Metropolitan Mathematics Club of Chicago

Affiliate of NCTM and ICTM

Virtual Conference of Workshops

Given by teachers for teachers

Saturday, February 12, 2022
8:30-12:10
Optional Post-Session Discussion 12:10-1:10

Free to MMC Members!
If you're not a member, the Conference fee is $35 (or $22 for student teachers) and includes a one-year electronic membership to MMC.
Donations accepted for Future MMC Professional Development

Professional Development Hours / CPDU Credits Available

Presented via Zoom
For all teachers of grades K-14
Registration required online at www.mmcchicago.org

MMC Virtual Conference of Workshops
Program
February 12, 2022

8:00 AM **Virtual Cafeteria opens**

(Stop in here during the conference if you have questions, and come back at 12:10 for a post-conference conversation.)

8:30 **Session 1**

9:50 **Session 2**

11:10 **Session 3**

12:10 - 1:10 **Post-Conference Conversation in the Virtual Cafeteria**

Registration is open now through February 6, 2022,
at www.mmcchicago.org.
Links for registered workshops will be emailed after February 6.

Registration questions can be sent to Peter DeCraene at MMCConfRegistrar@gmail.com

The Virtual Cafeteria will be open throughout the Conference to gather and talk with other participants, or check with the Registrar or Conference Chairs.
A link to the Virtual Cafeteria will be emailed along with the links to registered sessions.

Evaluations and Professional Development Evidence forms will be emailed to participants after the conference.

Session 1 8:30

1A **Developing a Mathematical Modeling Mindset**

Cathy Kaduk **3-5**

Perhaps you have students who need to develop perseverance when approaching or solving problems, especially non-routine ones. Come learn some strategies to help all students know what to do when they don't know what to do.

1B **Math Warm-ups to Spark Curiosity: New Puzzles and Old Favorites (to Get Students Talking to Other Humans Again)**

Jackie Murawska **5-12**

Now that we are back to in-person learning, let's get students excited about walking into our math classes with cool new puzzles to explore! Come play with Bongard problems, Optical illusions, Shikaku, and some old favorites. Learn how these warm-ups can create a welcome and inclusive space that encourages discussion.

1C **Building Intuition for Proofs and Counterexamples**

Chris Jeuell **8-16**

Sometimes, after learning how to solve a challenging problem, we may overlook some subtleties. Why does the solution work? How does one find that solution? In this workshop, we'll examine several intriguing problems that span various subject areas & grade levels, with the goal of developing intuition and fostering curiosity.

1D **Inverse FUNctions!**

Elizabeth Runkle & Sarah Rutstein **9-12**

Do your students struggle with understanding and using inverse functions? Do they ever question how logarithms and arcsine 'work'? If so, please join our workshop to investigate some activities you could implement in your classes to help your students to develop a conceptual understanding of these inverse functions, and to learn how to use them appropriately to solve problems!
Screen reader support enabled.

1E **Effective and Engaging Teaching with CAS**

Scott Knapp & Robin Gapinski **8-12**

Curious about CAS (Computer Algebra Systems)? Wondering if its more than just button pushing and finding answers? CAS isn't only about finding answers, but learning where they come from! Come learn how to leverage CAS technology to support TEACHING math. We'll be sharing ideas from Pre-Algebra through AP Calculus! Yes, you CAS!!

1F **Building Thinking Classrooms in Geometry**

Aimee Hart & Vishna Patel **9-12**

After 18 months of remote and hybrid learning, teaching to a tessellation of black rectangles on zoom, and dropping in on silent breakout rooms, we have been very intentional in getting students to talk and think about mathematics again this year. We have used Peter Liljedhal's 14 practices outlined in Building Thinking Classrooms in Mathematics to guide this endeavor. We will share the successes we have had with some practices and challenges we have faced with others. The focus of our talk will be on our experiences in the Geometry classroom, but we encourage anyone who is interested in learnings about practices that encourage students' thinking, whether you have read the book or not, to attend.

Session 2 9:50

2A **Game-based Learning: Using Weiqi/Go game to Support Students in K-3 in Meeting CC, NBT, and OA Math Standards**

Xinming Guo & Xiuwen Wu **K-3**

During this hand-on session, attendees will learn how to play Go game and integrate it into math classrooms. Participants will observe video clips from classrooms to evaluate the relationship between Go game and Math standards. Suggestions will be provided on how to use Go in math classrooms.

2B **Martin Gardner - Our Favorite Problems**

John Benson & Steve Viktora **8-12**

We will share with you some of the problems we have taken from various Martin Gardner sources. For many years, his column in Scientific American was a source for information about advances in Mathematics as well as many interesting problems.

2C Teaching About Our World with Mathematical Models and Simulations

Lindsey Bailey **6-8**

In this interdisciplinary workshop discover activities that bring current events and top global challenges into the math classroom. Explore trends in the environment, global population and more using models, manipulatives and lively group simulations that build middle school math skills while exciting students about math connections to their lives. Presented activities build on math fundamentals while engaging students with authentic problem solving for real-world challenges. The session will include live demonstrations of simulations and mathematical modeling with discussion (through voice and chat functions). The presenter will also demonstrate adaptations of activities for remote learning. Receive lesson plans matched to state standards.

2D A Deep Dive Into Algebra

Megan Dorneker **7-10**

I teach Algebra with the intention of all students having a deep understanding of important foundational ideas. I believe in weaving important foundational ideas throughout the course, such as equivalent expressions, connections between representations, and input/output. In this workshop, I will share fundamental pieces of my curriculum, projects, and important questions that promote students' deep understanding.

2E Families of Functions Free Modular Course with 300+ Videos

Tom Reardon **8-12**

Transformation Graphing. Students learn to analyze and graph by hand 15+ parent functions with vertical/horizontal shifts, stretches, shrinks, reflections, combinations of transformations, domain, range, end behavior, asymptotes, even/odd functions, points of interest. In-class, online, flipped, review - that can be tailored for each student’s individual needs. 500+ animated colorful graphs prealgebra-calculus. Obtain innovative teaching strategies and learn how to effectively use the website that houses the videos.

Session 3 11:10

3A Beautiful and Powerful Mistakes: Examining Integer Multiplicative Thinking

Nicole Enzinger **K-8**

Mathematical mistakes are an inherent part of doing mathematics—everyone has and will make mistakes in mathematics. Yet, mistake making has an unfortunate stigma for many students. In this workshop, we will take on an asset-based view of mistake making by recognizing mistakes as an inherent component of mathematical thinking and learning. Examining mistakes with an asset-based point of view allows us to teach with a more equity-based perspective by valuing student thinking, even thinking that does not result in a “correct” solution. As such, we will further extend our asset-based view of mistake making by highlighting young mathematicians’ (children’s) mathematics that exudes both beauty and power, with both correct and incorrect solutions. We will examine mistakes from young mathematicians on integer multiplicative thinking. Will construct and discuss what makes mistakes beautiful and powerful. Please consider bringing one of your favorite "mistakes" to the workshop.

3B Understanding Why the Decimal Point Can Move in Multiplication

Cathy Kaduk **5-7**

Experience how the area model can support understanding why we move the decimal point with decimal multiplication and division as well as other ways to deepen place value understanding.

3C The Linear Regression Process: From Generation to Interpretation

Frank Briody **9-12**

Participants will discover the generation of a linear regression line of best fit using a small data set. Along the way we'll answer questions like: Where do the coefficients come from? How are they interpreted? What is r^2 and what does it mean? What is r and what does it tell us? (And, more importantly, what does it NOT tell us?) Finally, real data from the ISBE school report card will be used to practice reading computer generated regression information.

3D **Motivating the Study of Functions**

Scott Knapp **9-12**

Functions are typically introduced in Algebra 1 and are built upon in almost every math class beyond. Learn ways to introduce and engage students in the study of functions. Topics include function notation, domain/range, the 3 'views' of a function, compositions of functions, inverse functions, and transformations of functions. Leave with activities that are classroom-ready and proven to build function success!

3E **My Favorite Desmos Activities from Geometry, Statistics, and Precalculus**

Rick Cazzato **10-12**

Desmos activities that include investigation or self checking from Geometry, Statistics, and Precalculus will be shared. I will also share how I create some self checking activities. Geometry Topics include parallel lines, circles (equations and arcs), congruent triangles, quadrilaterals and parallelograms, right triangle trig. Statistics Topics include one variable, two variable, design, probability, and some hypothesis testing Precalculus topics include transformations, polynomial and rational functions, polars, parametrics, trig functions.

Join us from 12:10 to 1:10 in the Virtual Cafeteria for a Post-Conference Conversation!