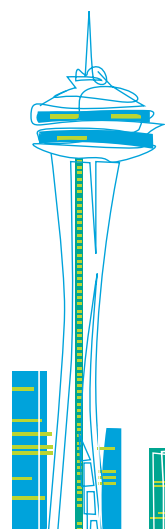
Eliminating Barriers to Inspire Creative Pathways Rooted in Students’ Authenticity, Value, and Sense of Belonging in Mathematics



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Exhibitor Workshop



Thursday Morning

SESSIONS

11:00 AM–12:00 PM

57



Let's Talk Tasks: The Important Intersection of Culturally Relevant and Cognitively Demanding Tasks

Coaches/Leaders/Teacher Educators Session
CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, Ballroom 6B

This presentation explores the link between cultural relevance and cognitive demand in math tasks. We'll discuss incorporating culturally relevant materials in math education and designing tasks reflecting students' lived experiences so that they can mathematize the world around them. We aim to inspire and equip teachers to create cognitively demanding and culturally relevant math tasks for deep learning. Join us to foster inclusive learning with tasks that excite and resonate with all students!

Abigail Ruiz, University of Central Florida, Maitland
X (formerly Twitter): abiruiz
Diane DelliBovi, University of Central Florida, Orlando

58



The Effects of Instructional Coaching on Mathematics Teaching and Student Learning

Coaches/Leaders/Teacher Educators Session
CONTENT LEVEL: In-Depth
Seattle Convention Center, 201

For this presentation, we will focus on sharing findings from our study, which explores the complexities of supporting teachers while receiving intensive pedagogical content support through coaching in elementary mathematics classrooms. The professional development teachers received utilized individualized instructional coaching support, offered autonomy to teachers, provided co-teaching opportunities, and offered guidance from mathematics experts. This resulted in increased student achievement.

Shannon Panfilio-Padden, California State University Stanislaus, Turlock
Keith Krone, Developing Mathematical Thinking Institute, Boise, Idaho

59



More Than Show and Tell: Using Student Work and Purposeful Questions to Deepen Student Mathematical Understanding

Gen Int Session • CONTENT LEVEL: Intermediate
Seattle Convention Center, Ballroom 6C

Want your students to engage in powerful mathematical conversations and deepen their mathematical understanding? This session will focus on using student solutions to spur student conversations that deepen mathematical thinking and reasoning. Learn how to plan for those solutions and then execute a productive discussion centered around a focused goal in your math class.

Susan Loveless, Rutherford County Schools, Murfreesboro, Tennessee
X (formerly Twitter): @susanloveless23

60

President Address: Increasing Opportunities for Students in Mathematics

Gen Int Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, Ballroom 6E

What policies, processes and practices need to be examined to increase student opportunities during and after their PK-12 education? Let's identify the purposes of learning math, consider the existing structures and what changes should be made, examine how to equitably teach mathematics, and help our students see themselves as capable of learning mathematics.

Kevin Dykema, President, National Council of Teachers of Mathematics, Reston, Virginia; Mattawan Middle School, Michigan

60.1



Watson, I Have Found the Missing Link! Let Me Draw You a Picture! (K-5)

PreK-2 Exhibitor Workshop

CONTENT LEVEL: Introduction to the Topic
Seattle Convention Center, 303

So, you invested time modeling with manipulatives, move to formal algorithms and students still make the same errors. This interactive session will reveal the missing link between manipulatives and formal symbolic algorithms. Focus will be on Addition and Subtraction.

STEMscopes Math & Math Nation, Houston, Texas



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Exhibitor Workshop

61 Five Tips That Make the Difference: Success Stories for Students Who Are Neurodiverse



3–5 Burst • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 3B

This burst presentation highlights work across multiple districts that focuses on supporting successful access to grade-level content for students identified as with disabilities under IDEA. This session highlights five areas of change that transformed classrooms: writing effective IEPs, creating sustainable collaborations between general/special education teachers, focusing on the Major Work of the Grade, and providing students with choice and voice to show understanding.

Joleigh Honey, Board of Directors, National Council of Teachers of Mathematics, Reston, Virginia; Sandy, Utah X (formerly Twitter): @joleighhoney

62 Triangles, Rectangles, and Squares! Oh My! Assessing Students' Levels of Geometric Reasoning



3–5 Burst • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 211

Let's look at the development of geometric reasoning in children. Our discussion will focus on different, open-ended geometry tasks and a research-based framework for a better understanding of children's thinking elicited in these tasks. Various ways of recording and organizing the assessment data will be shared. Finally, we'll discuss how the information gathered during these tasks can be used in lesson planning to better individualize our lessons for diverse groups of students.

Thomas Fox, University of Houston Clear Lake, Texas

63 Building Student-Teacher Relationships Through the Curriculum



6–8 Burst • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 604

Building relationships with students is a critical component of fostering belonging for all students. Effective teaching happens when students feels seen and valued by the teacher, but how can a teacher complete a lesson in 55 minutes and still have time to talk authentically with every student? Relationship building does not have to happen outside of the mathematics. By tweaking a few processes, you can turn a task into a moment of sharing between you and your student.

Karen Hugh, Karen Hugh, Bellevue, Washington

64 Fun With Baseball Analytics. How One Public School Fifth-Grade Used Data to Understand the Game



6–8 Burst • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 609

This presentation describes how two fifth-grade public school advanced academic mathematics teachers collaborated to design an engaging and motivating mathematics task using data collection, statistics, and analysis. Over the course of more than two months, students learned how to collect daily major league baseball stats around two teams: the New York Yankees and the Baltimore Orioles. We will share our journey about how we built this task and what our students discovered along the way.

Wendy Gibson, Baltimore County Public Schools, sparks, Maryland

X (formerly Twitter): @wgibso1

Jessica Maras, Baltimore County Public Schools, Maryland

65 What Do Fish Tanks, Compatible Groupings, Scheduling, and Coloring Have in Common?



6–8 Burst • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 602/603

Did you know that determining student groups, displaying fish, arranging seating, and scheduling after-school activities are all based on the mathematics of coloring? In these times, coloring can be a great stress reducer AND a useful mathematical tool. Let's look at the mathematics of coloring including some theorems and relevant applications.

Mary McMahon, North Central College, Naperville, Illinois

X (formerly Twitter): @MaryNCC



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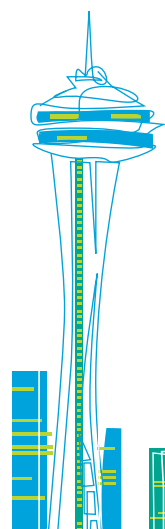
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Exhibitor Workshop



66



Optimizing Optimization: Empowering Student Participation in Calculus Optimization Problems

10–12 Burst • CONTENT LEVEL: In-Depth
Seattle Convention Center, 204

Optimization problems showcase the utility of calculus, yet these problems require manipulating algebraic expressions to model a real-world context. Students often rely on superficial context clues and never participate in the full modeling and reasoning process. This session will present strategies for just-in-time review of algebraic modeling and well as systematic variation of example problems to empower students to fully participate in the optimization process.

Peter Klosterman, Central Washington University, Ellensburg

67



Three Interventions for Improving Assessments

10–12 Burst • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 3A

Assessments in mathematics have traditionally been timed, individual practices where students are under pressure to demonstrate rote skills without the use of notes or other supports. What skills and knowledge do such assessments measure? What aspects of traditional assessments must we embrace and how do we support our students therein? What skills are not measured efficiently by traditional assessments and what can we do to correct this? We will provide three specific, practical interventions.

Rachel Vale, The Overlake School, Troutdale, Oregon

68



Improv Pedagogy: The 11 Rules of Comedy and What They Teach Us About Student-Centered Instruction

Coaches/Leaders/Teacher Educators Burst
CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 613/614

Participants will learn from Del Close's "11 Rules of Improv" to develop pedagogical strategies that give students greater voice, agency, and power in the math classroom. This session aims to help teachers create classrooms where students ask more questions and make more predictions about how mathematics works. To do this, seemingly simple comedy rules teach us how to dismantle the teacher-student power dynamic and create opportunities for students to take the lead in exploring mathematics.

Matthew Stokes, Bellevue School District, Washington

69



Breaking Down Barriers to Success by Integrating Mathematical Modeling Into Your Classroom

Gen Int Burst • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 4C4

In this burst, we present the mathematical modeling process and describe how we write mathematical modeling problems. Additionally, we will share stories of the changes we have seen in students engaging in mathematical modeling activities and provide attendees with resources to help them get started integrating modeling into their own classrooms. Finally, we will present opportunities available for students through COMAP's HiMCM and MidMCM contests.

Kayla Blyman, Saint Martin's University, Lacey, Washington

Benjamin Galluzzo, Independent, Potsdam, New York

70



Dismantling Power Dynamics: Making Purposeful Connections Between Funds of Knowledge and Mathematics

Gen Int Burst • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 307/308

Within every educational space, power dynamics dictate if students can show up as their authentic selves. Funds of knowledge and third spaces are one way for educators to disrupt these norms. Participants will discuss the connections between students' funds of knowledge and developing a physical third space where students, families, and communities can come together to engage in mathematics. Join us in discovering the possibilities for connecting students' everyday mathematics with school mathematics.

Sophie Kasahara, University of Minnesota (LES), Minneapolis

Alyssa Kasahara, University of Minnesota, Minneapolis

71



Just Trust Me! Using Multi-Sensory Learning to Inspire All Students

Gen Int Burst • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 606

Developing deep number sense is best done as a "multi-sensory" process, which taps into our brain's hard-wired ability to do math. Yes! We are hard-wired to do math! This session will explore how to develop number understanding and algebraic thinking through several activities using a variety of manipulatives.

Elizabeth Peyser, Math Educator, Kansas, Wichita



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Exhibitor Workshop

Thursday Morning

BURSTS

11:30 AM–12:00 PM

72



What's Wrong with the 7's Vibe? Using Questioning Strategies to Differentiate in the Gen-Z Classroom

Gen Int Burst • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 608

The vernacular of Gen-Z is specific in ways that connect mundane words and phrases to something completely different in order to describe and provide nuance to any situation. Many teachers recognize this sense-making as a scaffolding technique used to connect new learning to prior knowledge. If educators differentiate learning to this through questioning, can Gen-Z provide their own unique understanding of mathematical concepts that are new and perhaps more applicable to the learners of today?

Caleb Austin, Kansas City, Kansas Public Schools
X (formerly Twitter): @MrAustininKCK

73



1+2 Does Not Equal “Beyond-IM3:” Centering the Math Experiences of Black High Schoolers

Research Burst • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 607

Algebra I is considered a “gatekeeper course” because it is required for students to gain access to higher-level coursework. Eighty percent of K–12 students are eligible to take Algebra I in eighth grade, yet only 24% of eighth-graders take the course. Black students are even less likely than their peers to be enrolled in Algebra I in the eighth grade, which ultimately impacts their math options in high school. The purpose of this critical race mixed-methods (CRMM) study was to demonstrate how tracking policies and inequitable access to high-quality math teachers, resources, and curriculum act as mechanisms that push Black students out of the STEM pipeline.

Kirk Rogers Jr., California State University, Dominguez Hills, Carson



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Exhibitor Workshop

Stop by NCTM Central to ask questions and learn about MTLT (*Mathematics Teacher: Learning and Teaching PK-12*)!

Thursday Afternoon

SESSIONS

1:00–2:00 PM

74 Counting With Families and Communities to Support Early Learning



PreK–2 Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 4C3

This session shares ideas about how to expand counting activities in the early grades, including routines like counting collections, to joyfully engage children in connecting mathematical concepts in counting to their family, community, and cultural practices.

Elham Kazemi, University of Washington, Seattle

75 Embedding Equity in Equations: How Social Justice Transforms Elementary Math Curriculum



3–5 Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 611

In today's increasingly diverse society, ensuring every student has equitable access to quality education is imperative. This workshop will explore the importance of justice teaching and its impact on math education. Discover how math curriculum can unwittingly perpetuate white supremacy and patriarchal ideologies. Learn to identify and challenge these biases by creating inclusive lessons that engage students and emphasize that math is and has always been for everyone.

Brandon Farrar, Giddens School, Seattle, Washington

76 Natural Math Thinking



3–5 Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 615/617

This session will engage participants in an understanding and review of the natural math thinking that all students have and how to take advantage of this in math instruction. Multiple examples will be given that instructors can immediately use in specific areas of place value, multiplication, fractions, and foundational math fluency. This fun and engaging session will have you wanting to get back to your classroom to get started.

Jason Holloway, Lake Elsinore Unified School District, Murrieta, California
X (formerly Twitter): @cgijason

77 Stronger and Clearer: Exploring the Benefits of Rough Draft Math in Middle School



6–8 Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 4C2

Tacoma Public Schools adopted a math framework that articulates beliefs in growth mindsets and best teaching practices grounded in NCTM's Principles to Actions. However, integrating the beliefs and practices inside classrooms remained challenging. Rough Draft Math (Jansen, 2020) helped bring those threads together in Tacoma classrooms. This session shares Tacoma's implementation of Rough Draft Math and invites us to revise our own teaching through the lens of Rough Draft Math.

Tim Chalberg, Tacoma Public Schools, Washington
Casey Moore, Tacoma Public Schools, Washington

78 Concrete Fading with Tape Diagrams and Its Effects on Students in Algebra I



8–10 Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 2AB

This presentation will be split into two parts. In the first half, I will discuss how a variation of concrete fading I defined in my study impacted students in an Algebra I class solving linear equations and word problems. The variation of concrete fading involved using a tape diagram that can enable students to visualize the quantitative relationships embedded in the story problem. The second half will allow the audience to practice solving word problems using the tape diagram.

Lisa Chen, Springfield Township School District, Havertown, Pennsylvania



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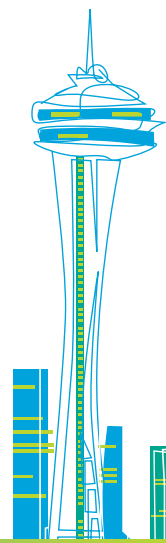
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Exhibitor Workshop



Thursday Afternoon

SESSIONS

1:00–2:00 PM

79 Thin Sliced Translations Using TI Graphing Technology



8–10 Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, Ballroom 6C

Participants will see the power of using graphing technology as a tool to learn. They will also get a brief look into how a lesson can be thin-sliced to help students explore, discover, and build conceptual understanding while bridging the gap of how any function translates mathematically.

Andrew Walter, Stockton Unified, California
X (formerly Twitter): @Math_In_Action

80 Engaging Students in Activity-Based Statistics



10–12 Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 618/620

In this session, we will engage in a series of activities that demonstrate key statistical concepts. Each activity can be implemented in your classroom with ease. Concepts will include modeling distributions of one- and two-variable data sets as well as random sampling. From Math 1/Algebra 1 to AP Statistics, these activities will help engage every student in activity-based statistics!

Tracy Pratt, NumWorks, Cary, North Carolina
X (formerly Twitter): @MrsPratt2go
Nicholas Koberstein, NumWorks, Cary, North Carolina

81 Supporting Learners with Effective Feedback



10–12 Session • CONTENT LEVEL: Intermediate
Seattle Convention Center, 201

This session will highlight strategies for providing effective written and oral feedback on middle and high school students' mathematical work. Feedback types and levels will be explored. Participants will have the opportunity to review sample student work and practice effective feedback techniques.

Holly Anthony, Tennessee Tech University, Cookeville

82 "I've Learned to Respect the Power of Love!" An Inspiring Guide to Creating Relevant Mathematics Experiences



Gen Int Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, Ballroom 6E

In this interactive session, Dr. Lou guides participants through an inspiring exploration of how love and community relationships and immersion can shape the design of mathematical experiences. Drawing from his extensive research and practical experience in culturally relevant pedagogy, he will share how everyday activities, such as a niece creating mud pies or an uncle crafting pottery, can serve as a launching point for deep and meaningful mathematical exploration.

Lou Matthews, Self, Washington, District of Columbia



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Exhibitor Workshop

Thursday Afternoon

SESSIONS

1:00–2:00 PM

83 I Teach, We Learn: It Takes a Village!



Gen Int Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, Ballroom 6A

What do you notice? What do you wonder? We ask these questions to elicit a jump start of nervous system activity in our students' brains. But how often do we stop and ask ourselves the same questions in reflection of our own educational philosophies? "Which One Doesn't Belong?" is great practice for finding differences. Yet, how can we develop the capacity to seek out strings of commonality that connect us together? Let's explore ways to create classroom cultures of learning and belonging.

Valerie Wilson, Turner County Schools, Ashburn, Georgia

84 Visualizing Meaningful Algebra for All: Achievement, Access, Identity, and Power



Gen Int Session • CONTENT LEVEL: In-Depth
Seattle Convention Center, Ballroom 6B

What counts as meaningful algebra achievement? How can all learners be supported to have access to meaningful algebra? I will introduce four research-based approaches to an equitable approach to algebra learning and teaching. We will zoom in on students' algebraic reasoning and classroom practice, and zoom out on culturally and historically responsive practices. I will engage participants in a visual journaling practice that can unlock creative imagination to envision meaningful algebra for all.

Nicole Fonger, Syracuse University, New York
X (formerly Twitter): @nmlfonger

84.1 Let's Get Physical... With Mathematics



10–12 Exhibitor Workshop

CONTENT LEVEL: Introduction to the Topic
Seattle Convention Center, 303



Engaging students through hands-on explorations is a powerful way to facilitate the connection of ideas. Join us as we engage with data collection activities that can bring everyday mathematics to life and shed light on the underlying mathematical concepts.

Texas Instruments, Sachse, Texas

84.2 Derivita 101: Your Math Classes Reimagined with Derivita



10 to 12 Exhibitor Workshop

CONTENT LEVEL: Introduction to the Topic
Seattle Convention Center, 612



In this session you will see Derivita's math test bank with 100,000+ math test items, SpotCheck - a real-time assessment tool, the ability to deliver automated and targeted feedback, the process of automated grading for free-response questions and more!

Be prepared to participate for the chance to win a Derivita swag box!

Derivita, Salt Lake City, Utah



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Exhibitor Workshop

Get social! Stay informed and get connected with attendees by following [#NCTMSEA24](#) on social media.

Thursday Afternoon

WORKSHOPS

1:00–2:15 PM

85 Beyond Literature Connections: Storytelling in Math



PreK–2 Workshop • CONTENT LEVEL: Intermediate
Seattle Convention Center, 608

In the last decade, math in literature has exploded! Children’s books address all areas of the curriculum with engaging stories, whimsical illustrations, and detailed lesson plans. Can math BE literature? What if we “storify” math itself? Explore ways for students to engage with math as storytellers and the transformative power of this approach.

Teresita Cuesta, Indian Creek School, Gaithersburg, Maryland

86 Finding Our Roots: Connecting Elementary Children to the Natural World Through Math



PreK–2 Workshop • CONTENT LEVEL: Intermediate
Seattle Convention Center, 4C4

Mathematics is one of the many languages humans use to interpret, understand, and connect with the natural world. Integrating the study of nature with mathematics in the elementary classroom invites students to recognize mathematical ideas in their lived experiences, make connections across representations, develop curiosity, and build a sense of belonging in the math classroom.

Amanda Fox, La Scuola International School, Berkeley, California

Martina Carestiato, La Scuola International School, San Francisco, California

Claudia Canu-Fautre, La Scuola International School, San Francisco, California

87 BIPOC Teacher Gathering: Transforming Mathematics Classrooms Through Our Pedagogical Expertise



3–5 Workshop • CONTENT LEVEL: Intermediate
Seattle Convention Center, 607

This interactive session is a space for BIPOC educators to discuss creating transformative mathematics classrooms using their pedagogical expertise. Small group discussions, led by three K–5 Black women teachers and a Black women math teacher educator, will focus on our visions and creations of joyous, humanizing mathematics classrooms. Allies may attend, but BIPOC voices will be centered.

Elzena McVicar, University of Washington, College of Education, Seattle

Shaniah Bivens, Seattle Public Schools, Washington

Laura Miller, Seattle Public Schools, Washington

Tracie Bratcher, Seattle Public Schools, Washington

88 Fractions Are Friends, Not Food



3–5 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 604

Explore the depths of learning and teaching fraction addition through the use of collaborative inquiry with hands-on and digital activities in Amplify Desmos Classroom.

Anna Scholl, Amplify Education, Marion, Iowa

X (formerly Twitter): @MathTeachScholl

Nicole Whitty, Amplify, Brooklyn, New York

89 Differentiate the Questions, NOT the Task



6–8 Workshop • CONTENT LEVEL: Intermediate
Seattle Convention Center, 204

All students deserve to experience cognitively demanding tasks, regardless of varying background knowledge. Differentiating questions increases cognitive demand by building student engagement and maintaining the rigor of a rich task. Join us in exploring how.

Susan Hoffmier, CPM, Elk Grove, California



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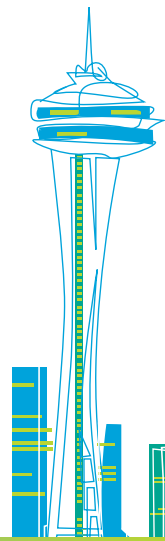
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Exhibitor Workshop



90 **Strings, Cheese, Pi, Tau, and Radians: Building Conceptual Understanding of Circles**



6–8 Workshop • CONTENT LEVEL: Intermediate
Seattle Convention Center, 211

Because it's trendy in popular culture, many students know π is an irrational number with infinite digits. But do they understand what it actually represents? How about its connection to finding the area of circles? In this session we'll share how the packaging for a popular brand of cheese can help students discover π and make sense of its connection to circle area. We'll also discuss tau (2π) and whether it has even more potential than π for supporting student understanding of circles.

Rebecca Borowski, Western Washington University, Bellingham

X (formerly Twitter): @elemathchick

Alex Buckley, Western Washington University, Bellingham

92 **Differentiated Assessment: A Simple Technique for Reaching and Teaching ALL Learners**



8–10 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 307/308

Learn a simple technique to craft quizzes and tests that engage ALL learners, provide more accurate evidence of student learning, and simplify grading. This differentiation strategy honors the important differences students bring to the classroom, inviting struggling and advanced learners alike to persist and deepen their strengths on assessments.

Carolyn Hoste, Denver Public Schools, Colorado

93 **Going Deep! Using Student Discourse to Advance Student Thinking to the Next Level**



8–10 Workshop • CONTENT LEVEL: Intermediate
Seattle Convention Center, 602/603

Come puzzle through connections between triangles and circles with us. We will use this task to explore how the Mathematics Teaching Practices can be leveraged to assist students in going deep with mathematics. Creating connections among posing purposeful questions, connecting mathematical representations, and supporting productive student discourse is essential to pushing your students to the next level.

Orson Spencer, Juab High School, Nephi, Utah

Dawn Barson, Independent, Lehi, Utah

94 **Increase Student Agency by Healing Math Trauma**



8–10 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 3A

No amount of good math pedagogy or experience is more powerful than one moment of math trauma. It haunts, disables, and discourages students from believing they can or should try math. This session will explore the causes of math trauma and give teachers practical applications to help students understand and heal from their trauma.

Joshua Bean, Huntington Beach Union High School District, California

X (formerly Twitter): @MrJoshuaBean

95 **Cruising Through Precalculus: A Project-Based Approach to Teaching Modeling and Vocabulary**



10–12 Workshop • CONTENT LEVEL: Intermediate
Seattle Convention Center, 613/614

Participate in a sample lesson where students role-play to create a model and pitch a cruise ship to investors. The activity engages students to improve communication skills, create a need for rational functions, asymptotes, and other concepts, and collaborate to develop multimedia presentations in a contextual application. This session demonstrates how ordinary classroom tasks can be transformed into student-led experiences that cultivate learner independence and critical thinking skills.

Thomas Leisten, Glastonbury Public Schools, Connecticut



Fostering Belonging and Value for All Students through Instructional Practices and Systemic Initiatives



Valuing Students' Authentic Funds of Knowledge to Enhance Deep Mathematical Learning and Belonging



Improving Students' Sense of Value and Belonging through Assessment



Using Innovative Technology to Enrich Students' Value and Sense of Belonging in Mathematics



Eliminating Barriers to Inspire Creative Pathways Rooted in Students' Authenticity, Value, and Sense of Belonging in Mathematics



Developing Effective Advocacy Practices to Affect Students' Sense of Value and Belonging within Mathematics



Exhibitor Workshop

Thursday Afternoon

WORKSHOPS

1:00–2:15 PM

96



Our Math Roots: Exploring Ethnomathematics and the Non-European History of Math in Secondary Content

10–12 Workshop • CONTENT LEVEL: Intermediate
Seattle Convention Center, 606

Non-European identities are underrepresented in mathematics curricula. Students engage more fully when their identities are represented. Integrating ethnomathematics into core classes creates more inclusive spaces for students to see themselves as mathematicians. We will share student experiences, engage in ethnomathematics activities, and share resources through our website. Our goal is for teachers to engage and have resources to integrate the history of math lessons into classrooms.

Rebecca Guarino, Manhattan Village Academy—NYC DOE, Bronx, New York

Carol Kinney, Independent, Bronx, New York

Benjamin Rubenstein, Independent, Bronx, New York

97



Forming Collaborative Partnerships to Benefit PreK–8 Students' Senses of Belonging in Mathematics Classrooms

Coaches/Leaders/Teacher Educators Workshop
CONTENT LEVEL: Intermediate
Seattle Convention Center, 609

PK–8 students often feel undervalued, unseen, or leave school without a sense of belonging (Cobb & Krownapple, 2019). In this session, we will share results from a research study to explore what happens when collaborative partnerships between preservice elementary math teachers and preservice school counselors create brave learning spaces for students.

Shannon Panfilio-Padden, California State University Stanislaus, Turlock

Addy Wissel, Gonzaga University, Spokane, Washington



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Exhibitor Workshop

Start planning early and stay connected throughout the conference with the NCTM mobile app. Learn more at nctm.org/confapp

Thursday Afternoon

SESSIONS

2:30–3:30 PM

98 Small Group Lessons Are Great, But What Are the Other Students Doing?



3–5 Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, Ballroom 6B

How can teachers establish and manage an effective math workshop in which students are productively engaged and working independently on worthwhile math tasks? This session provides doable instructional and management strategies for a math workshop environment that allows teachers to work with small groups of learners and confer with students individually to target their identified learning needs while the rest of the class participates in a rich learning community.

Laney Sammons, Retired, Thetford Center, Vermont

99 Using CGI and Graphic Organizers to Teach Problem Solving to Neurodivergent Students



3–5 Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 4C2

Cognitive guided instruction (CGI) for teaching mathematics embeds self-regulated strategies in structured routines by enabling neurodivergent students to monitor, evaluate, and reflect on procedures while affirming their conceptual understanding. Learn how to incorporate cognitive strategy instruction for improving the learning and performance of math problem-solving and reasoning skills by facilitating information processing through visual representations.

Jan Bond, Francis Howell School District, Wentzville, Missouri

Joseph Sencibaugh, Webster University, St Louis, Missouri

100 Student-Created Videos: Using Technology to Increase Student Ownership and Validate Student Voice.



8–10 Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 2AB

Teachers use student-created videos to access crucial student thinking through mathematical explanations. Partnering with students creates community and knowledge in our classes with equitable participation, giving students ownership of their learning and validating their mathematical knowledge. In this session, we will show multiple ways in which this technology can be used to engage students in the learning process while honoring their voices and expanding their depth of knowledge.

Drew Ishii, Sage Hill School, Newport Coast, California

Joe DiOrio, Independent, Huntington Beach, California

102 Write On! Integrate Writing into the Mathematics Classroom



10–12 Session • CONTENT LEVEL: Intermediate
Seattle Convention Center, 4C3

The FRQ, or free response question, can be far more than just a staple of our AP courses. Join me as we discuss how to transform traditional problems in Algebra 1, Geometry, or Algebra 2 into writing prompts to help provide students with opportunities to improve their literacy and problem-solving skills. This interactive session will help you develop a framework your students can use to become better writers and thinkers while applying fundamental mathematical concepts to solve problems.

Bill Kujawa, Brookfield East High School, Wisconsin

103 Leveraging Mathematics Adoption to Initiate Systemic Change for Access, Equity and Empowerment



Coaches/Leaders/Teacher Educators Session
CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 618/620

We will be sharing our multi-year multi-level math instructional materials adoption process for high school and elementary mathematics using the NCTM publication Catalyzing Change to create a shared understanding of high-quality, equitable math instruction.

Kathy Anderson, Everett Public Schools, Washington
X (formerly Twitter): @KathyTrosvig

Jana Sanchez, Everett Public Schools, Washington

104 When $1 + 1 \neq 2$: Paired Observations for Professional Growth



Coaches/Leaders/Teacher Educators Session
CONTENT LEVEL: Intermediate
Seattle Convention Center, 201

Great teaching: You know it when you see it! This is why peer observations are a valuable way to foster professional growth. Just like in the classroom, seeing isn't the end of the learning. Having reflective conversations about what you observed, questions that arose, and important takeaways helps to solidify the learning that took place. One way to ensure that reflection takes place is by using the buddy system – explore how this structure might make observations more productive for you.

Breedeen Pickford-Murray, The Bay School of SF, San Francisco, California

X (formerly Twitter): @btwnthenumbers



Fostering Belonging and Value for All Students through Instructional Practices and Systemic Initiatives



Valuing Students' Authentic Funds of Knowledge to Enhance Deep Mathematical Learning and Belonging



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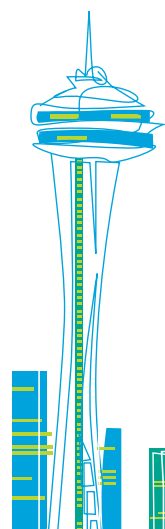
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Exhibitor Workshop



Thursday Afternoon

SESSIONS

2:30–3:30 PM

105 Everyone Belongs — Especially Teachers!



Gen Int Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 615/617

In this session, we will discuss that teachers are feeling burnout and what we (teachers) might do to bring back the joy and satisfaction they first felt when they started in the profession. We would like to discuss how to be a mentor, cheerleader, or whatever is needed to be the reason someone stays in the profession.

Karin Lee, Mountain View High School, San Jacinto, California
Jordan Smith Jr., Mountain View High School, San Jacinto, California

106 Grants, Scholarships, and Awards for NCTM Members

Gen Int Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 611

Looking for funding for a special project, coursework, or professional development? NCTM's Mathematics Education Trust (MET) has over 35 different grants, scholarships, and awards available to NCTM Members. Get information on all of these different opportunities to improve the mathematics teaching and learning in your classroom, school, or district.

Mike Shaughnessy, Past President, National Council of Teachers of Mathematics, Reston, Virginia; MET Board Chair, Portland, Oregon

106.1 The R in CRL (Culturally Responsive Learning)



Gen Int Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 6A

A critical aspect of Culturally Responsive Learning is selecting tasks that invite students to respond to author and share their own ideas for teachers to respond to. Let's experience how 3-Act Math tasks promote student agency and authorship of mathematical ideas where teachers actively respond to different student cultures, backgrounds, and ideas to drive instruction.

Nikki Erdelyi, Savvas Learning Company, Chandler, Arizona
X (formerly Twitter): @nerdelyi6
Andrea Baker, Savvas Learning Company, Chandler, Arizona

107 Humanizing Assessment: Partnering with Students Through a Portfolio Model



Gen Int Session • CONTENT LEVEL: Intermediate
Seattle Convention Center, Ballroom 6E

How can a portfolio system be used to energize school mathematics and transform the way we think about student learning? In this session, we situate the use of a portfolio model as evidence of student learning within a larger restructuring of school mathematics and show how a portfolio can center student choice and voice.

Shelbi Cole, Student Achievement Partners, Trinity, Florida
X (formerly Twitter): @ShelbiCole1
Michelle Sperling, Independent, Costa Mesa, California
Kevin Liner, Independent, Glastonbury, Connecticut
Shelley Cox, Crosstown High School, Memphis, Tennessee
Cherlinca Boyd, Crosstown High School, Memphis, Tennessee

108 Math Strong: Building on Five Equity-Based Practices That Impact Identity in K-12 Mathematics



Gen Int Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, Ballroom 6C

In this session, we will build on five equity-based practices that impact math identity and agency: going deep with mathematics, leveraging multiple mathematical competencies, affirming math learner identities, challenging spaces of marginality, and drawing on multiple knowledge resources. We will discuss actionable strategies to dismantle systemic and anti-Black racism in K-12 math education and design innovative learning spaces for students to thrive in elementary and secondary settings.

Karen Mayfield-Ingram, Lawrence Hall of Science, University of California Berkeley
Julia Aguirre, University of Washington, Tacoma
Danny Martin, University of Illinois Chicago

108.1 Mathematical Problem Solving for All Students (K-5)



3-5 Exhibitor Workshop

CONTENT LEVEL: Introduction to the Topic
Seattle Convention Center, 303

Teaching students to reason and problem solve is the cornerstone of quality math instruction. This session will highlight several engaging strategies such as Three Reads, Numberless Word Problems, and more that will provide multiple entry points for all students to engage in the math and ignite a passion for problem solving in your classroom!

STEMscopes Math & Math Nation, Houston, Texas



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Exhibitor Workshop

109 Counting Collections — Enhancing a Favorite Mathematical Routine With a Focus of Belonging

PreK–2 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 607

The Counting Collections routine is an instructional strategy for elementary school students that enhances their mathematical skills and promotes a sense of belonging. By engaging students in counting and organizing collections of objects, this routine develops critical thinking, problem-solving, and number sense. It also embraces students' diverse cultural backgrounds. Our goal is to equip educators with practical tools and strategies to implement the Counting Collections routine in their class.

Marlana Sears Gudgel, Evergreen Public Schools, Vancouver, Washington
Elizabeth Lawson, Evergreen Public Schools, Vancouver, Washington
Jaime Rosa, Evergreen Public Schools, Vancouver, Washington

110 Mathematical Fluency: Do It Fast and Get It Right? It Entails So Much More!

PreK–2 Workshop • CONTENT LEVEL: In-Depth
Seattle Convention Center, 606

Do we give students the opportunity to think about what they know and understand and use it in ways that make sense to them? Do we model questions that students should be asking themselves as they strive to reach fluency in mathematics? This session will focus on moving students toward fluency with computations through hands-on activities that value students' ability to use strategic thinking and strategies to carry out mathematical computations flexibly, with understanding, and accuracy.

Pamela Smith, Math4all, Flower Mound, Texas

112 Turning the “Light Switch On/Off” to Open Agency, Authority, and Identity

3–5 Workshop • CONTENT LEVEL: Intermediate
Seattle Convention Center, 211

What does student agency and authority in the math classroom look like, sound like, and feel like? What role does the teacher play when engaging in student-centered learning? Put yourself in the mindset of your students by engaging in a rich mathematical experience (Light Switch Problem). This session works to give you, the teacher, moves to feel empowered to facilitate a thinking math task and gain insight into the mindset of your students. Disclaimer: You WILL be doing math!

Lauren Sawyer, Bennett Day School, Chicago, Illinois

113 A Roadmap for Integrated ELD + Math

6–8 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 602/603

The data is in! Hear about a learning series designed by an ELD and a Math specialist that resulted in a truly aligned learning experience enjoyed by teachers as well as increased scores across the district. Learn how we integrated ELD Standards and Mathematical Language and Reasoning Routines into modules supporting Reading, Speaking and Listening, and Writing. You will engage in some of the routines and see how it creates access and support for multilingual learners in math.

Kelli Statham, Fresno County Superintendent of Schools, California

114 Guided Language and Math Stories

6–8 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 3B

A middle school math teacher and language support specialist collaborate to redesign math instruction in a project called GLAMS (Guided Language and Math Stories). Visual Interactive Math Stories (VIMS) center around visual models and elicit students' voices. The session features video examples and collaboration with others.


David Buitenveld, North Thurston Public Schools, Olympia, Washington
Heather Byington, North Thurston Public Schools, Olympia, Washington


115 Be a Mathematician! Helping Your Students Use Patterns to Discover Formulas

8–10 Workshop • CONTENT LEVEL: Intermediate
Seattle Convention Center, 3A

As teachers, we know that it is important for students to be able to use a variety of formulas. However, we often gloss over how formulas are derived or assume that the discovery of formulas is too difficult for our students to understand. In this session, we'll learn how to use manipulatives, images, tables and algebraic methods to guide students through the discovery of several formulas, including arithmetic sequences and series, compound interest, and point-slope form of a linear equation.


John Halmi, Anne Arundel County Public Schools, Glen Burnie, Maryland


 Fostering Belonging and Value for All Students through Instructional Practices and Systemic Initiatives

 Valuing Students' Authentic Funds of Knowledge to Enhance Deep Mathematical Learning and Belonging

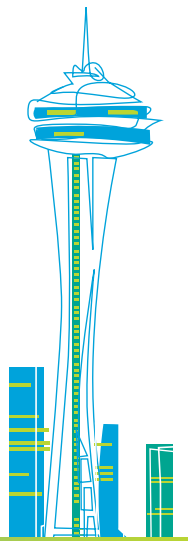
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 Exhibitor Workshop



116 Using Purposely Ambiguous Patterns to Encourage Student Discussion



8–10 Workshop • CONTENT LEVEL: Intermediate
Seattle Convention Center, 204

Learn how to use purposely ambiguous patterns with students to encourage them to interact with each other. We will use the instructional strategies “Find Somebody Who”, “Expert Groups”, and “Stronger, Clearer”; along with ambiguous patterns to organize students to have meaningful interactions and discussions in mathematics class. We will also experience what it means to use mathematics to build community and play while engaging in rigorous mathematical ideas.

Kate Degner, Iowa City Community School District
X (formerly Twitter): @drkkdegner

117 Advanced Algebra With Financial Applications: An Algebra 2 Alternative and/or Elective for All



10–12 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 307/308

We’ve learned from the years of interrupted education that students still need substantive math. What and how we teach, therefore, needs re-evaluation. Attendees will learn about the course Advanced Algebra with Financial Applications, designed to develop an interest in mathematics through finance by employing advanced algebra in the contexts of spending, banking, credit, auto and home ownership, taxes, investments, budgets, and more. It can be used as an Algebra 2 alternative or as an elective for all.

Richard Sgroi, Bedford Schools (Ret.), Rhinebeck, New York

118 Exploring and Modeling Linear Relationship in Real-World Phenomena



10–12 Workshop • CONTENT LEVEL: Intermediate
Seattle Convention Center, 609

We will use the Celsius-Fahrenheit relationship in this activity. We will start with the paper folding method, where participants will explore different ordered (Celsius, Fahrenheit) pairs at different temperatures. Later, we will model the ordered pairs in an algebraic equation and confirm the equation utilizing dynamic geometry software. The participants will get opportunities to explore mathematical ideas in conjunction with science, technology, engineering, and mathematics (STEM).

Deependra Budhathoki, Defiance College, Bowling Green, Ohio
Bhesh Mainali, Independent, Morrisville, Pennsylvania

119 Using Data to Visualize and Understand Global Warming



10–12 Workshop • CONTENT LEVEL: Intermediate
Seattle Convention Center, 613/614

Reports about climate change often refer to the global average temperature. However, the varying local impacts are often hidden when only a global average is discussed. Using longitudinal climate data from around the world, we will explore how overall and local temperature changes affect us individually and globally.

Nicholas Koberstein, NumWorks, Cary, North Carolina
X (formerly Twitter): @nkoberstein

120 Interrogating Practices of Inequity by Analyzing Video Cases and Protocols for Professional Learning



Coaches/Leaders/Teacher Educators Workshop
CONTENT LEVEL: Intermediate
Seattle Convention Center, 608

This workshop provides participants with a two-part experience. First, participants will learn the benefits of using instructional video exemplars as part of professional learning to create a more culturally responsive math classroom. Then, participants will be led through observing an instructional math video exemplar using student work samples to interrogate current practices.

Nalline Baliram, Seattle Pacific University, Everett, Washington
Robin Henrikson, Seattle Pacific University, Everett, Washington
Tamara Smith, Olympic Educational Service District 114, Bremerton, Washington

121 Mentor Teachers and Student Teachers Co-Learning About Equity-Oriented Math Instruction



Coaches/Leaders/Teacher Educators Workshop
CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 604

How can the student teaching experience be a rich learning experience for teachers and mentor teachers? In this session, we share a protocol designed and used to help teachers collaboratively notice and make instructional decisions in their classroom that disrupt inequitable patterns of K–12 student participation, honor K–12 students’ diverse assets, and support K–12 students’ collective learning.

Torrey Kulow, Portland State University, Oregon
Jenne Khorvash, Independent, Portland, Oregon
Taylor Stafford, University of Washington, Seattle



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Exhibitor Workshop

Thursday Afternoon

SESSIONS

4:00–5:00 PM

122 Change Your Students' Perceptions of Themselves as Mathematicians With One Move: Student Choice



3–5 Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 2AB

In this presentation, you will learn how differentiating by giving students choice throughout a unit will increase engagement and metacognition. You will be able to immediately and thoughtfully implement opportunities for students to choose how they interact with mathematics in and outside of your class using free planning resources.

Andrea Jostol, The Alexander Dawson School, Las Vegas, Nevada

123 Differentiating Between Desirable and Undesirable Uncertainties



6–8 Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 201

During this session, teachers will evaluate problematized tasks (e.g., tasks with multiple pathways toward solutions, missing information, room for creative problem-solving strategies) and identify potential uncertainties they may encounter as a teacher as well as uncertainties students may encounter engaging in the tasks. We will differentiate between desirable and undesirable uncertainties to help shift potential barriers in the classroom into productive struggles that enhance learning.

Emily Starrett, Arizona State University, Bellevue, Washington

124 Maximizing the Development of Proportional Reasoning: Effective Instructional Strategies



6–8 Session • CONTENT LEVEL: Intermediate
Seattle Convention Center, 611

Proportional reasoning is a crucial topic that must be developed in upper elementary and middle grades. We'll address what research shows about how this concept can be fostered incrementally through nine representations that build upon one another from most conceptual up to cross products, creating a solid foundation for proportional thinking. Practical examples will be demonstrated, and a comprehensive ready-for-classroom handout will be made available.

Brad Scott Fulton, Enterprise Elementary School District, Redding, California
Bernard Guglberger, EAI Education, Oakland, New Jersey

125 Using Culturally Relevant Math Modeling to Connect Students with the Community



8–10 Session • CONTENT LEVEL: Intermediate
Seattle Convention Center, 4C3

What types of culturally relevant math tasks can be used to promote students' engagement in modeling issues in their communities? Participants will learn strategies for designing and implementing tasks that engage students in making connections between issues in their communities and learning linear regression and modeling. Learn how drawing on students' funds of knowledge helps foster students' engagement in making real-world connections with mathematics.

Betty Routhouska, Syracuse City School District, New York

Ken Keech, Syracuse City Schools, New York
Nicole Fonger, Syracuse University, New York

126 What If Napoleon Had Used Quadrilaterals?



8–10 Session • CONTENT LEVEL: Intermediate
Seattle Convention Center, 615/617

Napoleon's Triangle is a topic taught in many Geometry classes. Could Napoleon have started with a quadrilateral instead of a triangle? Come learn about the original theorem and its extensions, and then discover related theorems using quadrilaterals. We will explore this using dynamic geometry software and transformational geometry.

Raymond Klein, retired (Pear School Solutions), Glen Ellyn, Illinois

127 Financial Literacy for Seniors for Today and Tomorrow



10–12 Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, Ballroom 6B

This talk will cover my class and how I take my students through their financial life, from first job through retirement. We will cover paychecks and tax deductions, banking, loans, cars, houses, budgeting, federal tax forms and retirement accounts. We will look at projects for the topics and go through a "real-life" simulation that I employ in the class. This class also has the designation of satisfying the third-year math requirement in California for their university system.

James Schierer, King City High School, California



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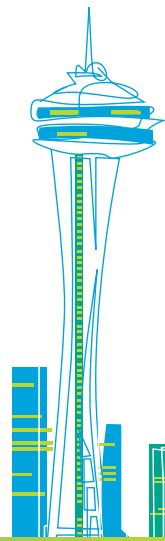
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Exhibitor Workshop



Thursday Afternoon

SESSIONS

4:00–5:00 PM

128 **Creating an Equitable Pathway to Increase Access for Algebra in Middle Grades**



Coaches/Leaders/Teacher Educators Session
CONTENT LEVEL: Introduction to the Topic
Seattle Convention Center, Ballroom 6A

Why is Algebra only offered to high performing students in 8th grade? Is this what equity looks like? Learn about a compacted middle school mathematics program that connects the CCSS, adolescent brains, and content coherence to build a strong mathematical foundation for Algebra. Explore how this program provides the necessary acceleration supports our students need to be successful and addresses the long-term racial inequities that prevent students of color from reaching their full potential.

Jennifer Czarnecki, Chicago Public Schools
Corey Morrison, Chicago Public Schools
Kelly Shereyk, Chicago Public Schools

129 **Video Club as a Tool for Supporting Teachers' Attention to Student Language**



Coaches/Leaders/Teacher Educators Session
CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 618/620

In this workshop, we will share the results of a year-long project using Video Club as a professional learning structure to support math teachers' development of their instructional practice. This group of Algebra I teachers focused their attention on using the Math Language Routines. Our Video Club protocol and tools enable us to capture and share patterns among mathematics educators' attention to students' use of language to express their ideas. We will share how teacher noticing evolved.

Kiera Brodsky Chase, ConnectED, Olympia, Washington
X (formerly Twitter): @kierachase
Vinci Daro, ConnectED, Berkeley, California

130 **Discover, Describe, and Develop Mathematical Thinking**



Gen Int Session • CONTENT LEVEL: Intermediate
Seattle Convention Center, Ballroom 6E

Developing mathematical thinking is an integral part of becoming an effective problem solver. So, what does it take for students to build their ability to think mathematically? This session will focus on the pedagogical approach of discover, describe, and develop, and the content knowledge needed for teachers that can support improving students' mathematical thinking skills.

Kurt Salisbury, Amplify/Desmos, Waco, Texas

132.1 **Be Inspired With CPM's New Curriculum Inspiring Connections!**



10 to 12 Exhibitor Workshop

CONTENT LEVEL: Introduction to the Topic
Seattle Convention Center, 303

CPM has taken the latest research and created a new curriculum, Inspiring Connections. The innovative multimodal course fosters a more dynamic learning experience for students, featuring increased mobility, exposure to diverse perspectives, and enhanced ownership of their education. Students will utilize technology and print in tandem.

CPM Educational Program, Elk Grove, California



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Exhibitor Workshop

Looking for lessons, activities, and teacher resources? Check out nctm.org/crc.

133 Argument Writing and Mathematical Practices for Fourth to Sixth Graders With Learning Challenges



3–5 Burst • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 607

Argument writing has been shown to increase students' mathematics performance. However, teachers report receiving little preparation to use writing to support students' learning. This is especially concerning for teachers who instruct students with learning challenges. This presentation will present an instructional framework to embed questioning strategies that focus on four standards of mathematical practice to develop students' fraction knowledge by constructing written arguments.

Sharlene Kiuahara, University of Utah, Salt Lake City
Malynda Tolbert, Utah Valley University, Orem

134 From 1 to 10: How to Use Cuisenaire Rods From K–6



3–5 Burst • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 606

Have you been wondering how to use all those colorful rods in your classroom? Join us at this session to build an understanding of how this amazing manipulative can be used to teach conceptual understanding of many concepts from early counting all the way to ratios. The possibilities for building an understanding of math concepts using Cuisenaire Rods are endless! Join us to learn some ideas that you can begin implementing in your classroom tomorrow!

Danielle Krueger, Cornwall Consolidated School, West Cornwall, Connecticut
Kristi Pramuka, Cornwall Consolidated School, West Cornwall, Connecticut

135 Stop the Madness: Striving for Emotional Equity in the Math Classroom



3–5 Burst • CONTENT LEVEL: Intermediate
Seattle Convention Center, 604

With decades of research to support the transition from timed math fluency tests, this practice is still common in most schools. Removing this practice from our classrooms can decrease anxiety around mathematics and provide emotional equity for all learners. By building a deeper understanding and applying basic facts, students can develop true confidence in their skills, which are evident beyond a single classroom, grade level, or standard.

Elizabeth Kleiber, Resurrection Christian School, Greeley, Colorado

136 A Multicultural History of Math: Integrating DEI into a Fun Math Elective Class



6–8 Burst • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 204

Was mathematics discovered or invented? By whom? If you google “mathematicians,” you will see many pictures of old white men; why is that? Who does math belong to? In a fun elective class for Middle Schoolers, students can explore how math was developed in many different cultures and regions of the globe. Teachers can learn to make math education more inclusive for all learners and help students see themselves in math.

Sarah Vandivort, French American School of Puget Sound, Mercer Island, Washington

137 Finding Math in Art and Art in Math



6–8 Burst • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 609

A presentation based off a weekly elective course on art projects with a mathematical basis. I taught this class for grades 6–8, including students with disabilities, where we explored different projects rooted in Geometry. For several months, students could create art while identifying the mathematical constructs they observed. Several sample projects with instructions will be shared that can be used in an ongoing course or as a stand alone project.

Angela Ensminger, St. Madeleine Sophie, Bellevue, Washington



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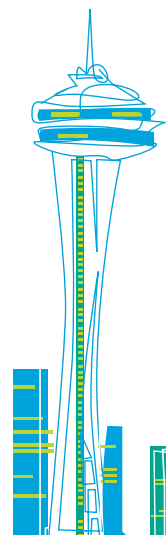
Eliminating Barriers to Inspire Creative Pathways Rooted in Students' Authenticity, Value, and Sense of Belonging in Mathematics



Developing Effective Advocacy Practices to Affect Students' Sense of Value and Belonging within Mathematics



Exhibitor Workshop



138 **Math or Magic? Exploring the Math-Magic Behind Number Tricks**



6–8 Burst • CONTENT LEVEL: Intermediate
Seattle Convention Center, 608

Think of a number. Add 3. Multiply by 2. Add 4. Divide by 2. Subtract original number. Is your answer 5?! Is it Math? Is it Magic? Is it Math-Magic? Participants in this engaging workshop will explore, prove, and write number tricks using algebraic reasoning. This activity can be used once students understand the following skills: write, simplify, expand, and factor algebraic expressions. It is a fun way to integrate algebraic thinking interactively.

Shefali Nanavati, Redwood Day, Oakland, California

139 **“Why–Cause?” Building Bridges Between Students’ Lives and Math Class**



8–10 Burst • CONTENT LEVEL: Intermediate
Seattle Convention Center, 602/603

We’re constantly evolving our response to the notorious question, “Why do I need to know this?” This burst invites participants to analyze math tasks that offer unique answers to that question while using a framework to determine whether a task meets the all-important goal of being mathematically rich and culturally relevant.

Ryan Colon, Education Consultant, Bowie, Maryland

140 **Building Meaningful Mathematics Pathways for High School Students**



10–12 Burst • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 605/610

In this session, participants will learn about the how some high schools in Fresno County, CA are rethinking their secondary mathematics course offerings to create meaningful mathematics learning for high school students. Hear about how schools are using improvement science tools to use student voice to catalyze change. Attendees will also learn about the many advance mathematic course options developed in California for bridging high school and college mathematics.

Kelli Statham, Fresno County Superintendent of Schools, California

141 **Algebraic Thinking Starts in Kindergarten. Let’s See It!**



Coaches/Leaders/Teacher Educators Burst
CONTENT LEVEL: Intermediate
Seattle Convention Center, 613/614

Did you know Algebraic reasoning threads through elementary and middle school? We will explore math prompts demonstrating the progression of Algebraic thinking students experience from age five. While using prompts, the vertical progression of the standards developing Algebraic reasoning will be highlighted. Knowing the progression empowers teachers to better value, understand, and support students’ learning path at all levels.

Jacqueline Palmquist, Jackie Palmquist, Naperville, Illinois

X (formerly Twitter): @thumbsupmath

142 **Authentic Assessments at the Intersection of Science and Math**



Coaches/Leaders/Teacher Educators Burst
CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 211

This presentation will overview the demographics and challenges of math instruction in observant Jewish day schools. It will demonstrate how this population remains underserved and disadvantaged relative to public schools. It will focus on the curriculum, professional development, and mentorship models CIJE uses to help promote mathematics and embed it into CIJE’s ongoing STEM instruction. This presentation will show participants how CIJE leverages science education to embed math.

David Seay, Center of Initiatives in Jewish Education, New York, New York



Fostering Belonging and Value for All Students through Instructional Practices and Systemic Initiatives



Valuing Students’ Authentic Funds of Knowledge to Enhance Deep Mathematical Learning and Belonging



Improving Students’ Sense of Value and Belonging through Assessment



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Exhibitor Workshop

143 Learning to Teach Geometry: Bringing Equity With Computational Thinking and Scratch in Grades 2–6



Coaches/Leaders/Teacher Educators Burst
CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 3B

Based on Symore Pappetr's concept of Logo turtle math, this research project introduces Computational Thinking (CT) to Preservice teachers (PSTs) to teach geometry in mathematics 2–6 grades and lay the foundation for later introduction of Computer Science in early grades.

Improve teacher candidates' understanding of computer science ideas and practices using Scratch program. PSTs will learn to follow an algorithm to complete a task, explore and identify a task consisting of steps that can be carried out by a human, a machine, or a combination of both, meaning that the solution does not necessarily have to be processed by a computer.

Rupam Saran, Medgar Evers College, Great Neck, New York

144 Leveraging School Leadership to Implement Equitable Math Instruction



Coaches/Leaders/Teacher Educators Burst
CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 307/308

We will describe the professional development and strategic planning work we did with school leaders before adopting a K–5 math curriculum. This work focused on why the successful implementation of the adoption was a move for equity in our district and provided school leaders with tools and learning to allow them to be leaders, champions, and coaches for their educators.

Elissa Farmer, Seattle Public Schools, Washington
Karl Meyer, Seattle Public Schools, Washington

145 Foster Math Identity Through Authentic Financial Applications



Gen Int Burst • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 4C4

Learn how to develop a positive student identity through authentic and responsive applications to personal finance. Though finance is a natural application of high school math and is relevant and engaging to students, it is often taught through a privileged lens that does not reflect students' experiences. We present recent research on mathematical and financial identity, with lessons on how to be sensitive to students' context and show them that they belong in the worlds of math and finance.

Jack Marley-Payne, FiCycle, New York, New York
Philip Dituri, FiCycle / Dituri Consulting, Brooklyn, New York

Andrew Davidson, FiCycle, New York, New York



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Exhibitor Workshop

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Friday Morning

SESSIONS

8:00–9:00 AM

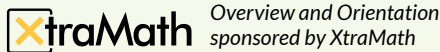
NOTE: Session 146 runs from 7:15–7:45 AM

146 Regional Conference Overview and Orientation

Gen Int Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 602/603

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

Board of Directors, National Council of Teachers of Mathematics, Reston, Virginia



147 A Holistic Approach to Assessing Mathematical Processes in the Early Years

PreK–2 Session • CONTENT LEVEL: Intermediate
Seattle Convention Center, 611

Join us for an interactive presentation on how a holistic approach to assessment, focusing on the foundational math processes, has empowered students to develop a deeper understanding of mathematics. Student-driven, game-based assessments combined with observational assessments by educators and input by caregivers help create a holistic and comprehensive picture of a students' experiences and knowledge of early mathematics inside and outside the classroom.

Jarrett Laughlin, Sprig Learning, Ottawa, Canada
X (formerly Twitter): @jarrettlaughlin
Lisa Lunney-Borden, St. Francis Xavier University, Antigonish, Nova Scotia

148 Alternative Algorithmic Techniques for Improving Procedural Fluency and Enriching Adaptive Reasoning

3–5 Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 2AB

Learn how to identify common math errors of marginalized students, including English learners, students with disabilities, and economically disadvantaged students. After completing an error analysis in basic computation, individuals will learn how to implement alternative algorithmic techniques targeting specific errors, improving procedural fluency and strategic competence to develop productive dispositions for empowering students by promoting equitable and inclusive settings.

Joseph Sencibaugh, Webster University, St Louis, Missouri
Jen Bond, Francis Howell School District, Wentzville, Missouri

149 Instructional Practices to Support Access and Productive Struggle for Students With Disabilities

3–5 Session • CONTENT LEVEL: Intermediate
Seattle Convention Center, 4C2

Educators are often unsure of how to support students with disabilities in grade-level mathematics when students lack lower-level numeracy and calculation skills. In this presentation, I share instructional practices and mathematical tools that enabled a third-grade student with disabilities to access and engage in grade-level mathematical problem-solving and productive struggle. Participants will receive a handout and watch video examples of practices and tools identified across 51 math lessons.

Katherine Lewis, University of Washington, Seattle
X (formerly Twitter): @klewismath

Fostering Belonging and Value for All Students through Instructional Practices and Systemic Initiatives

Valuing Students' Authentic Funds of Knowledge to Enhance Deep Mathematical Learning and Belonging

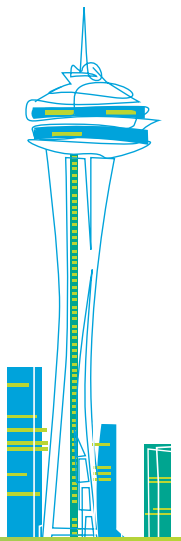
Improving Students' Sense of Value and Belonging through Assessment

Using Innovative Technology to Enrich Students' Value and Sense of Belonging in Mathematics

Eliminating Barriers to Inspire Creative Pathways Rooted in Students' Authenticity, Value, and Sense of Belonging in Mathematics

Developing Effective Advocacy Practices to Affect Students' Sense of Value and Belonging within Mathematics

Exhibitor Workshop



Friday Morning

SESSIONS

8:00–9:00 AM

150 Empowering Diverse Math Learners Through the Mathematical Practices



6–8 Session • CONTENT LEVEL: Intermediate
Seattle Convention Center, 4C3

Many well-meaning teachers inadvertently contribute to the development of mathematically underperforming students by providing them with a constant stream of low-level work. In this session, participants will learn the importance of setting high expectations for all students by engaging them in the Standards for Mathematical Practice and implementing strategies that change how students experience mathematics, especially those from marginalized groups.

Pamela Seda, Seda Educational Consulting, LLC,
Stockbridge, Georgia
X (formerly Twitter): @pamseda1

151 Taking the Hundreds Chart from Kindergarten to Algebra



8–10 Session • CONTENT LEVEL: Intermediate
Seattle Convention Center, 201

Students encounter the 100's chart in the primary grades. Learn how to build upon their understanding of this simple arithmetic tool to foster a deep understanding of algebraic skills. In grades 6–high school, students will be doing, talking, and thinking algebra, and even writing algebraic proofs. A seamless transition from arithmetic to algebra will engage all students in learning. A classroom-ready handout is available.

Brad Scott Fulton, Enterprise Elementary School District,
Redding, California
Bernard Guglberger, EAI Education, Oakland, New Jersey

153 Surviving a Zombie Apocalypse: Modeling an Epidemic



10–12 Session • CONTENT LEVEL: Intermediate
Seattle Convention Center, 618/620

Zombies are popular figures in movies and pop culture, and determining how to survive the zombie apocalypse has generated robust models. In this presentation, we will use the mathematics of pursuit curves to determine the best strategy to avoid a zombie encounter, and we will modify the SIR model as a starting point to create a model to track zombie infection.

Greta Mills, The Greene School, West Palm Beach,
Florida

154 Exploring Edtech Tools With the ISTE Seal Indicators: An Interactive Workshop



Coaches/Leaders/Teacher Educators Session
CONTENT LEVEL: In-Depth
Seattle Convention Center, 615/617

By the end of this workshop, participants will gain practical knowledge and skills in utilizing the ISTE Seal indicators to assess edtech tools, foster informed decision-making, and promote the integration of high-quality technology in educational settings. Participants will examine tools from the six dimensions: user interface and agency, learning design, digital pedagogy, inclusivity, assessment and data, ISTE Standards.

Autumn Ottenad, ISTE, Arlington, Virginia
X (formerly Twitter): @ssseason7



Fostering Belonging and Value for All Students through Instructional Practices and Systemic Initiatives



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Exhibitor Workshop

Friday Morning

SESSIONS

8:00–9:00 AM

155 Tips for Transforming Our Classrooms



Coaches/Leaders/Teacher Educators Session

CONTENT LEVEL: Intermediate
Seattle Convention Center, 6A

This session will focus on tips that motivate and empower students. The assets and perspectives we bring to our work directly impact how students see themselves and interact with peers. We will examine asset-based language and instructional routines and unpack how teachers make a difference in each of these areas. Participants will have explicit takeaways they can use immediately. Additionally, we will discuss the importance of collaboration using asset-based models.

Joleigh Honey, Board of Directors, National Council of Teachers of Mathematics, Reston, Virginia; Sandy, Utah X (formerly Twitter): @joleighhoney

156 Did Money Create Math? The Intertwined History of Math and Finance



Gen Int Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, Ballroom 6C

Far from being created in ivory towers, many of the most important developments in mathematics arose as a response to practical financial problems. Despite this, applied math is often treated as intellectually second-best and presented through artificial word problems in the classroom. Learn about the interconnected history of math and finance and how to show your students that 'real math' can be relevant and engaging.

Andrew Davidson, FiCycle, New York, New York
Philip Dituri, FiCycle / Dituri Consulting, Brooklyn, New York
Jack Marley-Payne, FiCycle, New York, New York

157 Integrating Restorative Justice into Mathematics Instruction: An Equity-Centered Approach



Gen Int Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, Ballroom 6E

This session will introduce the theoretical background and structural components undergirding an exploratory research-practice project to integrate restorative justice into mathematics instruction. The primary focus will be the journey of five early career teachers and how they applied their learning. The session highlights two lesson types the teachers facilitated: Notice and Wonder circles and lessons adapted for using the teaching math for social justice framework (Gau Bartell et al, 2022).

Shanté Stuart McQueen, Portland State University, Oregon



Fostering Belonging and Value for All Students through Instructional Practices and Systemic Initiatives



Valuing Students' Authentic Funds of Knowledge to Enhance Deep Mathematical Learning and Belonging



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Exhibitor Workshop

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158 Empowering ALL Students through Rich, Real-World Problem Solving: Equitable Strategies in K–2



PreK–2 Workshop • CONTENT LEVEL: Intermediate
Seattle Convention Center, 3A

Join us for an interactive, hands-on workshop on rich problem-solving tasks! Learn how to help students develop their own stories and to incorporate real-world context. All students deserve the right to struggle and the aha moments when they overcome the challenge. The session emphasizes equity and access by utilizing differentiated processes and math language routines to amplify language for multilingual learners, ensuring every child can succeed.

Andrea Wood, Mid-Del Schools, Moore, Oklahoma
X (formerly Twitter): @AWoodLovesMath
Denise McDowell, DLM Education, Norman, Oklahoma

159 The Power of Silence: Teaching More by Talking Less



PreK–2 Workshop • CONTENT LEVEL: Intermediate
Seattle Convention Center, 307/308

Minimizing teacher talk recognizes that students can think, like to think, and can learn more efficiently by figuring things out themselves. Come and experience examples of tested strategies of teachers who talk less and teach more—in classrooms where students are given respect for their native intelligence, encouraged to take ownership of their own learning, and have the opportunity to develop a more authentic basis of conceptual understanding in math.

Kathleen Jalalpour, The Pi Project, Menlo Park, California

161 How to Make Problem-Solving Routine



3–5 Workshop • CONTENT LEVEL: Intermediate
Seattle Convention Center, 608

Teaching problem-solving is hard. It is about helping students learn to make sense, think, and reason. Simply, problem-solving is not a procedure. Problem-solving is not delivered. It is developed. In this session, participants learn how to do just that through engaging daily problem-solving routines. Classroom-ready resources will be shared.

John SanGiovanni, Howard County Public School System, Westminster, Maryland
X (formerly Twitter): @JohnSanGiovanni

162 From Bell to Bell: Engaging Students the Whole Class Through



6–8 Workshop • CONTENT LEVEL: Intermediate
Seattle Convention Center, 606

It's been said that engagement comes down to the four C's: critical thinking, collaboration, creativity and communication. I'd like to add one more C to this list – Cognitively demanding tasks. Whether we're warming up in the first 10 minutes of class or facilitating a core lesson, students need to be challenged with rich tasks that get them actively involved in constructing knowledge and experiencing math as a way of thinking.

Fawn Nguyen, Amplify, Oak View, California
X (formerly Twitter): @fawnpnguyen

163 Using Mathematical Language Routines To Foster Belonging And Value In All Students



6–8 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 602/603

In this session, we will examine the interdependency of language learning and mathematics learning through the use of mathematical language routines (MLRs). Together, we will identify ways to embed MLRs across 6–8 and Algebra 1 curricular resources to foster a sense of belonging and value in students by providing them with access to rich mathematical discourse, elevating their culturally and linguistically diverse backgrounds, and supporting their sense-making and meta-awareness.

Evan Spellman, Great Minds, Middleton, Idaho

164 Building Authentic Projects With Community Partners



8–10 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 607

A parent who works as a metal fabricator specializing in product design with repurposed materials approached us with an offer to bring his expertise to our classroom. What would you do? How could you collaborate with this community partner to develop a meaningful set of activities that would provide your students with an engaging and challenging exploration?

Charles Slusher, Lincoln High School, Portland, Oregon
Joe Sneed, Lincoln High School, Portland, Oregon



Fostering Belonging and Value for All Students through Instructional Practices and Systemic Initiatives



Valuing Students' Authentic Funds of Knowledge to Enhance Deep Mathematical Learning and Belonging



Improving Students' Sense of Value and Belonging through Assessment



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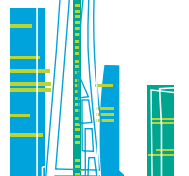
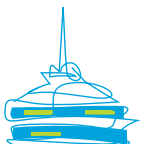
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Exhibitor Workshop



165.1 HOW Are Students Brilliant? Noticing and Naming Math Strengths in The Moment



8–10 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 4C4

All students are brilliant and come into classrooms with math strengths from their human experiences. Connecting to these intellectual strengths is part of our work as transformative math educators. Spend time in this session planning to notice strengths in the moment and practice naming strengths while watching a video of students learning math together.

Lisa Jilk, Reculturing Math Departments, Seattle, Washington

Estelle Woodbury, Reculturing Math Departments, Oakland, California

166 Stats for Multiple Pathways



8–10 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 211

Using hands-on activities, group discussion, and data collection, participants will explore three probability and statistics concepts and how they can be introduced and expanded upon through different levels, from middle school, algebra, Introduction to Statistics and AP Statistics. We will look at standard deviation, probability models, and correlation through group work, games, and data analysis.

Leslie McDonald, Sandy Spring Friends School, Ashton-Sandy Spring, Maryland

Cory Cloud, Sandy Spring Friends School, Ashton-Sandy Spring, Maryland

167 A Curriculum of Nonroutine Problems: A Process-Oriented Approach to the CCMP and Math Education



10–12 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 3B

This interactive workshop explains how to implement a sequence of nonroutine problems to allow all students access to a mathematics education that improves their ability to do mathematics and apply that ability in solving meaningful nonroutine problems in the student's life, school and community. Participants will have an extensive handout on implementation appropriate for their professional context, including sample sequences for a wide variety of professional contexts.

Robert London, Retired, Manhattan Beach, California

168 Three Labs for AP Calculus



10–12 Workshop • CONTENT LEVEL: In-Depth
Seattle Convention Center, 613/614

Experimentally confirm the calculus methods used in related rate problems, finding volumes of solids formed by rotation and finding the area and perimeter of polar curves. Even though many of us derive the methods used in these topics, it is important for students to see that they work experimentally, much like what is done in the science classroom. Participants will learn about three labs and how to implement them in the classroom.

Jessica Bolz, Bryn Mawr School, Baltimore, Maryland

169 Reimagining High-Quality Instruction: Working Toward Equitable × Essential Learning



Coaches/Leaders/Teacher Educators Workshop
CONTENT LEVEL: Intermediate
Seattle Convention Center, 604

We must move with collective action to advance excellence and dismantle systemic inequities. This session focuses on resources Student Achievement Partners developed to support this work, rooted in four categories: grade-level, joyful, linguistically sustaining, and culturally responsive-sustaining math instruction. Join us to engage with resources, reflect on strengths and needs, and collaborate to envision what equitable and essential math instruction can look like and how to get there.

Jennie Beltramini, Student Achievement Partners, New York, New York

Aly Martinez, Student Achievement Partners, New York, New York

Astrid Fossum, Student Achievement Partners, New York, New York

170 The Mathematical Practices as a Tool to Ensure Belonging



Coaches/Leaders/Teacher Educators Workshop
CONTENT LEVEL: Intermediate
Seattle Convention Center, 609

There is incredible power in the mathematical practices to help every child see themselves as a mathematician and experience belonging. But how do you harness this power? The answer is in developing 'look-fors' rooted in the mathematical practices that describe authentic student learning and agency. Learn how to create a 'look-for' system to help your school examine the implementation of the practices with the ultimate goal of fostering a joyful mathematical community.

Kris Raitzer, Northbrook District 28, Illinois

Michelle Jackson, Northbrook District 28, Illinois



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Exhibitor Workshop

Friday Morning

SESSIONS

9:30–10:30 AM

171 Students as Mathematicians: Making Use of SMP7 and SMP8 for Grades K–2



PreK–2 Session • CONTENT LEVEL: Intermediate
Seattle Convention Center, Ballroom 6A

Fostering an environment where students see themselves as mathematicians is essential for implementing equitable mathematics instruction. Teachers can help by providing opportunities for students to engage with the Standards for Mathematical Practice (MPs). We will discuss how to effectively promote the MPs in class, focusing on MP7 and MP8.

Jonelle Godfrey, Great Minds, San Diego, California

172 Math for All: Fostering Belonging by Allowing Access for All Learners



3–5 Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 201

How do we foster belonging for ALL students? Belonging in a math classroom means seeing oneself as a competent, contributing member of a math community. Participants will engage in a math task and consider a focal student (via video case study). Using a neurodevelopmental framework to analyze both the demands of the task and the strengths and challenges of the focal student, we will experience how to plan lessons that foster belonging and allow ALL students to engage in rigorous mathematics.

Amy Withers, Bank Street College of Education, New York, New York

Karen Rothschild, Bank Street College of Education, New York, New York

173 Whose Knowledge? Strategies for Incorporating Students' Funds of Knowledge and Agency



3–5 Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 615/617

How can we center students' knowledge and experiences in mathematics class when we have an adopted curriculum? Guided by a culturally responsive math teaching framework, presenters will share several instructional routines that draw on students' agency and lived experiences to increase engagement and promote their sense of belonging.

Cathery Yeh, Board of Directors, National Council of Teachers of Mathematics, Reston, Virginia; The University of Texas at Austin
X (formerly Twitter): @YehCathery

Jeff Freiberg, Seattle Public Schools, Washington

Claire Engelhard, Seattle Public Schools, Washington

Taylor King, Seattle Public Schools, Washington

Lololo Lololo Lololo, Seattle Public Schools, Washington

174 Mathematical Modeling in Pre-Existing K–12 Engineering Activities



6–8 Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, Ballroom 6B

The Modeling Eliciting Activities framework emphasizes mathematical modeling concepts required for engineering concepts. The use of the framework includes creating mathematics-based engineering problems for K–12 and engineering courses. A middle school set of pre-existing engineering activities stipulating mathematical modeling were analyzed with the framework to determine their alignment to mathematics-based engineering problems. The set is from a well-known online K–12 engineering website.

Latanya Robinson, Florida International University, Reno, Nevada

175 Using Students' Language, Realities, and Feedback in Mathematics



6–8 Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 611

As committed, caring educators we recognize and value diverse funds of knowledge of our students. But often, certain types of knowledge are not leveraged in math teaching because of traditional definitions that we have internalized of what is “mathematical.” In this session, we will reflect together on important shifts in the ways that we view students' language, realities, and feedback and learn concrete strategies for using the classroom. Real photos and artifacts will be shared.

Ally Lewis, Open Up Resources, Denver, Colorado
X (formerly Twitter): @allyelewis

176 Pillars & Practices: Ungrading to Catalyze Change at the Margins



8–10 Session • CONTENT LEVEL: Intermediate
Seattle Convention Center, 4C2

As educators, we seek innovative ways to engage students, close gaps between groups, and motivate all to demonstrate their brilliance. But many students are too focused on points, while others feel they are unable to succeed. Learn how a major overhaul of my grading practices led students to reimagine their own math identities, gain confidence, and take ownership of their learning. Takeaway strategies to provide meaningful learning experiences that spark joy for all students.

Nolan Fossum, Mount Miguel High School, Spring Valley, California

X (formerly Twitter): @NolanFossum



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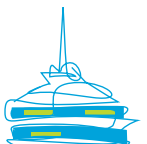
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Exhibitor Workshop



Friday Morning

SESSIONS

9:30–10:30 AM

176.1 What Is Algebra II? Why Is It Important?



10–12 Session • CONTENT LEVEL: In-Depth
Seattle Convention Center, 2AB

As data science becomes more important, policies are being revised to allow a data science course to replace the third year of high school mathematics, often called Algebra II. Given the increasing capacity of mathematical technologies, the emergence of ChatGPT, and Catalyzing Change's vision of mathematical understanding essential for every student, what should we be teaching in this course? How do we connect that content to data science yet ensure we maximize opportunities for all students?

Gail Burrill, Past President, National Council of Teachers of Mathematics, Reston, Virginia; Michigan State University, Hales Corners, Wisconsin

177 Think, Design, Refine: Shifting Mathematical Mindset Through Instructional Practice



Coaches/Leaders/Teacher Educators Session
CONTENT LEVEL: Intermediate
Seattle Convention Center, 4C3

Learn how the Nevada County educators used lesson study to improve a mathematical mindset in partnership with the CA Rural Math Grant Collaborative – the connection between project goals and countywide initiatives like UDL and SEL implementation. We will unpack the process of project evolution from a one-time PD session to an ongoing professional learning network focused on supporting instruction while upholding the belief that all students can become expert learners.

Carolyn Ferrero, Nevada County Superintendent of Schools Office, Grass Valley, California
X (formerly Twitter): @nevcoexpo

178 Let's Talk About Writing for MTLT!



Gen Int Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, Ballroom 6E

Do you have educational stories from which other teachers can learn? If so, let's talk about writing for MTLT! This session will provide an overview of NCTM's newest journal, MTLT. We will share insights and strategies for writing an article and an overview of the review process. Whether you are a classroom teacher, a university faculty member, a seasoned writer, or a novice author, this session has the information you need to write for MTLT. So, let's talk!

Clayton Edwards, Grundy Center Middle School, Iowa
X (formerly Twitter): @doctor_math
Ksenija Simic-Muller, Mathematics Dept, Tacoma, Washington

179 The Best Way to Improve Student Performance in Math Is to Improve Our Ability to Give Good Feedback



Gen Int Session • CONTENT LEVEL: Intermediate
Seattle Convention Center, Ballroom 6C

We are experiencing historic lows in math achievement. Feedback is one of the most powerful influences on improved academic achievement, especially in the mathematics classroom. We must interrogate our instructional practices and ask ourselves why we place so little time on quality, authentic feedback that can help set a path for students, engage them more deeply, and direct their attention to areas for growth and improvement, connecting them with future learning opportunities.

Teryn Thomas, EdLight, Melrose, Massachusetts
X (formerly Twitter): @EdLightPBC
Stephanie Layson, Catalyst Public Schools, Bremerton, Washington



Fostering Belonging and Value for All Students through Instructional Practices and Systemic Initiatives



Valuing Students' Authentic Funds of Knowledge to Enhance Deep Mathematical Learning and Belonging



Improving Students' Sense of Value and Belonging through Assessment



Using Innovative Technology to Enrich Students' Value and Sense of Belonging in Mathematics



Eliminating Barriers to Inspire Creative Pathways Rooted in Students' Authenticity, Value, and Sense of Belonging in Mathematics



Developing Effective Advocacy Practices to Affect Students' Sense of Value and Belonging within Mathematics



Exhibitor Workshop

Friday Morning

SESSIONS

9:30–10:30 AM

180 I Changed How I Teach Calculus With Incredible Results! See How.



Higher Ed Session • CONTENT LEVEL: Intermediate
Seattle Convention Center, 618/620

After teaching Calculus for thirty years, I drastically changed how I teach it. I will provide examples of how I altered my practices and how you could implement these modifications Monday morning to transform your classroom. Learn how to use vertical whiteboards and random grouping, along with other aspects of Peter Liljedahl's book "Building Thinking Classrooms in Mathematics," to change how you teach and how students learn mathematics.

Christine Larson, South Dakota State University,
Brookings
X (formerly Twitter): @CLL2718

180.1 Using Manipulatives and Models in Middle and High School Math (6–12)



6–8 Exhibitor Workshop

CONTENT LEVEL: Introduction to the Topic
Seattle Convention Center, 303

Teachers will engage with a variety of manipulatives and models from middle school and high school. Teachers will receive instruction on how to use the manipulatives and have a multi-targeted practice opportunity with each of the manipulatives. The facilitator and participants will discuss how to use these manipulatives and models.

STEMscopes Math & Math Nation, Houston, Texas

180.2 Same and Different: What's New in Bridges in Mathematics Third Edition



Coaches/Leaders/Teacher Educators Exhibitor Workshop

CONTENT LEVEL: Introduction to the Topic
Seattle Convention Center, 612

The Math Learning Center develops student-centered K–5 materials based on visual models and problem solving. Join us to see how our latest curriculum, Bridges in Mathematics Third Edition, expands representation, increases engagement, and includes relevant, open-ended tasks that support sensemaking and develop positive math identities.

The Math Learning Center, Salem, Oregon



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Exhibitor Workshop

Hear what's new from exhibitors—attend an **exhibitor workshop**. Find the full schedule by clicking on the “exhibitor workshops” icon on the NCTM mobile app.

181 Oracy and Numeracy Are Friends: The Power of Photo Chats to Promote Early Mathematical Learning

PreK–2 Workshop • CONTENT LEVEL: Intermediate
Seattle Convention Center, 604

Oracy and numeracy go hand-in-hand because mathematical thinking is developed in conversation with others. Photo Chats were designed to promote children's oral language skills but can also be a "quick win" math-talk routine. Digital photos are accessible to everyone. Photo Chats are a free and convenient way to deepen the skills of PreK–2 students over time. Learn how conversations about compelling photos build language skills and boost and formalize mathematical thinking.

Jie-Qi Chen, Erikson Institute, Chicago, Illinois
Rebeca Itzkowich, Erikson Institute, Chicago, Illinois

182 Show Up and Show Off: Mathematical Practices 1, 3 and 4 in Action

PreK–2 Workshop • CONTENT LEVEL: Intermediate
Seattle Convention Center, 3A

This session will focus on how teachers can create a mathematics classroom culture to ensure that all students "show up and show off" their deep understanding of mathematics through daily math talk structures and high-quality tasks. Participants will engage in math tasks as learners to experience Math Practices 1, 3, and 4 in action.

Labonnie Smith, District of Columbia Public Schools, Washington

183 Deepen Mathematical Learning by Connecting Representations: We Learn the Most "In-Between"

3–5 Workshop • CONTENT LEVEL: Intermediate
Seattle Convention Center, 307/308

If we "stick to the script," students do not have opportunities to own their learning and make the thoughtful connections required for deep learning. By actively encouraging students to use and connect representations, we open the spaces between representations for student ownership and deep learning. Learn strategies designed to help students use their own knowledge and experience to see how mathematics is applied in the real world and how it connects to prior learning.

Sara Delano Moore, ORIGO Education, Kent, Ohio
X (formerly Twitter): @saradelanomoore

184 Elevating Student Voice and Sense of Belonging Through Assessments

3–5 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 609

Why is student thinking the key to great teaching? Discover the power of student interviews. Teachers can learn to leverage formative assessment in a student-centered format. All children bring mathematical knowledge to the units we teach. It's time to tap into it!

Kim Webb, Tulare County Office of Education, Visalia, California

X (formerly Twitter): @NoodleKimw

Arcy Alafa, Tulare County Office of Education, Visalia, California

185 A Call for Empathy in Mathematics

6–8 Workshop • CONTENT LEVEL: Intermediate
Seattle Convention Center, 607

What if we could transform math instruction by integrating Open Design, an equity-centered innovation methodology that authentically engages deeper learning competencies? Participants will practice Open Design to create joyful, creative, and inclusive math learning environments. By using collaborative co-design and effective communication, we will empathetically brainstorm, synthesize ideas, and build low-fidelity prototypes that address complex math challenges.

Jimmy McCue, Open Way Learning, Denver, Colorado

Ben Owens, Open Way Learning, Asheville, North Carolina

Margaret Borden, Open Way Learning, Asheville, North Carolina

186 Build Your Students' Agency and Belonging With Number Talks

8–10 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 606


Join us in a few Number Talks built for secondary students. Number Talks empower students' math identity, invite powerful mathematical discourse, celebrate mistakes, and value every student thinking. We will watch, engage in, and do Number Talks together. You will leave armed with resources and energized to implement the routine in class tomorrow.


Jacqueline Palmquist, Jackie Palmquist, Naperville, Illinois


X (formerly Twitter): @thumbsupmath

Sue Ellen Vozza, Independent, Lincolnshire, Illinois


Patricia Baltzley, Independent, Gardiner, Montana


 Fostering Belonging and Value for All Students through Instructional Practices and Systemic Initiatives

 Valuing Students' Authentic Funds of Knowledge to Enhance Deep Mathematical Learning and Belonging

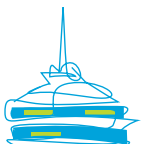
 Improving Students' Sense of Value and Belonging through Assessment

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 Exhibitor Workshop



187 Fostering Student Agency, Belonging, and Engagement Through Math Action Technology



8–10 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 602/603

Why exclude students based on their speed of calculations? Explore a Math Action Technological (MAT) example using the Pythagorean theorem to break away from traditional conceptions while removing prerequisite barriers to higher-order thinking and discourse. Engage in the lesson released as part of a special edition NCTM MTLT article (May 2023) as we discuss using MAT with all your technological resources. A detailed lesson plan and all tech links needed for the lesson are provided.

Sean Nank, National Council of Supervisors of Mathematics, Carlsbad, California
X (formerly Twitter): @Sean_Nank

188 Using a Children's Book With Pages That Change in Size to Deepen Math Learning One Page at a Time



8–10 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 608

Learn how to deepen mathematical learning using a picture book whose pages get smaller and then larger! When half-opened, the pages form a nested set of rectangles, which we will explore using content from the 6–12 mathematics curriculum. In addition, we will extend our analysis to nested rectangles found in paintings and furniture. The author of the book will join us to discuss the mathematical thinking that went into the book's design and how students can design and write their own book.

Ron Lancaster, University of Toronto, Hamilton, Canada

189 A Structure Where Students Thrive



10–12 Workshop • CONTENT LEVEL: Intermediate
Seattle Convention Center, 204

Engage in a rich mathematical task with a low threshold and high ceiling. Strategies for entry into the task will be discussed explicitly. During this session, productive discourse will be facilitated using the 5 Practices for Orchestrating Productive Discussions framework, demonstrating how this framework for discourse supports positive mathematical identity for students as student thinking is lifted up during whole-class discussions to support meaningful mathematical connections for all students.

Travis Lemon, Alpine School District, Lehi, Utah
X (formerly Twitter): @TravisLemon

190 Making Algebra Personal and Captivating: Creating a Project-Based Algebra Class



10–12 Workshop • CONTENT LEVEL: Intermediate
Seattle Convention Center, 3B

This workshop will have four components:

- 1) I will describe the "Application-First" process of teaching Algebra and briefly overview of our curriculum.
- 2) Teachers will participate in an interactive demonstration in which they will participate in some of the same project-based lessons that we use with our students.
- 3) I will then discuss the process that I use to create these project-based lessons.
- 4) Teachers will have the opportunity to apply that process to their own curriculum

Justin Cotter, Assabet Valley Regional Technical High School, Marlborough, Massachusetts



Fostering Belonging and Value for All Students through Instructional Practices and Systemic Initiatives



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Exhibitor Workshop

Friday Morning

WORKSHOPS

9:45–11:00 AM

191 Mathematics, Social Justice, Advocacy, and Belonging



10–12 Workshop • CONTENT LEVEL: Intermediate
Seattle Convention Center, 613/614

How can we inspire our students to be math activists? The Nottingham Truth Seekers, an after-school club, investigated social and environmental justice issues in Syracuse, NY. Students focused their learning on the nationally high lead poisoning rates in Syracuse. After educating themselves about the issue, the Truth Seekers sought to educate others. We will share a series of student-generated math lessons and our cumulative community event that raised awareness and evoked positive change.

Ken Keech, Syracuse City Schools, New York
Betty Routhouska, Syracuse City School District, Syracuse, New York
Nicole Fonger, Syracuse University, New York

192 Field Rotations: Fostering A Sense Value and Belonging in Pre-Service Teachers



Coaches/Leaders/Teacher Educators Workshop
CONTENT LEVEL: In-Depth
Seattle Convention Center, 211

It is important for pre-service teachers not to be “tied” to one teacher during their field experiences in math methods courses. Additionally, not factoring pre-service teacher’s choices in these field placements leads to discontent, frustration and often “mimicking” the host teachers teaching. To combat these issues, pre-service teachers enrolled in math methods courses were asked to rotate between a set of mentor teachers. This process proved to be advantageous as it provided opportunities.

Udita Gupta, University of Utah, Cottonwood Heights

193 New and Pre-Service Teachers Workshop

Gen Int Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 4C4

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

Board of Directors, National Council of Teachers of Mathematics, Reston, Virginia



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Exhibitor Workshop

Visit **NCTM Central**—connect with peers in the Networking Lounge, renew your membership, and shop the latest titles at the **NCTM Bookstore**.

Friday Morning

SESSIONS

11:00 AM–12:00 PM

196 XplusWhy: Projects That Connect Algebra to Real Life



8–10 Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 611

Join this session to be introduced to a series of projects that connect Algebra standards to real-life applications. Projects cover linear equations, inequalities, percents, and absolute value. Each project includes everything needed to incorporate into lesson plans.

Daveen Meyers, California Virtual Academy, Villa Park
Jeanette King, California Virtual Academy, Simi Valley

196.1 Data and Data Science: Core and Beyond



10–12 Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 2AB

Students often see mathematics as abstract and unrelated. Data science and real data can motivate students to investigate mathematical relationships involved in contexts like herd immunity, the gender wage gap, or changing levels of CO₂ in the atmosphere. Let's value student knowledge and provide all students opportunities to connect mathematics to the world in which they live.

Gail Burrill, Past President, National Council of Teachers of Mathematics, Reston, Virginia; Michigan State University, Hales Corners, Wisconsin
Thomas Dick, Independent, Corvallis, Oregon

197 Mathigon Polypad: An Awesome Digital Mathematical Playground



10–12 Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, Ballroom 6A

Mathigon is quickly becoming one of the most powerful digital mathematics tools. Participants will learn about how the Mathigon Polypad tools can help students visual mathematical concepts and explore methods to engage students.

Mark Kreie, Brookings School District, South Dakota
X (formerly Twitter): @kreiem

198 What is the Point of Points? A Better Way to Assess Student Learning in Mathematics.



10–12 Session • CONTENT LEVEL: Intermediate
Seattle Convention Center, 4C3

First, we will take a critical look at how the points-based system of mathematics may contribute to a negative math identity among students. Math education has changed over the years, but assessment practices at the secondary level have changed very little. Then, I will introduce an assessment strategy that I've been developing and using, designed to reward not just skills but also mathematical communication and comprehension. This strategy is adaptable to the needs of any level of math.

Douglas Guyette, Notre Dame de la baie Academy, Green Bay, Wisconsin

200 Embracing Artificial Intelligence in the Classroom



Coaches/Leaders/Teacher Educators Session
CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 618/620

Why are so many people intimidated by Artificial Intelligence (AI)? This question was a foundation for our action research, where we were employed as teacher educators. By engaging participants in the tasks, we hope to provide them with a deeper understanding of AI and support them with tools to use in their classrooms.

Taajah Witherspoon, University of Alabama at Birmingham
X (formerly Twitter): tspoon1000
Erica Littleton, Learning Little People, Birmingham, Alabama



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Exhibitor Workshop



Friday Morning

SESSIONS

11:00 AM–12:00 PM

201 Below the Tip of the Iceberg: Student Interviews/Learning Trajectories to Transform Math Intervention

Gen Int Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 615/617

Red, yellow, green – what does it all really mean? Student math interviews reveal student thinking and identify the foundational math concepts, skills, and strategies that provide an entry point for student success, which is essential for accelerating growth. Participants will experience how to use the information from student K-5 math interviews to determine where a student falls on the standards learning trajectory. We will explore high leverage math strategies and activities and simple data.

Anne Gallagher, Anne Gallagher Consulting, Olympia, Washington

202 Creating Welcoming Spaces in Mathematics Through the Lens of Indigenous Worldviews

Gen Int Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, Ballroom 6B

What does it mean to build welcoming spaces for Indigenous learners in mathematics? In this session, we will explore how engaging with Indigenous perspectives in mathematics can create welcoming spaces, not only for Indigenous learners but for ALL learners.

Florence Glanfield, TODOS: Mathematics for ALL & Professor, Mathematics Education, Edmondton, Canada

203 Our Children Are Not Numbers: Humanizing Mathematics Assessment and Grading Practices

Gen Int Session • CONTENT LEVEL: Intermediate
Seattle Convention Center, Ballroom 6E

My child looked into my eyes and asked, “Mom, am I still a Level 1?” When tests are used to assign numbers and levels to our children, they chip away at their identity and erode their humanity. It is a practice that we must abandon. This session provides practical guidance for leveraging data to examine the systems we (the adults) have designed, as well as practical and humanizing approaches for understanding student learning.

Jody Guarino, Orange County Department of Education, Costa Mesa, California
X (formerly Twitter): @jody_guarino

Shelbi Cole, Student Achievement Partners, Trinity, Florida

Michelle Sperling, Independent, Costa Mesa, California

204 Social Justice Through Mathematics Instruction

Gen Int Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, Ballroom 6C

This session will provide participants with strategies and resources to integrate social justice and mathematics to provide equitable and culturally relevant instruction. Participants will be provided resources to understand how social issues are historical, and reform involves problem-solving through mathematics. Participants can take what they learn to build community within their classroom with their diverse student populations.

Monique Harrison, Kent School District, Washington
Jessica Tufts, Lake Roosevelt Elementary, Electric City, Washington



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Exhibitor Workshop

Friday Morning

SESSIONS

11:00 AM–12:00 PM

204.1 Productive + Struggle = Student Success in Mathematics (K–5)



3–5 Exhibitor Workshop



CONTENT LEVEL: Introduction to the Topic
Seattle Convention Center, 303

Are your math students hesitant when presented with challenging tasks? Do they wait for you to rescue them at the first signs of struggle? Discover the value of productive struggle and explore key components essential to building a classroom that fosters grit and perseverance.

STEMscopes Math & Math Nation, Houston, Texas

204.2 Math in Action: Enhancing Math Communities and Team Building (Grades 6–12)



Coaches/Leaders/Teacher Educators Exhibitor Workshop



CONTENT LEVEL: Introduction to the Topic
Seattle Convention Center, 612

Explore real-world authentic math tasks that offer students opportunities to apply mathematical concepts and techniques in everyday situations. Mathematics goes beyond numbers and formulas; it's a powerful tool for real-world situations. Practical math projects not only helps apply math to the real world, but also improves their critical thinking.

Imagine Learning, Scottsdale, Arizona

204.3 The Power of Implementing Belonging Interventions in Secondary Mathematics



Coaches/Leaders/Teacher Educators Exhibitor Workshop



CONTENT LEVEL: Introduction to the Topic
Seattle Convention Center, 611

Belonging interventions have become ubiquitous in K-12 schools throughout the U.S., with a particular emphasis on social belonging. Building on the research of Drs. Catherine Goode, Josh Aronson, and others, we will discuss disciplinary (mathematical) belonging and how it leads to increased gains - and joy - for students in math.

Derivita, Salt Lake City, Utah



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Exhibitor Workshop

Visit the **NCTM Bookstore** at **NCTM Central!**
Shop for books and products and save up to 35% off the list price!

205 Building Confidence in Mathematics Through Productive Participation



3–5 Burst • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 602/603

Are you looking for strategies to inspire mathematical thinking and discourse in your elementary classroom? If so, come and take a journey to create meaningful opportunities that implement positive learning experiences to build your students' confidence. The purpose is to empower you to gain a deeper awareness to promote critical thinking skills that will support productive participation through mathematical challenges.

Laurie James, UH—West Oahu, Kapolei, Hawaii

206 Engaging Elementary Students in Self-Assessment Through Math Rubrics



3–5 Burst • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 606

We will discuss how rubrics can be designed and used to support elementary students learning to self-assess their mathematical thinking. Participants will learn about quality rubric design and analyze sample elementary math rubrics together. Suggestions on how to model self-assessment with students and coach students on assessing their mathematical work will be shared. Finally, participants will brainstorm how to implement rubrics in their mathematics teaching.

Carolyn Mitten, Westmont College, Santa Barbara, California

207 Pom-Pom Math: Supporting Multi-Digit Computation Through Hands-On, Rigorous Place Value Play



3–5 Burst • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 609

Behold the power of hands-on exploration and discovery with pom-poms! Learn how pom-pom math deepens understanding of the origins of our base-10 number system to powerfully support multi-digit computation in all four operations with rigorous place value understanding. Come play with us in the colorful world of Pom-Pom Math!

Lindsay Kapek, Sagepoint Education, Lynnwood, Washington
Katrina Tabari, Sagepoint Education, Lynnwood, Washington

208 A Fishy Way to Connect Statistics and Proportional Reasoning



6–8 Burst • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 604

We will perform a quick simulation to determine the number of “fish” in a “lake” (7th-grade problem), discuss strategies to manage this kind of activity in the classroom, and explore connections to other domains and grade levels (equation solving, proportional reasoning). Teachers will leave with one great problem and see helpful connections to big ideas.

Shelley Kriegl, Center for Mathematics and Teaching, Sherman Oaks, California
Cynthia Raff, Center for Mathematics and Teaching, Redondo Beach, California
Mark Goldstein, Center for Mathematics and Teaching, Redondo Beach, California

209 Ideas for Using AI to Improve Mathematics Instruction in Secondary Education



8–10 Burst • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 608

With the introduction of artificial intelligence (AI) interfaces, technology continues to change the learning environment in mathematics. This can result in decreased learning as students use technology to solve problems for them. This presentation will introduce multiple ideas for using AI interfaces to improve mathematics instruction. We will give examples of activities that help keep instruction focused on making connections, making mathematics relevant, and improving critical thinking.

Sandra Miles, Utah State University, Logan
Katherine Vela, Utah State University, Price

210 Describe It! Building Vocabulary Through Communication



10–12 Burst • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 3B

How can we help students learn vocabulary-heavy topics such as circles, features of functions, and trigonometry? Experience a “Describe It!” activity that gets students writing, talking, and drawing about math to help them master vocabulary related to graphs and diagrams.

Amy O’Gorman, Houston Independent School District, Texas



Fostering Belonging and Value for All Students through Instructional Practices and Systemic Initiatives



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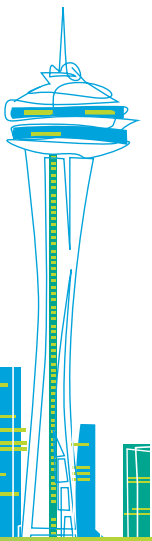
Eliminating Barriers to Inspire Creative Pathways Rooted in Students' Authenticity, Value, and Sense of Belonging in Mathematics



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Exhibitor Workshop



211 Engaging Students in Math Through Social Justice and Long-Term Team Projects



10–12 Burst • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 307/308

Learners are more engaged when working with peers, making choices aligned with their identities, when the concepts and skills they are learning connect to the solution to a problem, and when that problem matters to them. Come and learn about the Team Project, used in Washington State for over 25 years to engage teams of students in long-term socially relevant projects where math enables sense-making and solutions. Access a trove of Team Projects and evaluation rubrics.

Mark Roddy, Seattle University, Washington

212 What's Happening with CO₂ in the Atmosphere? A Precalculus Model for Atmospheric Carbon Dioxide



10–12 Burst • CONTENT LEVEL: Intermediate
Seattle Convention Center, 204

Challenge your students with math modeling and data analysis relevant to the world they are growing into as young adults. Atmospheric CO₂ concentration, as recorded in the Keeling curve, can be modeled using the tools of algebra and precalculus and will give meaning to linear, exponential, and log functions. The symbolic, numerical, graphical, and verbal approaches to the modeling process make this data accessible to a range of students.

Kevin Bartkovich, Phillips Exeter Academy, New Hampshire

213 Coaching Elementary Teachers Through Math Anxiety to Encourage Student Achievement



Coaches/Leaders/Teacher Educators Burst
CONTENT LEVEL: Intermediate
Seattle Convention Center, 211

Mathematically proficient students come from teachers with a strong math understanding that design meaningful learning experiences. But what happens when teachers are feeling unsure of their math understanding? Math anxiety can affect elementary teachers in particular. You may notice symptoms like unclear lesson plans or vague learning goals. Empower the teachers you coach through their math anxiety and lead them through a backwards design unit-building experience so students can achieve!

Daniella Barajas, Sulphur Springs Union School District, Santa Clarita, California

214 Digging into a Finer Grain of Mathematics Ability



Coaches/Leaders/Teacher Educators Burst
CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 4C4

Learn about the research behind reporting mathematics ability at a finer grain – the domain level. This session will outline the investigation into the necessary and sufficient criteria for assessment design to gain meaningful insight into student math ability at the domain level. Participants will get a view of how this research can be applied to fine-tune instruction and enhance students' mathematics development.

Lisa Bickel, MetaMetrics, Durham, North Carolina
Sue Steinkamp, Ph.D., MetaMetrics, Inc., Durham, North Carolina



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Exhibitor Workshop

Friday Morning

BURSTS

11:30 AM–12:00 PM

215 Using Math PLC Team Design to Create and Implement Successful Secondary Intervention Classes

Coaches/Leaders/Teacher Educators Burst
CONTENT LEVEL: Intermediate
Seattle Convention Center, 613/614

Learn how to use formative data cycles to lead department PLC time. During this session, attendees will look at how the math department at Indian Springs High School in San Bernardino, California, used their Department PLC time to design an Intervention class that works. Attendees will review the steps of the department's data cycles and specifics on how this data cycle was used to design an intervention class.

Yas-Meen West, San Bernardino City Unified School District, California

216 Sense of Value and Belonging via Unit Plan Development

Higher Ed Burst • CONTENT LEVEL: In-Depth
Seattle Convention Center, 3A

Assessments are integral to every student's higher math education journey to becoming a secondary school math teacher. Students, whether they like it or not are required to complete this assessment (mainly a culminating exam) in order to get a good score on their course. Giving students opportunities to develop, connect and build the assessment their assessment according to their field work experiences helps create a sense of belonging in math and values students' experiences.

Udita Gupta, University of Utah, Cottonwood Heights

217 Studying College Math Recitation Sessions' Effects on Peer Engagement and Course Success

Higher Ed Burst • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 607

This presentation will review my research findings on how recitation sessions affect Pre-Calculus, Calculus 1, and Calculus 2 students at Fresno State University. I will discuss the relationship between attending these mandatory sessions, DFW rates, and course grades. Since sessions are designed to supplement lecture courses, I will detail conclusions from student interviews regarding peer engagement and reasoning skills and then discuss what we can learn from this research.

Catie Corchado, California State University, Fresno



Fostering Belonging and Value for All Students through Instructional Practices and Systemic Initiatives



Valuing Students' Authentic Funds of Knowledge to Enhance Deep Mathematical Learning and Belonging



Improving Students' Sense of Value and Belonging through Assessment



Using Innovative Technology to Enrich Students' Value and Sense of Belonging in Mathematics



Eliminating Barriers to Inspire Creative Pathways Rooted in Students' Authenticity, Value, and Sense of Belonging in Mathematics



Developing Effective Advocacy Practices to Affect Students' Sense of Value and Belonging within Mathematics



Exhibitor Workshop

Join us for the NCTM
2024 Annual Meeting & Exposition:
Chicago, Illinois • September 25–28, 2024

Friday Afternoon

SESSIONS

1:00–2:00 PM

218 Building Thinking Classrooms: Practical Application of Liljedahl's Strategies in Lake Stevens School



8–10 Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 4C2

Come learn how our district has implemented the teaching strategies outlined in Peter Liljedahl's book *Building Thinking Classrooms*, including ways we adapted his ideas in small, manageable steps. Learn the practical ways we used Liljedahl's blueprint to improve student engagement, foster deeper thinking, and help students take ownership for their learning.

Kristen Wickizer, Lake Stevens School District, Washington

219 Extreme Skydiving: A Calculus Model for a Skydiver's Decent Accessible to All Calculus Students



10–12 Session • CONTENT LEVEL: Intermediate
Seattle Convention Center, 618/620

Model decent of a skydiver from freefall to landing for a low-altitude jump, then apply the method to the extreme skydiver Felix Baumgartner's supersonic freefall. This is a high-interest problem accessible using numerical, graphical, and symbolic approaches, which allows a variety of calculus students to solve this problem successfully. Appropriate for AP and non-AP calculus, and for students at various levels of facility with the symbolic manipulations/paper-and-pencil algebra of calculus.

Kevin Bartkovich, Phillips Exeter Academy, New Hampshire

220 The Belonging Curse-Breaker: Infusing Belonging to Break Curses and Barriers to Mathematics Success



10–12 Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, Ballroom 6A

Mathematics can often be a barrier and even feel like a curse to high school students hoping to matriculate to universities and community colleges. Come and experience the mentoring model we have developed to build the confidence and belonging of high school seniors and engage them in mentoring their peers in mathematics and in belonging. Students are the curse-breakers and barrier-topplers at their school sites.

Emily Curtis, University of Arizona student, Tucson
Melissa Hosten, University of Arizona Center for Recruitment and Retention of Mathematics Teachers, Tucson

221 Addressing the Crisis in Math Literacy for Black Students



Coaches/Leaders/Teacher Educators Session
CONTENT LEVEL: Intermediate
Seattle Convention Center, 2AB

Many educators have normalized negative experiences and perceptions of Black learners in math settings, and the so-called achievement gap perpetuates the myth that black students are academically inferior to their Asian and white peers. Unfortunately, many Black students have internalized these messages. Participants will learn how to inspire Black learners by serving as warm demanders and incorporating culturally responsive practices and contributions of Black folk into their math curriculum.

Kirk Kirkwood, Village Life Education, Cerritos, California

222 Choosing to See Together: Collaborative Reflection on Equitable Practices in Math



Gen Int Session • CONTENT LEVEL: Intermediate
Seattle Convention Center, Ballroom 6E

This presentation focuses on the key learning of math teachers and leaders from Paterson Public Schools who engaged in a book study of *Choosing to See: A Framework for Equity in the Math Classroom* (Seda & Brown, 2021). Through honest conversations, journaling, and attempting new practices, participants developed practical strategies, an openness to ongoing reflection, and a reinvigorated drive to ensure that ALL students see themselves as mathematical thinkers and problem solvers.

Elizabeth Caccavella, Paterson Public Schools, New Jersey
X (formerly Twitter): @E_Caccavella
Erica Bernard, Paterson Public Schools, New Jersey



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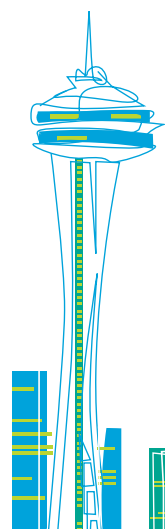
Eliminating Barriers to Inspire Creative Pathways Rooted in Students' Authenticity, Value, and Sense of Belonging in Mathematics



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Exhibitor Workshop



Friday Afternoon

SESSIONS

1:00–2:00 PM

223 **Humanizing Systems for Teaching and Learning: The Interconnectedness of Joy, Agency, and Belonging**



Gen Int Session • CONTENT LEVEL: Intermediate
Seattle Convention Center, Ballroom 6C

What does a teaching and learning system look, sound, and feel like if “humanizing” the system is at the center of its design? When humanizing a system for learning, the interconnectedness of professional learning, curriculum, instruction, assessment, communication, and inclusion must be collectively considered and in sync. Join us for a collaborative conversation around humanizing our learning systems to build agency, identity and belonging for all teachers, students, and families.

John Drake, Orange County Department of Education, Costa Mesa, California

Jody Guarino, Orange County Department of Education, Costa Mesa, California

Joanna Hayman, Independent, Redondo Beach, California

224 **Making the Learning Stick: Using Brain Science to Help Our Students Retain Concepts (K–6)**



Gen Int Session • CONTENT LEVEL: Intermediate
Seattle Convention Center, 201

We can have incredible objectives aligned to standards, write the prettiest lesson plans, and execute a flawless lesson delivery, only to have students not recall the information the next day. What happened? Join us to learn what’s going on the brain. Let’s leverage years of research to make their learning sticky!

Jennifer Hunt, New Math Minds LLC, Beaverton, Oregon
X (formerly Twitter): @NewMathMinds

225 **Mathematical Hearts: Cultivating Culturally Responsive Mathematics Teaching in Elementary Classrooms**



Gen Int Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 615/617

This interactive session introduces teaching tools and activities that foster culturally responsive mathematics teaching in elementary classrooms. We focus on three interwoven strands: knowledge and identities, rigor and support, and power and participation to help cultivate joy, empathy and action (mathematical heart) in teaching and learning.

Julia Aguirre, University of Washington Tacoma

Maria Zavala, San Francisco State University, California

226 **The Bus Stops Here!**



Gen Int Session • CONTENT LEVEL: Intermediate
Seattle Convention Center, Ballroom 6B

We are an Alternative High School and the last stop for many students. Some are there to graduate early; others are way behind in credits. We must design many pathways to ensure success for all students. In this session, we will discuss the pathways we have chosen and the whys of those pathways. Some are technologically based, others use manipulatives, and some may not even be based on math but on capturing the joy students felt in their math and their schooling when they were young.

Karin Lee, Mountain View High School, San Jacinto, California

Jordan Smith Jr., Mountain View High School, San Jacinto, California



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Exhibitor Workshop

Friday Afternoon

SESSIONS

1:00–2:00 PM

227 What Does It Mean to be Good at Math?



Gen Int Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 4C3

We consider the question of what it means to be good at mathematics. In doing so, we explore the role of open-ended problems in productive struggle. Further, we consider research on the role of brilliance in mathematics. Too often people view being good at math as being able to compute quickly in one's head, but this definition is lacking and leaves many feeling that they cannot excel at the subject. We reflect on how we might challenge the traditional view and make mathematics accessible to all.

Lidia Gonzalez, York College, CUNY, Brooklyn, New York
X (formerly Twitter): @LidiaGonzalez66

227.1 The Teaching and Learning of Mathematics is About Ideas



PreK–2 Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 611

The teaching and learning of mathematics is about ideas. It's about the journey. While many math educators suggest the answer is the most important part, I'm not convinced that's true. In this session, we'll explore how the teaching and learning of mathematics should be focused on ideas more than answers and kids more than content.

Zachary Champagne, The Discovery School, Jacksonville, Florida

227.2 Playing With Quadratics in Standard Form and Other Curiosities



10–12 Exhibitor Workshop

CONTENT LEVEL: In-Depth
Seattle Convention Center, 303

How can we engage our students in the beauty and wonder of mathematics? Often, we explore math in unusual places. But what about the puzzles that lie within mathematics itself? Come dive into interesting relationships within the world of Quadratics.

Texas Instruments, Sachse, Texas

227.3 K–5 Teacher Imagine Learning Illustrative Mathematics “Make and Take” Math Center Workshop



Coaches/Leaders/ Teacher Educators Exhibitor Workshop

CONTENT LEVEL: Introduction to the Topic
Seattle Convention Center, 612

See how hands-on learning will increase engagement, the use of math process skills, and your students' ability to build computational fluency. Let's put our students at the “center” of your math classrooms! Leave with complete grade-math centers to use the very next day in your classroom.

Imagine Learning, Scottsdale, Arizona



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Exhibitor Workshop

Shop and save at the [NCTM Bookstore](#) in [NCTM Central](#)!

228 Honoring Differences: Invented Strategies for Multi-Digit Addition and Subtraction



PreK–2 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 204

Students thrive when we approach multi-digit computation by encouraging and celebrating invented strategies, and their number sense soars. In this session, you will learn how to create a safe space for invented strategies and you'll be introduced to common invented strategies for multi-digit addition and subtraction. With plenty of practice using the strategies built into the session, you'll leave ready to get started right away in your classroom.

Donna Boucher, Math Coach's Corner, Houston, Texas
X (formerly Twitter): MathCoachCorner

229 Bring Back That Loving Feeling: Using PERMA to Restore Joy



3–5 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 606

Children enter their school years filled with joy. Yet, along the way, many begin to associate mathematics with frustration. PERMA, developed by Martin Seligman, outlines five components of happiness. We can use this psychological theory as a lens for examining our pedagogy. Teachers will explore how this theory connects to mathematics pedagogy, plan lessons for future use, and exchange ideas. Let's collaborate to ensure we bring back the love of mathematics in the elementary grades.

Dawn Pagliaro-Newman, NYC DOE PS130, Brooklyn, New York
Melissa Singer, Independent, Brooklyn, New York

230 Fluency Isn't 40 Problems



3–5 Workshop • CONTENT LEVEL: Intermediate
Seattle Convention Center, 613/614

Fluency is much more than basic facts and algorithms. And fluency is certainly not a worksheet. In this session, participants go deeply into what fluency is, what it isn't, and how we can help our students realize THEIR fluency. This session features strategies for maximizing practice through reflection, connection, and engagement that spring from high-quality fluency instruction and responsible assessment. Classroom-ready resources will be provided.

John SanGiovanni, Howard County Public School System, Westminster, Maryland
X (formerly Twitter): @JohnSanGiovanni

231 Learning Mathematics Through Games! Oh My!!!



3–5 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 609

Participants will actively engage in games that integrate problem-solving activities and mathematics learning. Activities will include, but are not limited to, measurement, attributes, and geometry. Games will include but not limited to Towers of Hanoi, Fibonacci. Handouts of each activity will be provided.

Maria Diamantis, Southern CT State University, New Haven, Connecticut

233 Building Students Math Habits and Dispositions in a Second Math Class



6–8 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 604

How do I help my students talk about math and actually listen to each other? This question was asked increasingly after the pandemic and virtual learning. In 2022, Seattle Public Schools created a curriculum with lessons to support students in further developing their math habits and dispositions. During this workshop we will explore the goals and purpose for the habits and dispositions curriculum, along with the lessons that are used to build students habits of listening, sharing, and more!

Maci Nelson, Seattle Public Schools, Washington
Mei Pontano, Seattle Public Schools, Washington



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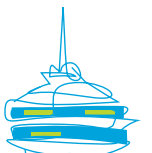
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Exhibitor Workshop



Friday Afternoon

WORKSHOPS

1:00–2:15 PM

234 Discussion Protocols that Ensure All Voices in the Classroom are Heard



6–8 Workshop • CONTENT LEVEL: In-Depth
Seattle Convention Center, 307/308

How can we educators facilitate rich conversations in our classrooms that are academically rigorous while ensuring that all students' voices are heard? Discussion protocols can be valuable instructional routines that allow students to build on their own mathematical understanding and authentically respond to each other's thinking. In this workshop we will participate in a variety of discussion protocols that can be easily incorporated into your classroom practice.

Benjamin Allen, NYC DOE, Ozone Park, New York
Abdullah Chaudry, NYC DOE, Ozone Park, New York

235 Shifting Gears: Models for Middle Level Math Instruction



6–8 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 4C4

Come tour our instructional model showroom! Four of our secondary math instructional models will be on display, focusing on revving up engagement and collaboration. Check out the pickup (playlists), the sports car (stations), the four-wheel drive (student-centered assessment), and the caravan (student-choice) on display. Experience each model, see examples, and learn strategies for planning and implementation. Join us and see what model you will want to take to take for a test drive.

Rebecca Rousseau, North Penn School District, Lansdale, Pennsylvania
Melinda Lyon, North Penn School District, Lansdale, Pennsylvania

236 Supporting English Learners to Connect Experiences to Math in a Three-Moment Lesson Architecture



8–10 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 607

We outline three Moments: 1) Preparing the Learners, 2) Interacting with the Concept, 3) Extending Understanding. During Preparing, students can connect their prior but not prerequisite knowledge to the new mathematical topic. As students interact with concepts and peers, they develop language to connect ideas and engage in math practices. Later, in the Extending Moment, students need latitude to apply concepts to their lives. For English Learners, connections develop math and language together.

Haiwen Chu, WestEd, San Francisco, California
X (formerly Twitter): @HaiwenChu

237 Supporting Multilingual Learners Through Integrated English Language Development Math Classes



8–10 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 608

This session will provide participants with information around how a large urban high school district in Phoenix, Arizona, used math classes as part of the model to support English language development. The participants will engage in activities around aligning student math practices with English language proficiency standards, as well as looking at math tasks and lessons and finding ways to support English learners through the lens of mathematics.

Kristine Cunningham, Phoenix Union High School District, Arizona
X (formerly Twitter): @krisc126

Sally Claypool, Phoenix Union High School District, Arizona



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Exhibitor Workshop

Friday Afternoon

WORKSHOPS

1:00–2:15 PM

238 Learn to Build New Application Models for Algebra, Then Teach Your Students to Build These Models



10–12 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 3A

Participants will build small computer models in a free, web-based visual modeling software to create new representations of functions then combine the new function structures to create models to study how medicine works in the body, spread of epidemics, and predator-prey interactions. Appropriate for ALL Algebra students, including those not served well by traditional instruction. Applies engineering design, math, science, and technology. Bring laptop or tablet.

Diana Fisher, CC Modeling Systems, Beaverton, Oregon

239 Creating the Capacity for Change: Structures for Empowering Elementary Teachers



Coaches/Leaders/Teacher Educators Workshop
CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 211

Disrupting the status quo cannot happen without vision, relationships built on trust, and capacity-building. Understanding structures designed to increase purposeful collaboration, support differentiated professional development, and sustain reflective practice supports systemic change and increases access to equitable mathematics instruction. Participants will identify ways to leverage their own district resources and stakeholders to create a vision of student-centered mathematics teaching.

Susan Totaro, West Windsor–Plainsboro Regional School District, New Jersey

X (formerly Twitter): @SusanTotaro

Melissa Pearson, West Windsor–Plainsboro Regional School District, New Jersey

240 Ethnic Studies Principles in STEM Classrooms



Coaches/Leaders/Teacher Educators Workshop
CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 3B

Ethnic studies extends beyond a history class, providing a framework of principles that informs instruction. As it becomes a graduation requirement, it's essential to assess our familiarity with these concepts. Let's explore how we can enrich math instruction by incorporating concepts from the Ethnic Studies framework and principles. Reflect on our current practices that align with these concepts and consider adapting or adopting approaches to foster criticality in ourselves and our students.

Naehee Kwun, UCI CalTeach, Irvine, California

X (formerly Twitter): @NaeheeK

Kris Houston, UCI CalTeach, Irvine, California



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Exhibitor Workshop

Friday Afternoon

SESSIONS

2:30–3:30 PM

241 Assessment Interviews: Moving Beyond Timed Test



3–5 Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 618/620

Most fluency assessments focus on accuracy of facts. This session will highlight how to use student interviews to assess the other components of fluency: flexibility and efficiency. Tools for creating and conducting these assessments, as well as data tracking tools to target specific needs and provide prescriptive instruction, will be shared.

Susan Loveless, Rutherford County Schools,
Murfreesboro, Tennessee
X (formerly Twitter): @susanloveless23

242 Strategies to Amplify Student Voice and Increase Engagement



3–5 Session • CONTENT LEVEL: Intermediate
Seattle Convention Center, 2AB

Creating positive and engaging learning experiences in the mathematics classroom doesn't have to overwork teachers. Rather, a few strategies can help every student see themselves as a valuable and contributing member during math time. We want classrooms where students feel they belong, take risks, respect themselves and their peers, and persevere when feeling challenged. Yet, sometimes, the tasks we pose may inhibit these from taking root. In this session, you'll hear how to make this a reality.

Jennifer Lempp, Author & Educational Consultant,
Alexandria, Virginia
X (formerly Twitter): @Lempp5

243 Strategies to Enhance Long-Term Learning



6–8 Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 615/617

Do your students forget what they have learned? Are you interested in strategies that will boost student learning and can be implemented in your limited class time? In this session, explore powerful strategies to improve learning retention and to develop a process to include these strategies in your classroom.

Jessica Bulgarelli, Great Minds PBC, San Diego,
California

244 Young Mathematicians Take Action Through Sport Clinics



6–8 Session • CONTENT LEVEL: Intermediate
Seattle Convention Center, Ballroom 6B

In this session, we will share a teacher's story of how she used her students' interests to uncover reasons for the economic inequalities and fair access to sports at their local high school. Inspired by this, teacher designers created a mathematical modeling lesson based on her personal lived experience and what she observed about inequity. The lesson uses data analysis and modeling to decide what to offer at the free sports clinics and offers a way to provide more access to sports.

Jennifer Suh, George Mason University, Fairfax, Virginia
X (formerly Twitter): @completemath
Gretchen Maxwell, Fairfax County Public School, Virginia
Julia Aguirre, University of Washington Tacoma
Mary Alice Carlson, Montana State University

245 Anchoring Connections: Exploring Ways to Engage Students Through Rich Problems



8–10 Session • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, Ballroom 6A

Exploring application problems and conceptual tasks about linear, exponential, and quadratic functions early in the year helps students use their prior knowledge and think critically about math in the world around them. Referring to these memorable tasks throughout the year helps students make meaningful connections to the multiple representations of math and solidify their understanding of foundational algebraic ideas. Participants will come away with resources to use the next day they teach.

Jana Rupp, Georgetown Day School, Washington,
District of Columbia



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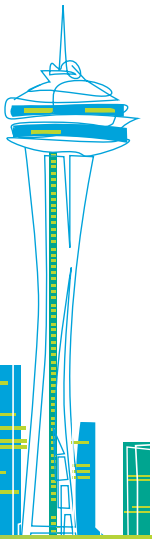
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Exhibitor Workshop



Friday Afternoon

SESSIONS

2:30–3:30 PM

246 11 Effective Strategies for Teaching Math to Students Who Have Given Up on Learning



Coaches/Leaders/Teacher Educators Session
CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 611

In this session about teaching math to students who need additional support, participants will discover information on the following strategies:

- How to extrinsically and intrinsically motivate your high school students to study and learn math
- What it takes for students to overcome mistake anxiety, develop a growth mindset, and become confident in the classroom
- Six techniques to help your students retain information that doesn't require hours of traditional studying and revision.

Jordan Smith Jr, San Jacinto Unified School District, California

X (formerly Twitter): @annapoliscreed

Karin Lee, Mountain View High School, San Jacinto, California

247 Learning Together: A Framework for Meaningful Professional Development



Coaches/Leaders/Teacher Educators Session
CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 4C2

Observing for Evidence of Learning (OEL) Lab is a collaborative, active professional learning that allows teachers to plan, teach, and reflect together. Learn about this process, and how you can leverage it to challenge instructional practices and mindsets that exclude students, and improve systemic commitments to inclusive, equitable, and engaging mathematics learning.

Claire Wambold, Everett Public Schools, Washington

Kathy Trosvig, Everett Public Schools, Washington

248 Supporting Teacher Leaders to Advocate for Systemic Change



Coaches/Leaders/Teacher Educators Session
CONTENT LEVEL: Intermediate
Seattle Convention Center, 201

Join us for an interactive session to explore how site schedules can be re-conceptualized to create opportunities for teacher collaboration, learning, retention, and sustainability to develop a coherent and rigorous math program where all students have access to high-quality instruction and their success is not pre-determined by characteristics such as race, gender, or home language. Participants will leave with ideas for how to advocate for site schedule changes.

Estelle Woodbury, Woodbury Education Consulting, Oakland, California

Lisa Jilk, Reculturing Math Departments, Seattle, Washington

249 Assessment Alchemy



Gen Int Session • CONTENT LEVEL: Intermediate
Seattle Convention Center, Ballroom 6E

"Is this going to be on the test?" This common question vanishes when learners are motivated by their own growth and learning rather than grades. By leveraging the *Standards of Mathematical Practices*, we can create a learning environment that empowers students, builds their confidence, and equips them with the skills necessary for post-secondary success. Engaging students in demonstrations of learning and self-evaluations allows them to develop a sense of value and pride in their work.

Jill Place, Tumwater School District, Washington

Josh Simmons, Tumwater School District, Washington



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Exhibitor Workshop

Friday Afternoon

SESSIONS

2:30–3:30 PM

251 Feedback > Grades



Gen Int Session • CONTENT LEVEL: Intermediate
Seattle Convention Center, Ballroom 6C

Let's talk about best practices for grading in mathematics classrooms, how and why I transitioned my middle school from traditional grading to proficiency-based with some non-grading mixed in, and research around formative feedback in math classes. We will look at rubrics as a fair grading tool and how to motivate students with feedback, not grades. I will share my grade reform successes and struggles and answer questions. The goal is student learning and feedback outperforms grades every time.

Derek Fialkiewicz, Corbett School District, Oregon
X (formerly Twitter): @derwood73

251.1 Ratios, Rates, and Percents, Oh My! (6–8)



6–8 Exhibitor Workshop

CONTENT LEVEL: Introduction to the Topic
Seattle Convention Center, 303

The study of ratios and proportional relationships begins in the 6th grade and is an integral foundation for the study of functions. In this hands-on inquiry-based session, participants will build a personal toolbox of effective problem-solving strategies that address ratio reasoning. We will feature double number lines, tape diagrams, and tables.

STEMscopes Math & Math Nation, Houston, Texas



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Exhibitor Workshop

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252 Equity and Access Through Counting Collections in Grades 3–5



3–5 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 4C4

Young mathematicians are motivated by the challenge of organizing, counting, and representing collections. This session introduces counting collection trajectories, formative assessment tools that allow elementary teachers to understand and advance student thinking in grades 3–5.

Carrie Thornton, Great Minds, Auburn, Washington

253 Exploring the 5 Spaces Framework to Promote Belonging, Confidence, and Competence



3–5 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 204

Students thrive when educators provide the following five spaces: space in time, space on the page, space on the board, space to move around, and space to be who they are. In these spaces, students experience belonging and develop confidence and competence in mathematics. This interactive session presents research on each of these spaces. It engages educators in examining their practices to see how the 5 Spaces nurture students' cognitive, physical, social, and emotional development.

Laura Grandau, Latin School of Chicago, Math Specialist, Highland Park, Illinois

Rachel Hill, Latin School of Chicago, Third Grade Teacher, Academic Chair, SEED Leader, Illinois

254 Joyful Math Instruction: Fostering Inclusive and Affirming Classroom Environments



3–5 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 613/614

This session focuses on Student Achievement Partners' Equitable x Essential Math Instructional Practice Framework, specifically the category of Joyful Instruction, and resources from equitablemath.org to implement Social, Emotional, and Academic Development (SEAD) in math classrooms. Participants will learn about and practice intentional planning of a math lesson to center the Standards for Mathematical Practice and incorporate the SEAD themes of identity, belonging, agency, and/or discourse.

Jennie Beltramini, Student Achievement Partners, Anacortes, Washington

Astrid Fossum, Student Achievement Partners, New York, New York

Aly Martinez, Student Achievement Partners, New York, New York

255 Amplifying Students' Voices to Develop Mathematical Justification



6–8 Workshop • CONTENT LEVEL: Intermediate
Seattle Convention Center, 608

Authentic mathematical debate provides opportunities to amplify student voices while deepening content knowledge through discourse and purposeful questioning. Students apply their funds of knowledge to interpret a mathematical assertion, agree/disagree with it, and defend their position with increasing precision and varied representations. We'll learn an instructional routine with embedded strategies to develop students' capacities to critique others' reasoning and construct viable arguments.

Amy Lucenta, Fostering Math Practices, Natick, Massachusetts

X (formerly Twitter): @AmyLucenta

Grace Kelemanik, Board of Directors, National Council of Teachers of Mathematics, Reston, Virginia; Fostering Math Practices, Natick, Massachusetts

256 Rethinking Story Problems: An Adventurous Merging of Mathematics and Narrative



6–8 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 3B

Join in exploring of the benefits (and the fun!) of combining mathematics and storytelling. We'll see how engagement and curiosity increase when we move beyond the traditional "story problem" and weave more elaborate, playful narrative elements into mathematical tasks. We'll solve a few such problems, then get creative as we spice up new problems by adding narrative elements. Teachers are invited to bring tasks from their own curriculum that might benefit from a narrative punch-up!

Jason Ermer, Mythematics LLC, Seattle, Washington



Fostering Belonging and Value for All Students through Instructional Practices and Systemic Initiatives



Valuing Students' Authentic Funds of Knowledge to Enhance Deep Mathematical Learning and Belonging



Improving Students' Sense of Value and Belonging through Assessment



Using Innovative Technology to Enrich Students' Value and Sense of Belonging in Mathematics



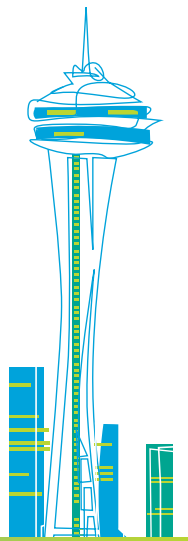
Eliminating Barriers to Inspire Creative Pathways Rooted in Students' Authenticity, Value, and Sense of Belonging in Mathematics



Developing Effective Advocacy Practices to Affect Students' Sense of Value and Belonging within Mathematics



Exhibitor Workshop



257 Want to Develop Fluency with Functions? Algebra-fy Patterns!



6–8 Workshop • CONTENT LEVEL: In-Depth
Seattle Convention Center, 606

Different pedagogical techniques that leverage the Mathematical Teaching Practices, such as posing purposeful questions and supporting productive struggle, will be used to connect concrete, pictorial, and abstract representations. The goal is to help students develop conceptual understanding, refine procedural fluency, and analyze change in various contexts. Attendees will be provided with classroom-ready hands-on lessons that enable students to connect patterns and recursive rules to functions.

Thomas Beatini, Union City Board of Education, New Jersey
X (formerly Twitter): @BeatiniTom

258 Fractals as an Introduction to the Wonder, Joy and Power of Modern Mathematics



8–10 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 3A

Discover the potential of fractals in your classroom! An interactive exploration of fractal geometry and applications in art, science and nature leads students to see the world through the lens of modern mathematics. Students develop a sense of belonging in the classroom and begin to see themselves as mathematicians when inspired by what they are actively discovering. Activities are designed to engage students of any level and promote curiosity and math appreciation.

Peggy Beauregard, University of Hartford, West Hartford, Connecticut

259 SEL and the Brain: Understanding Their Effect on Student Learning



8–10 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 307/308

Understanding the emotional well-being of students is essential for their learning, as is knowledge of the sensitive brain development periods. In this session, participants will learn about the Social and Emotional Learning Constructs, key brain development stages, and their impact on student learning. Participants will gain insights into creating an equitable learning environment for students and leave with actionable strategies to promote well-being and academic success in your classroom.

Thomas Stricklin, McKay High School, Salem, Oregon

260 Using Net Worth to Understand Equality Relations, Linear Equations, and Wealth



8–10 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 609

Learn how to develop your students' understanding of the concept of equality in the context of understanding wealth. With this understanding, we will focus on developing students' understandings of equality through looking at the net income and net worth equations. By examining these equations, which model real-world phenomena, students will build an understanding of wealth and equality, paving the way for greater success in algebra.

Philip Dituri, FiCycle / Dituri Consulting, Brooklyn, New York
X (formerly Twitter): @phildituri
Jack Marley-Payne, FiCycle, New York, New York

261 Status Report: How Year 1 of my AP Precalculus Experience is Going (with some related activities)



10–12 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 604

Join us for an overview of the new AP Precalculus course and the presenter's experience with the course (so far). As an AP Precalc Consultant, Dept. Chair and teacher, she's been involved in lots of decisions about the course at her school and within the Consultant community. So, how is it all working out? Join us for a discussion, including some relevant activities and special attention to Unit 4; hopefully, we can share resources and any concerns about what Semester II will hold.

Ruth Miller, Kent Denver School, Englewood, Colorado

262 The Perfect Math Credit: NGPF's Financial Algebra



10–12 Workshop • CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 607

Imagine this: students use percents in a 50/30/20 budget, model spending decisions with inequalities, and design a budget spreadsheet for their post-high school lives. All in one unit! Come explore NGPF's free Financial Algebra course – the perfect math credit for students who crave real-world connections to make math meaningful.

Kathryn Dawson, Next Gen Personal Finance, Seattle, Washington



Fostering Belonging and Value for All Students through Instructional Practices and Systemic Initiatives



Valuing Students' Authentic Funds of Knowledge to Enhance Deep Mathematical Learning and Belonging



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Developing Effective Advocacy Practices to Affect Students' Sense of Value and Belonging within Mathematics



Exhibitor Workshop

Friday Afternoon

WORKSHOPS

2:45–4:00 PM

263 360 Degree Math: Equity, Engagement, Achievement for ALL



Coaches/Leaders/Teacher Educators Workshop
CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 608

With 360 Degree Math, students work leveled problems on the classroom walls! The teacher is no longer at a physical disadvantage and gets a 360 Degree perspective on student learning while identifying misconceptions. Students learn in a collaborative social network, remaining engaged from the productive struggle to the productive success stage.

Sean Kavanaugh, Self Employed, Littleton, Colorado
X (formerly Twitter): @seankavanaugh5

264 Equity Commentators + Focal Students: Elevating Math Excellence and Social Justice in Lesson Study



Coaches/Leaders/Teacher Educators Workshop
CONTENT LEVEL: Intro to the Topic
Seattle Convention Center, 602/603

Learn how an innovative lesson study model for collaborative professional learning involves equity commentators guiding inquiry cycles by providing insights, feedback, and support to ensure all students have access to high-quality, grade-level mathematics. By identifying focal students, teachers design lessons that provide their students with opportunities to become proficient mathematics learners while engaging in meaningful discussions, problem-solving, and developing a positive math identity.

Harold Asturias, The Lawrence Hall of Science, University of California, Berkeley
Susie Hakansson, Independent, Venice, California
Kyndall Brown, Board of Directors, National Council of Teachers of Mathematics, Reston, Virginia; University of California, Los Angeles



Fostering Belonging and Value for All Students through Instructional Practices and Systemic Initiatives



Valuing Students' Authentic Funds of Knowledge to Enhance Deep Mathematical Learning and Belonging



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Exhibitor Workshop



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

The Host Affiliates for this conference and the Affiliates-at-Large appear below. To join one of these organizations, email the Affiliate contact for membership information. NCTM has more than 135 Affiliates throughout the United States and Canada. For a list of all organizations affiliated with NCTM and information on how to join, visit the Affiliate Directory at nctm.org/Affiliates/Directory.

About the Host Organization

The Washington State Mathematics Council (WSMC) is the state-affiliate of the National Council of Teachers of Mathematics (NCTM). The WSMC believes all people can learn and use mathematics. Members are committed to developing, supporting, and encouraging opportunities that lead to effective instruction and successful mathematics learning that empowers all. WSMC serves as a communication and learning network open to anyone interested in mathematics education.

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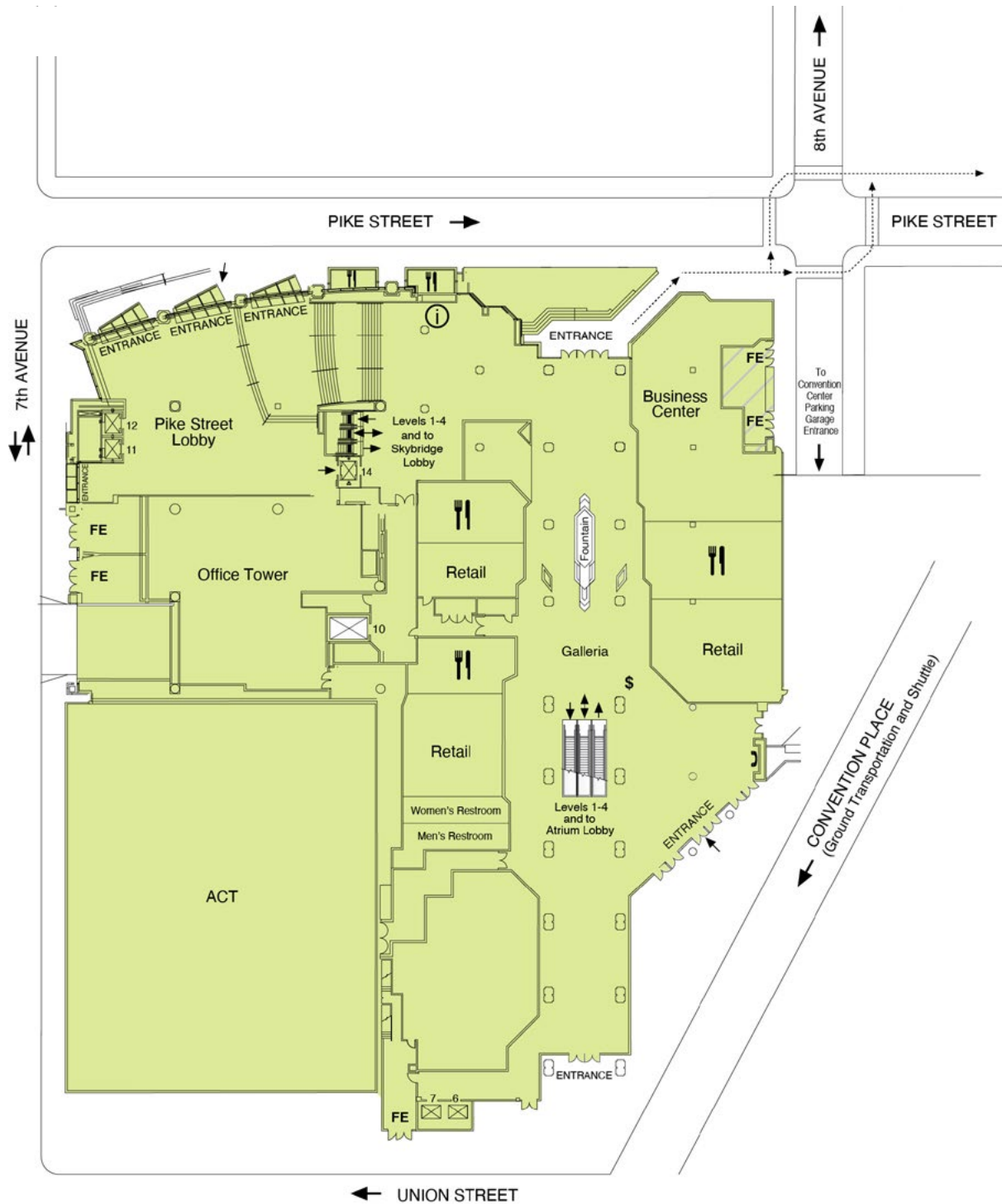
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Washington State Mathematics Council

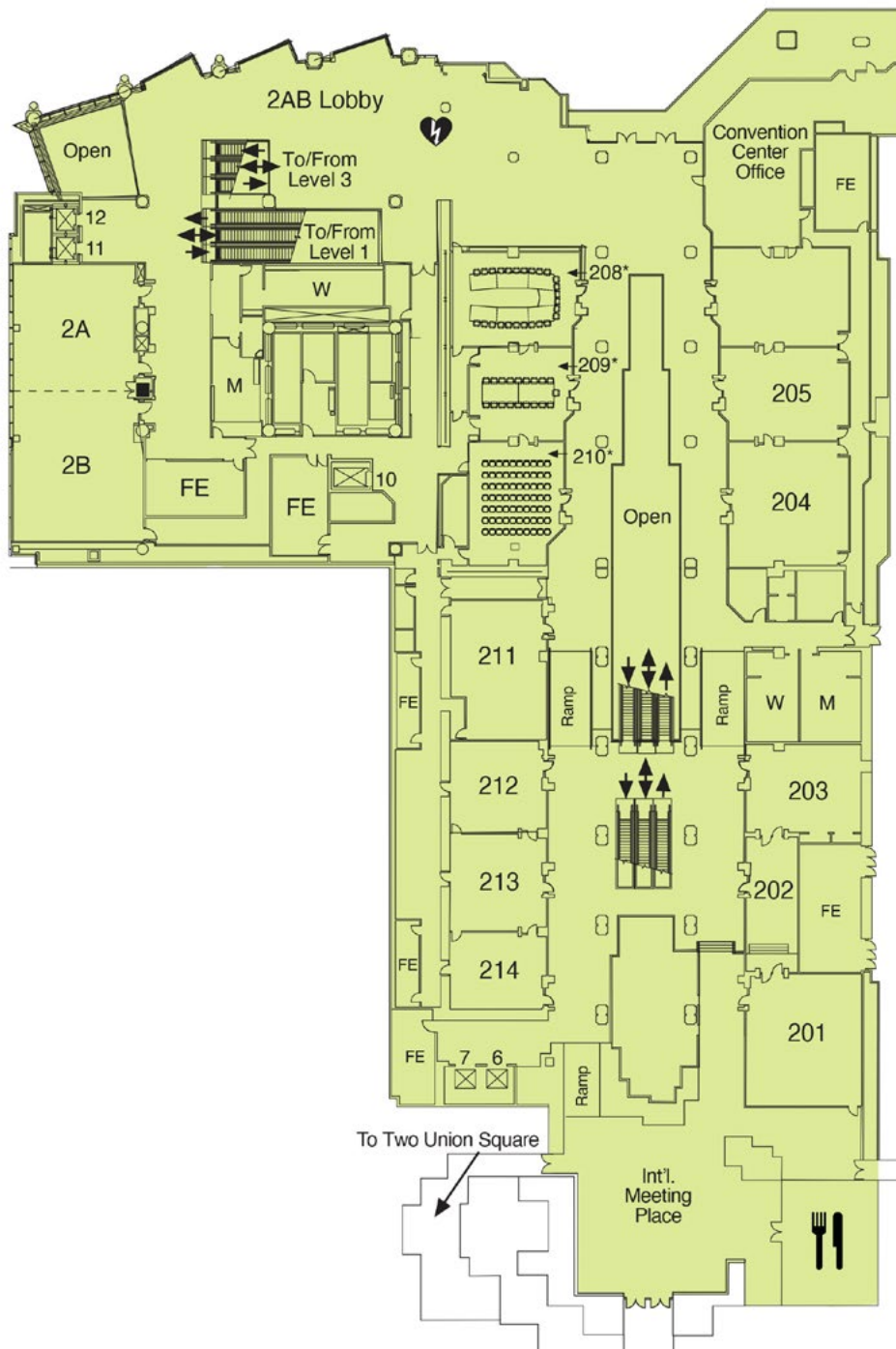
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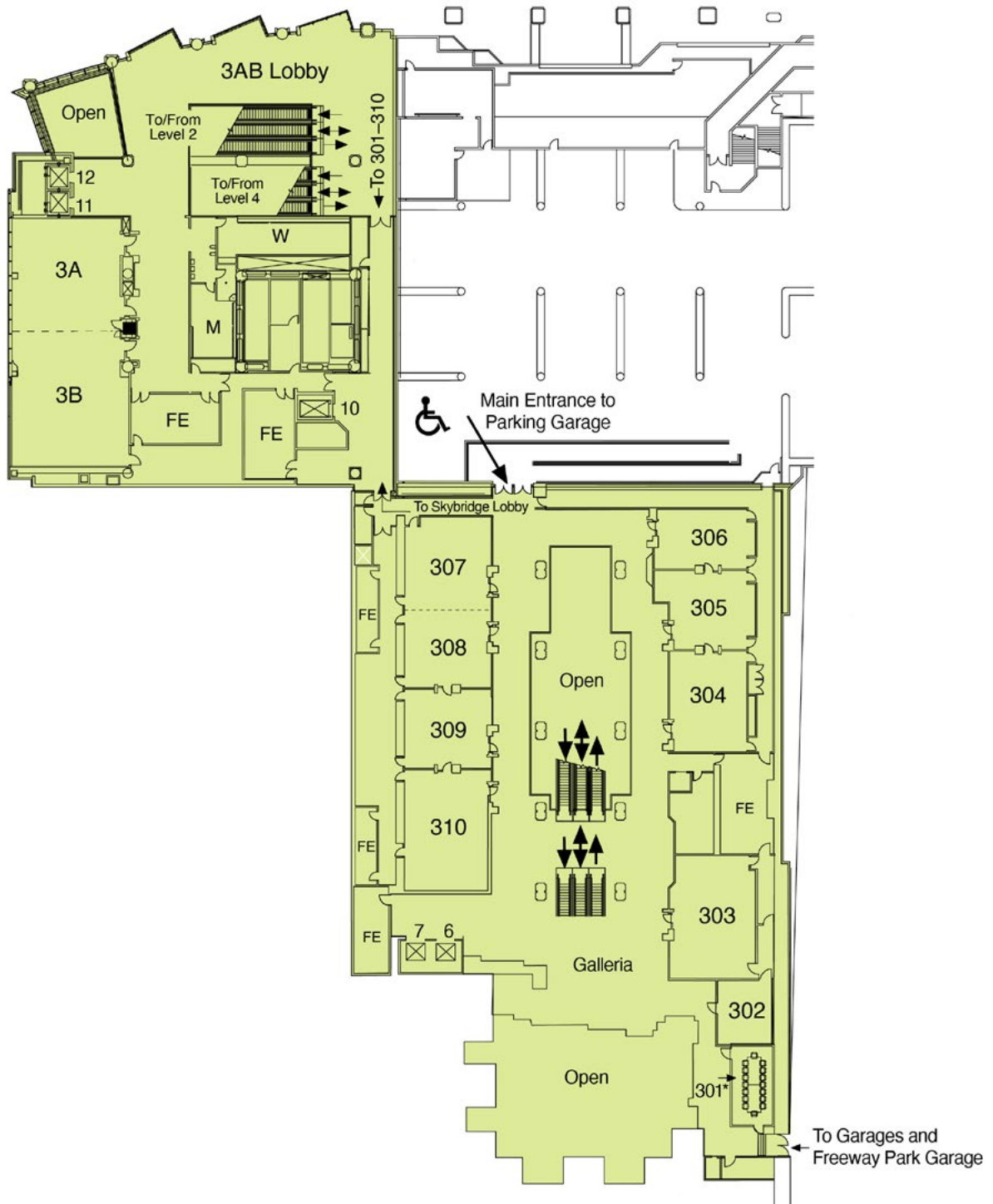
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Level 2



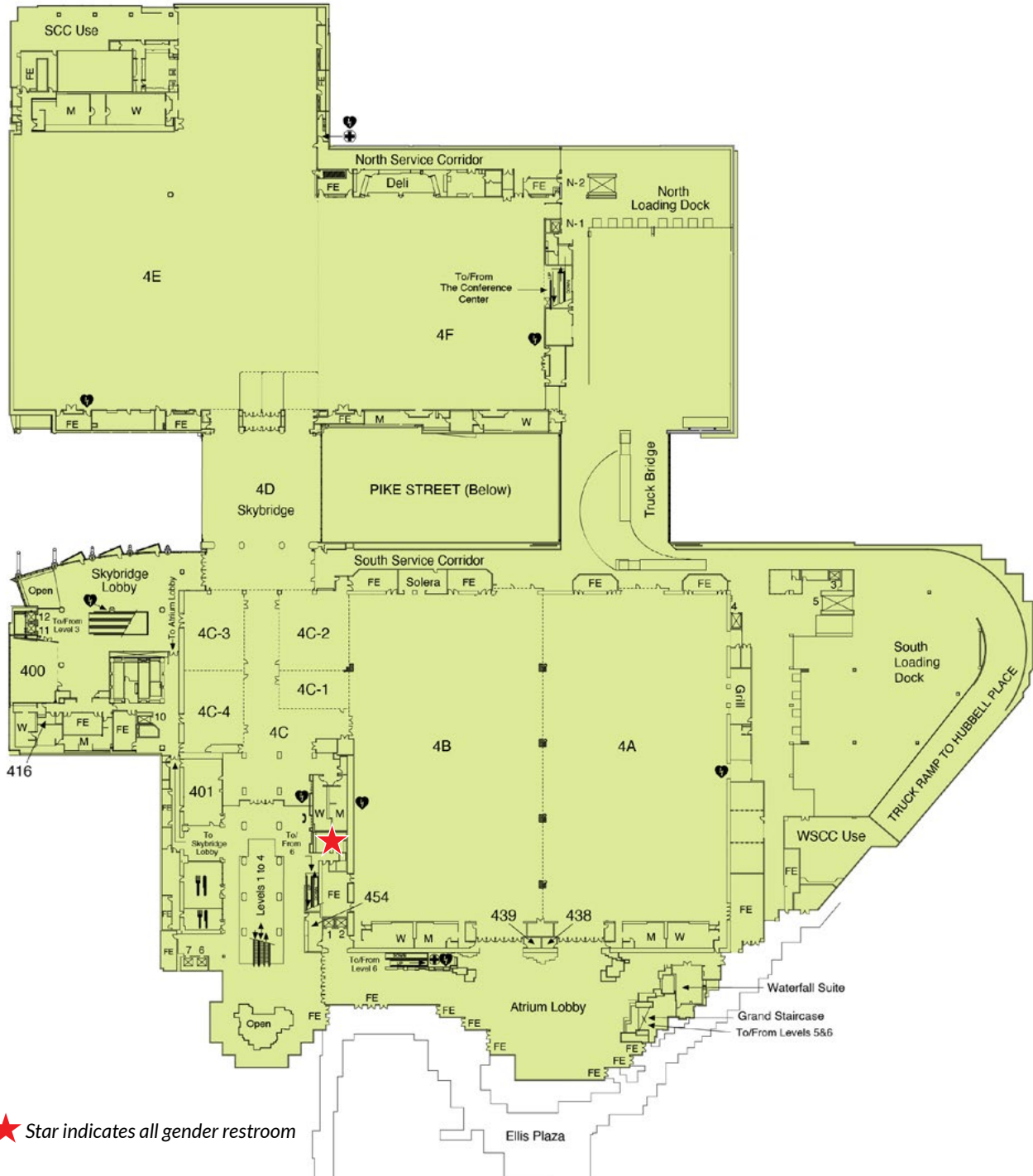
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Floor Plans

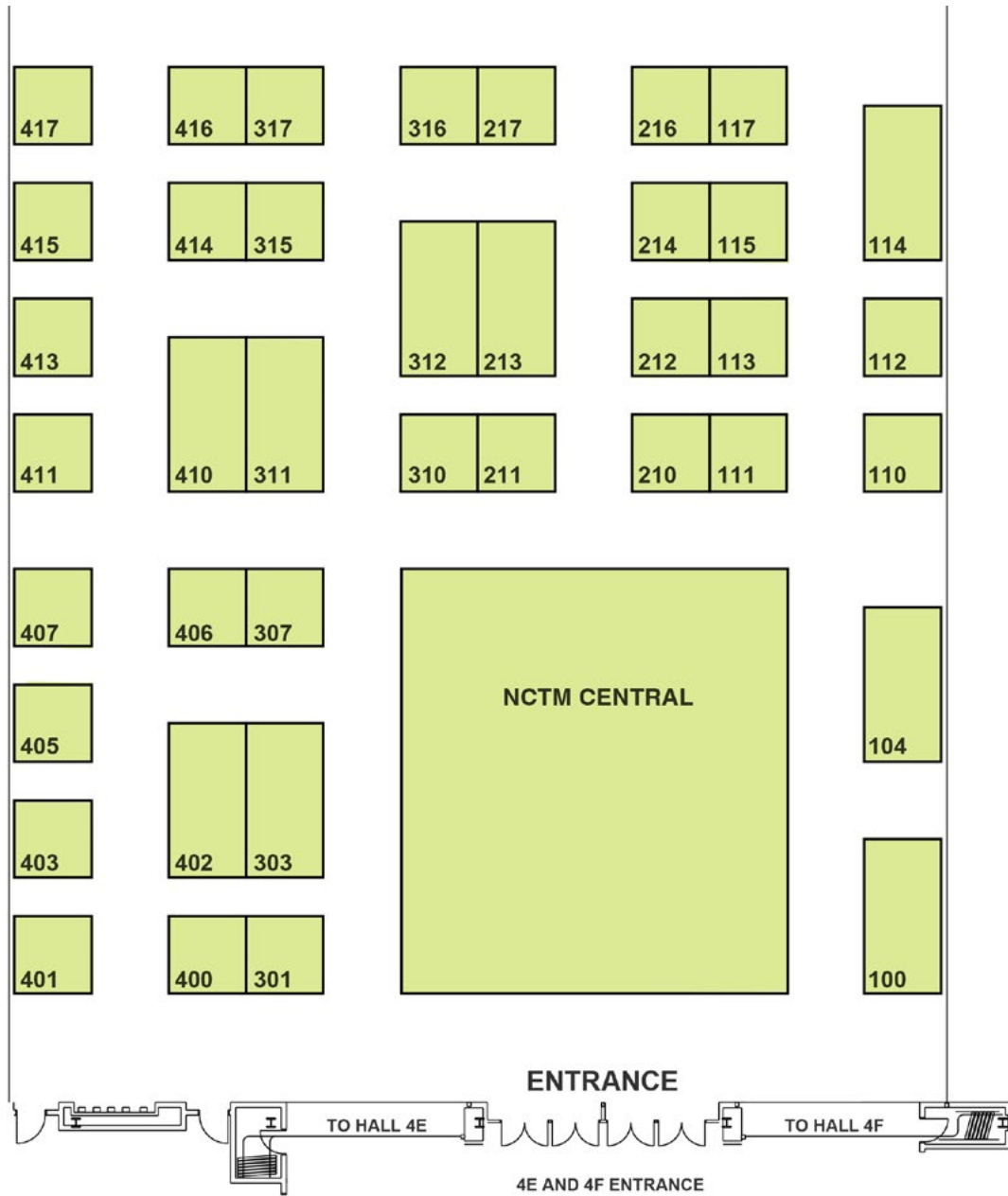
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★ Star indicates all gender restroom

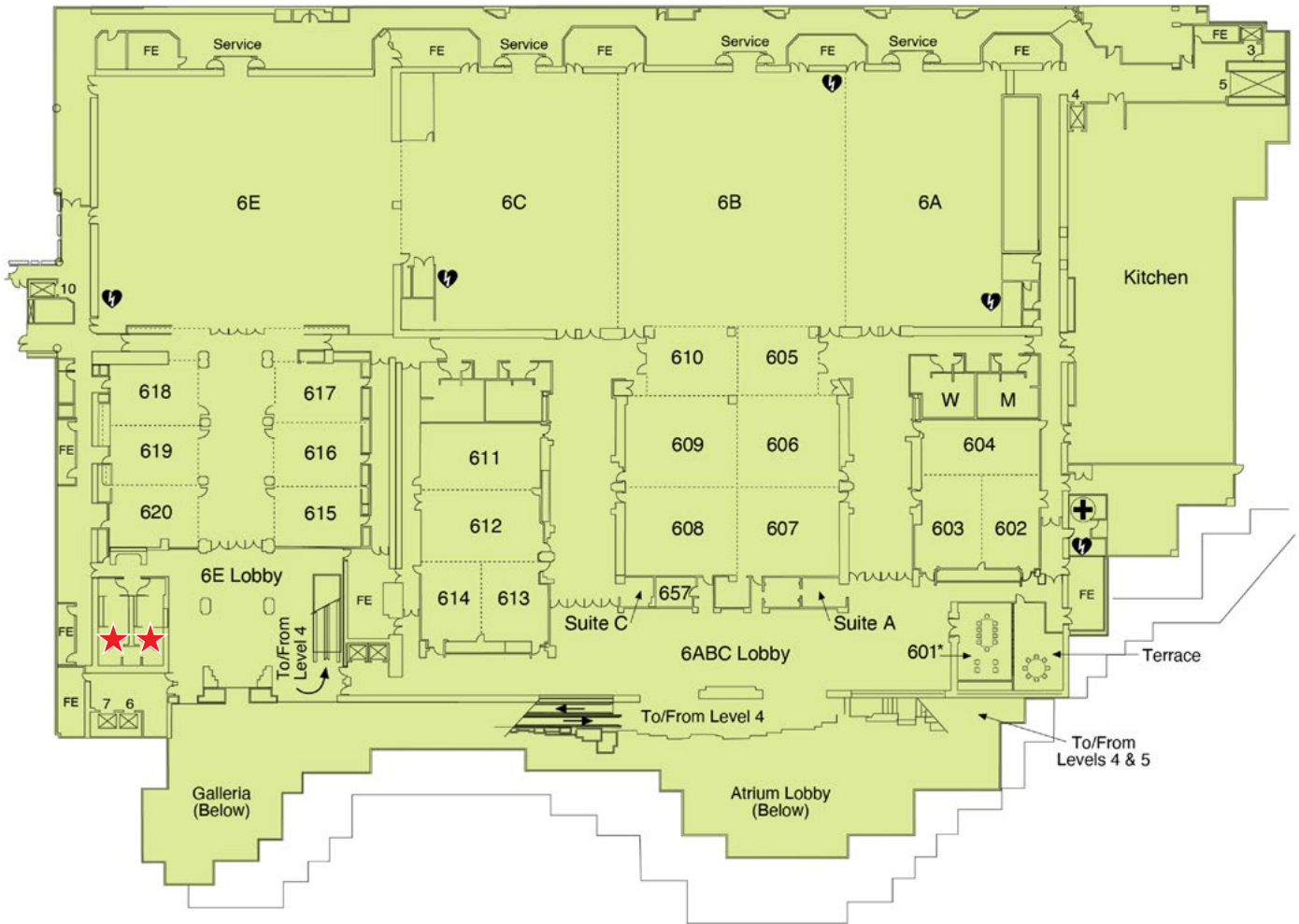
Floor Plans

Exhibit Booth Layout: Hall 4E



Floor Plans

Level 6



★ Stars indicate all gender restrooms

Exhibitor Directory

Amplify

BOOTH 301

Brooklyn, NY

amplify.com/math

Desmos Classroom lessons surface student thinking and spark interesting and productive discussions. Start teaching today by registering for free at teacher.desmos.com. Visit with us for demos, to learn more about the platform, lesson building tools, and interactive lessons. The Grade 6–Algebra 1 core curriculum is available now and we are currently hard at work creating Amplify Math + Desmos Classroom, the most engaging core program based on Illustrative Mathematics' IM K–12 Math™. amplify.com/math

Barobo, Inc.

BOOTH 217

Davis, CA

Big Ideas Learning

BOOTH 310

Erie, PA

bigideaslearning.com

Big Ideas Learning publishes content-rich educational programs that provide a cohesive, coherent, and rigorous mathematics curriculum to empower teachers and support student learning from kindergarten through high school. From the instructional design to the flexible technology, these programs are intentionally created to inspire confidence in both teachers and students to achieve success in math. Big Ideas Learning partners exclusively with National Geographic Learning.

Center for Mathematics and Teaching, Inc.

BOOTH 112

Redondo Beach, CA

mathandteaching.org

Transition to the Common Core with the Center For Mathematics and Teaching. We provide engaging, student-centered programs for middle school students and professional development for teachers.

CPM Educational Program

BOOTH 114

Elk Grove, CA

cpm.org

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

Derivita

BOOTH 317

Salt Lake City, UT

derivita.com

Didax Inc

BOOTH 315

Rowley, MA

didax.com

For years Didax has been producing innovative resources for math education professionals. We provide a many manipulatives including our hallmark product, Unifix® Cubes. In addition, we develop other hands-on resources, games, and activity books. We're proud to partner with Great Minds as the exclusive provider of Eureka Math kits. We're excited to publish resources from Kathy Richardson and the authors at TERC. We are now offering Didax PD featuring online courses for math instructors.

EAI Education

BOOTH 307

Oakland, NJ

eaieducation.com

EAI Education is a leading supplier of PreK–12 materials for hands-on Math, Literacy, STEM and Classroom Resources. Come discover how our innovative products such as Bar Models, Magnetic Number Talks Bars and Dot Models, Visual Area Modelers, Model Multipliers, Exploragons and more can increase fluency and student engagement in your classroom. We also customize class manipulative kits to meet your curriculum needs. Stop by our booth to view our newest products!

EdGems Math

BOOTH 406

Spring Lake, NJ

edgems.com

EdGems Math is dedicated to empowering a rich community of middle school math teachers and the diverse learners they support in class, online, all the time. Our program helps to foster positive mathematical mindsets for middle school learners through engaging culturally relevant resources. Our high-standard materials provide students the opportunity to discover mathematical concepts, apply or practice standards in a variety of methods, and engage in the eight mathematical practices.

ExploreLearning

BOOTH 214

Charlottesville, VA

explorelearning.com

ExploreLearning® creates seriously fun ed tech solutions for the most critical challenges in K–12 STEM learning. Effective and fun, our programs help students not only succeed at math and science, but also love it as much as we do. Learn more about Gizmos®, Reflex®, Frax® and Science4Us® at www.explorelearning.com.

Exhibitor Directory

Great Minds

BOOTH 104

Washington, DC

greatminds.org

Eureka Math²® is a revolutionary math program for grade levels PK–Algebra I or Mathematics I that advances equity in the math classroom by helping students build math knowledge. You'll find the consistent math models, rigor to support the productive struggle, and coherence across grades that premiered in Eureka Math®, only exponentially greater. You'll also find digital interactives, increased student discourse, and improved flexibility to make math instruction more teachable and engaging.

Imagine Learning

BOOTH 312

Scottsdale, AZ

imaginelearning.com

Imagine Learning provides digital-first PreK–12 learning solutions for core instruction, supplemental and intervention, courseware, and virtual school services. Our mission is to ignite learning breakthroughs with forward-thinking solutions at the intersection of people, curricula, and technology. We serve 15 million students – partnering with more than half of districts nationwide.

Kendall Hunt Publishing Company

BOOTH 113

Dubuque, IA

k12.kendallhunt.com

Kendall Hunt is the provider of educational products for math, science and talented and gifted for grades K–12. Full core curriculum math offerings include Illustrative Mathematics for K–12, the Discovering Mathematics Series (Discovering Algebra, Discovering Geometry and Discovering Advanced Algebra) as well as advanced mathematics offerings PreCalculus, Calculus and Statistics. A wealth of supplemental math offerings are also available for all grade levels.

Learn Fresh

BOOTH 117

Philadelphia, PA

learnfresh.org

NBA Math Hoops, our flagship program runs in partnership with NBA Cares, features a comprehensive community program, digital and physical board game, mobile app, and curriculum that allows students to learn fundamental math and social-emotional skills through the game of basketball. All program content is developed in alignment with Common Core State Standards and 21st Century Learning Skills, and has been shown to improve students' foundational math and social-emotional skills.

Mathspace

BOOTH 316

New York, NY

mathspace.co

Mathspace is a space to...

LEARN FEARLESSLY: Personalized learning and adaptive support encourages students to see mistakes as opportunities to grow.

TEACH COMPREHENSIVELY: Engage learners with interactive lessons. Differentiate instruction with adaptive tasks. Track student performance with built-in reporting.

ASSESS EFFORTLESSLY: Use the latest diagnostics to get the information you need on student growth, without taking time out of class. Learn more at: mathspace.co/us.

MidSchoolMath

BOOTH 110

Taos, NM

midschoolmath.com

With the highest scores possible on EdReport's latest criteria, Core Curriculum by MidSchoolMath is a multi-dimensional growth mindset curriculum that blends film, software and print-based materials to bring math to life. "I love that students are pulled in with an imaginative problem. Math is solved through group and class discussion. There is a lot of joy learning math this way. The best thing is that students are engaged each and every day." —Daniel Rose, Salt Lake Arts Academy

Mu Alpha Theta

BOOTH 415

Norman, OK

mualphatheta.org

Mu Alpha Theta, the National High School and Two-Year College Mathematics Honor Society served over 2400 high schools and over 108,000 student members last year. Chi Alpha Mu is our Middle School math club organization. We provide recognition for talented math students, scholarships, grants, awards, and free math contests students compete in right at your school. We have money to give you to support your math club. Come see us at booth 415 to find out how to become a chapter.

National Geographic Learning/ Cengage Learning

BOOTH 211

Jacksonville, FL

ngl.cengage.com

NumWorks

BOOTH 216

Raleigh, NC

numworks.com

NumWorks is on a mission to simplify math learning with the graphing calculator, reinvented. NumWorks is the first calculator created with 21st-century students in mind with a modern aesthetic, thin design and an intuitive app-based interface, allowing users to just focus on the math. With belief in the power of education and a strong community of teachers, students, and developers, NumWorks' goal is to make everyone a math person.

Exhibitor Directory

Savvas Learning Company

BOOTH 311

Paramus, NJ

savvas.com

At Savvas, we believe learning should inspire. Our next-generation learning solutions, developed by top authors and educators, leverage the power of data and advanced technology to deliver immersive, personalized, and flexible content that connects teachers and students with real-world learning experiences, helping all learners discover their greatness. Visit us at savvas.com.

STEMscopes Math & Math Nation

BOOTH 303

Houston, TX

stemscopes.com/math

STEMscopes Math and Math Nation are part of Accelerate Learning's suite of results-oriented STEM curriculum and professional development solutions. STEMscopes Math uses the 5E model to provide a meaningful learning experience for K-Algebra I students. Math Nation helps students master middle and high school math with 24-hour access to high-quality instructional videos, workbooks, collaborative learning tools, and adaptive assessments and support. For information, visit acceleratelearning.com.

Teach to One

BOOTH 212

New York, NY

teachtoone.org

It's time to redefine what's possible in math education. Set aside the notion that all students need to learn the same thing at the same time. Teach to One's learning model and digital solutions allow students to follow a pathway created just for them: a unique blend of on-grade skills and building-blocks from previous years. These pathways enable them to accelerate to grade level and beyond based on their unique strengths and needs. Find out what's possible at teachtoone.org or Booth #212

Texas Instruments

BOOTH 210

Dallas, TX

education.ti.com

Designed by teachers for teachers, Texas Instruments calculators are dedicated tools built specifically for teaching and learning math, durable enough to withstand the demands of the classroom and distraction-free so that students stay focused on learning. Teachers trust TI calculators to help students succeed in class and on important exams.

The Math Learning Center

BOOTH 100

Salem, OR

mathlearningcenter.org

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

TODOS: Mathematics for ALL

BOOTH 111

Venice, CA

todos-math.org

The mission of TODOS: Mathematics for ALL is to advocate for equity and high quality mathematics education for all students — in particular, Latina/o students. TODOS' goals include advancing educators' knowledge and ability that leads to implementing an equitable, rigorous, and coherent mathematics program that incorporates the role language and culture play in teaching and learning mathematics and to develop and support educational leaders who continue to carry out the mission of TODOS.

Wipebook

BOOTH 115

Ottawa, ON

wipebook.com/conference

Wipebook is a Canadian company that offers reusable Flipcharts and notebooks for educators and students. Our products are made with high-quality materials and a patented UV Hypergloss film that makes it easier to erase, and reuse, and can be digitally saved into your cloud by using our free Wipebook Scan App. With Wipebook, besides avoiding paper-waste, you will save money by reusing them and avoiding purchasing flipcharts & notebooks every time knowing that will end up in the trash.

XtraMath

BOOTH 402

Seattle, WA

Zaner-Bloser

BOOTH 213

Grandview Heights, OH

zaner-bloser.com

At Zaner-Bloser, we create tools for teachers that help students become more joyful and creative learners, thinkers, and communicators.

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