Points & Angles

Newsletter of the Metropolitan Mathematics Club of Chicago Volume LI No. 5 Mar./Apr. 2022

What Can Math Teachers Contribute to the Conversation about Equitable Grading?

April Speaker Paul J. Karafiol





Friday, April 22, 2022 Doors Open/Social Hour: 6:00 PM Dinner & Talk: 7:00 PM

Fountain Blue Banquet & Convention Center 2300 Mannheim Rd., Des Plaines 847-298-3636 \$43 for Members, \$49 for Nonmembers

Reserve by noon, Monday, April 18 Online at mmcchicago.org

From I-90 & Southbound I-294: Exit at I-190 West to O'Hare; Exit onto North Mannheim Rd.; Take Mannheim Rd. North 2.25 miles.

From Northbound I-294: Exit at West Touhy Ave.; Take Touhy Ave. to Mannheim Rd.; Turn right on Mannheim Rd

Public Transit: Take the CTA Blue Line to the Rosemont Bus Terminal; Take Pace Bus #223 to Touhy Ave. & Lee Rd.; Walk East on Touhy to Mannheim Rd.

MMC is thrilled to welcome back Paul J. Karafiol to speak at our next dinner meeting. P.J. is a longtime member of MMC, frequent presenter at the Conference of Workshops, and is returning to speak at a dinner meeting for the third time. A lifelong Chicagoan, P.J. is a graduate of CPS, has served as a high school math teacher and department chair in CPS, and is currently the principal of Lakeview High School. P.J. serves on the board of Math Circles of Chicago, has coached the Chicago Area All-Star Math Team, and is head author of the ARML competition. He is a past winner of the ICTM Fred Flener Award for engaging students in math beyond the classroom and the Presidential Award for Excellence in Mathematics and Science Teaching.

Please join us to hear P.J's talk, "What Can Math Teachers Contribute to the Conversation about Equitable Grading?". Math teachers, who have a strong understanding of how numbers and statistics work, can contribute to conversations about grading for equity in a way that others may not. Applying mathematics to issues of grading can push us out of our comfort zones but lead to better teaching and learning for students. We hope to see you at Fountain Blue on Friday, April 22, for this timely and important talk. Please get your RSVPs in early!

Points from the Interior

by Aimee Hart

As I sat down at the kitchen table to write this installment of "Points from the Interior" and realized I have run out of ideas, my 16-year-old daughter asked me, "Does anyone actually read these articles?" Although I've been teaching for 24 years, there is something special about these years where I spend my days with teenagers at work and then come home to more teenagers.

Despite the challenges of the last two years, I have really enjoyed the work I have done as MMC President-Elect and President, adapting and continuing the mission of MMC through a global pandemic, but I have to admit the one thing that I have dreaded every two months was coming up with an idea for this article. Somehow, I always pull something out of my hat and get my submission in on time, but it is probably the most stressful part of the job for me.

Back to her question, "Does anyone actually read these articles?" Yes, people do. And I have been lucky enough to get some feedback from those people. Not that my inbox is overflowing, but with each article I have written, I have had at least one person (maybe two) reach out to tell me what they liked about it. Sometimes it is a colleague who has read the newsletter that is pinned to our bulletin board next to the math department photocopier; sometimes it is my retired former department chair. Like I said, my inbox is not overflowing, but that one comment or quick email that someone takes the time to send is enough for me to keep writing these articles and keep going.

I realize this has been true in my experience teaching as well. There are many days when it feels like no one is actually getting anything from all the work I'm putting in, and then one student shares some positive feedback and it's enough to get me through. One of the lowest points I have ever had teaching was the summer of 2020 when the national conversation changed from teachers are heroes to teachers are villains, and the uncertainty of the pandemic, along with the incredible amount of work teachers were putting in to adapt to remote learning, weighed heavily. In the midst of that, right before school started, I got an email from the parent of a student thanking me and the school for all we had done to prepare for the new year. That small gesture did so much for me. This is not to say that compliments or positive feedback are enough. There needs to be real systemic changes in education to help make the teaching profession more sustainable and education more equitable. I have tried to learn to focus on what I can control and what I can change. Knowing how much an unexpected email or thank you from a student or parent means to me, I have made an effort to reciprocate and send those messages of gratitude to people in my life, to my children's teachers, my colleagues and to the membership of MMC.

As we hosted our first in-person dinner in almost two years on March 4th, I had many thanks to give. Since not everyone could be there, I'd like to repeat a few of them to you now. I would like to thank the entire MMC membership for sticking with us the past two years. Thank you to the board for the team effort it took to adapt to virtual meetings, webinars and the Conference of Workshops. I'd like to thank our webinar speakers and presenters at the Conference of Workshops for adapting to the virtual format. And because we don't hear it enough, I'd like to thank anyone who has been in a classroom in the last two years, as a teacher, support staff, instructional coach, student teacher supervisor, or administrator. You deserve an abundance of gratitude for all that you do. Thank you.

Mathematical Games and Why They Matter

By Serg Cvetkovic

On Friday, March 4, 2022, after a two year, COVID-induced period of online gatherings, MMC made its triumphant return to inperson events and hosted the amazing mathematician, author, blogger, and humorist – Ben Orlin. Using samples from his upcoming book, *Math*



Games with Bad Drawings, Ben talked about not only how playing games and learning math are related but also how good math instruction is like playing a good game and vice versa.

Ben began his talk with talking about *tic-tac-toe*, the famously dull game, containing zero creativity or insight that usually ends in a tie. However, while attending a picnic, he observed a group of mathematicians playing tic-tac-toe with a twist – in each square on their tic-tac-toe board, the mathematicians would draw a smaller tic-tac-toe board. Each turn, an individual would mark one of the smaller squares, and upon getting three in a row, that small board is won. The game continues until three small boards in a row are won by a single player. Also, you do not get to pick which of the nine boards to play on. That is determined by your opponent's previous move. Whichever *square* he picks, that is the *board* you must play in next. Ben calls this *ultimate tic-tac-toe*. He proceeded (emphasizing his points with his hilarious and clever drawings) to compare this phenomenon to learning math via rote, procedural tasks versus contextual tasks that require exploration and critical thinking. PAUSE. **Mathematical games matter because they bring out the best in human thought.** Developing more challenging versions of simpler games sparks creativity and cleverness.

Next, Ben had the attendees play two games – *Neighbors* and *Outrangeous*. First up was Neighbors, which Ben compared to a *make your own sundae bar*, where you create a customized dish with a few simple ingredients. In this game, players roll a ten-sided die and upon each roll, place the number (1-10) somewhere on a 6x6 grid, and whenever like numbers appear as neighbors in a row or column, the sums are scored. Also, a single **number may score twice:** once in its row and once in its column. *Outrangeous* is described as *a trivia game for people who do not know anything* and entails answering random trivia questions (e.g., How tall was the tallest WNBA player? What is the population of Chicago?) by setting a minimum value, maximum value, and the range between extrema. Once the true answer is revealed, any player that has the true answer within their range width is eligible to score points but only against players that have a larger range width. The attendees had loads of fun playing both games, and some productive mathematical dialogue occurred as a result. Ben and the attendees discussed how *Neighbors* is a useful tool for teaching combinatorics, while *Outrangeous* can be used to teach elements of basic statistics, such as confidence intervals and hypothesis testing.

Upon completion of gameplay, Ben continued his talk, reflecting on his childhood, to where his parents bought him *NHL 2002* (i.e., his first noneducational game). He talked about how he discovered that he could take all the highest ranked players and assemble an elite team that would always win. Soon thereafter, the game became repetitive and dull. PAUSE. **Mathematical games matter because they bring out the worst (?) in human thought.** Searching for and finding the most optimal strategy to win eliminates the novelty and intuition, making the game entirely procedural (much like tic-tac-toe or a math drill worksheet). However, games can also lead to invention of new games, so-called *metagames* that have games within games – games with aesthetic, meaning, patterns, symmetry, and so many cool mathematical concepts, which invite inquiry, insight, and creativity. PAUSE. **Mathematical games bring out the BEST(!) in human thought!**



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MMC February Board Brief

By Beth Ann Ball

The regularly scheduled meeting of the MMC Board was held Tuesday, February 15, 2022, at 7 p.m. over Zoom. Topics of discussion included the MMC Conference of Workshops held virtually on February 12th and whether to keep a virtual format or return to in person for 2023. MMC is transitioning to an electronic CPDU format that would be tested at the March 4th dinner meeting. Discussion about dinner meeting plans for the 2022-23 school year was tabled until the May 11th board meeting.

The next regularly scheduled meeting of the MMC Board will be on Wednesday, May 11, 2022, over Zoom. Please contact President Aimee Hart (harta@newtrier.k12.il.us) for the Zoom link, if you would like to attend.



Metropolitan Mathematics Chicago

MMC Board Elections

MMC ballots can be brought to the April meeting or mailed by April 30. Please see the February issue of Points & Angles for candidate biographies (available at www.mmcchicago.org).



NCTM will begin accepting proposals in April for next year's NCTM Virtual Conference on March 29-April 1, 2023. Visit nctm.org for details!

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Mar./Apr. 2022

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Upcoming Events

Fri., Apr. 22	P.J. Karafiol	What Can Math Teachers Contribute to the Conversation About Equitable Grading? (Fountain Blue)
Fri., Apr. 30		MMC Ballots Due
Fri., May 20	Zalman Usiskin & Andrew Chukerman	NCTM and a Century of Mathematics Education – A Review with Music (Fountain Blue)

Send upcoming event items to sburnett_308@yahoo.com no later than the date of the MMC dinner meeting preceding the issue in which the item should appear. All items are subject to editing.

Your membership renewal date appears in the upper right corner of the label



MMC Glenview, IL 60025