



Points & Angles

Newsletter of the Metropolitan Mathematics Club of Chicago
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Points from the Interior

Greetings MMC Members,

I hope you are staying healthy and productive during these stay-at-home days. It is odd that it is May in an even year, and Zalman Usiskin will not be speaking before the MMC at a Friday Dinner Talk. I suppose these are unprecedented times. Graciously, Zalman has agreed to give his talk next year instead.

This is my last Points from the Interior as MMC President. It has been my pleasure and honor to serve in this role for the second time. The membership of the MMC is a great group of math teachers, leaders, and enthusiasts. I feel very much at home in this organization, and I really appreciate all of you.

I'd like to give a big thanks to the wonderful people on the MMC Board that have made this organization as great as it is. There is a lot of work that goes on behind the scenes to keep MMC delivering the great professional development opportunities we are known for. A special thanks to board members Peter DeCraene and Joyce Gajda who are completing their terms this year.

I know the MMC will be in great hands with the upcoming board, President-Elect Aimee Hart, and President Serg Cvetkovic. Serg has already done a lot of work to create an exciting list of speakers for next year. I look forward to seeing all of you at the talks, in whatever form they occur.

Sincerely,
Matthew Moran

March Dinner Meeting Talk – Eli Luberoff

by Janice Krouse

Eli Luberoff returned to MMC after his very popular talk and workshops of last spring to wow us once again. In addition to the very widely used (and free!) graphing calculator and activities that Desmos provides, Eli also provided his audience with some insightful considerations about how we teach mathematics.

His talk, “Creating Interesting Ways for Students to be Right and Wrong,” began with some interesting findings that showed real disconnects between students’ and teachers’ perceptions of the mathematics classroom. For instance, while 56% of teachers profess that they discuss topics that have no right or wrong answer, only 36% of students claim this to be the case, yet the percentages are nearly reversed when asking about whether students are expected to memorize formulas. But perhaps more interesting is that 65% of students *like* to discuss problems that have no right or wrong answer, and Eli is obsessed with doing this with technology.

However, the pervasive computer-based approach to mathematics encourages questions with a single, easy-to-evaluate right answer, which is less than satisfactory to some, and certainly to Eli. He is intrigued and excited by the challenge of creating situations that have interesting right and wrong answers and sees the benefits that these learning experiences can provide as well worth the effort.

Eli suggested four ways in which such learning activities can benefit students. First, these types of activities can lower the floor to the problem, inviting more children to enter into the mathematical “door.” Using the Turtle Time Trials activity (see teacher.desmos.com for all activities), Eli discussed how various approaches to the problem allow a teacher to celebrate responses from multiple students in ways that a single-right-answer problem

March Dinner Meeting Talk (cont.)

does not. Desmos facilitates the highlighting and sharing of student responses which help a teacher steer student conversations toward emerging vocabulary and increased sophistication in thinking and communication.

A second benefit of working with learning experiences that have interesting right and wrong answers is that students become creators – not just consumers – of mathematics. Not only does this vividly show students that math is *not* all done, despite the myth perpetuated by the all-too-familiar pictures of white men with lots of hair, but it is also a more inclusive way to teach mathematics. The two-heads-to-one-computer classroom design encourages peer-to-peer collaboration as Desmos provides the conversation starters. Here, Eli used the Polygraph: Rigid Transformations Desmos activity to illustrate how students can create their own shapes and discuss the transformations that the activity generates to develop vocabulary of transformations. Teachers can acknowledge all of the vocabulary used and carefully select student responses to gradually reveal more refined, complete responses seen around the classroom.

The Coin Capture - Lines activity demonstrated the third benefit to enjoying both right and wrong answers. Monitoring students' responses to an engaging activity provides the teacher with a helpful window into their thinking. Eli reminded us that every wrong answer is the right answer to a different question. What question? What does the wrong answer reveal about where the student is in their learning of the desired outcome or concept? What does a conversation about a right answer reveal about the depth of their understanding? Get the students talking about what they were thinking when they generated their solutions!

Finally, the fourth benefit to celebrating both wrong and right answers is that these types of problems naturally provide for differentiation. But rather than moving students ahead of the rest of the class in the name of differentiating and at the expense of meaningful collaboration, these activities allow for appropriately different levels of challenge using the same task. Eli showed the very popular Marble Slides activities and how it gets harder and harder. He showed how students can create a new challenge based on an existing activity as well as the work of a student who decided he wanted Marble Slides to be even harder and took it upon himself to design and solve some extreme Marble Slides challenges!

Eli closed this inspiring evening by reiterating his passion for creating opportunities to engage all students, tapping into their creativity and collaboration, and challenging them with appropriate differentiation. He left us with two thought-provoking and motivating questions: When you pose a problem, do the answers surprise you? Do they give you joy? It is worth the challenge to teach our children with problems that do!

Grace King Harris of New Trier wins the MMC Scholarship

By Carrie Fraher

Grace Harris is looking forward to creating a positive, friendly, and fun environment for her students one day when she becomes a math teacher. Grace was nominated by Aimee Hart. Grace worked as a student teacher-assistant in Hart's classroom where she learned to check for understanding and encourage students who were struggling in a unit. She is passionate about mathematics and believes that when a teacher truly loves the subject matter, a class will be more interesting. Hart described the positive impact Grace had on her geometry classroom and her skill at working with the students. She credited Grace for earning the trust of the students with her subject-area knowledge, clear explanations, and genuine caring.

When Grace learned that she was a winner, she replied, "I'm so happy! Thank you so much for this amazing recognition. I can't wait to study Education and Mathematics at Denison University this fall and pursue teaching."

Thank you to all our members and dinner meeting attendees for making generous donations to the scholarship fund. This award was possible because of your generosity. Thank you to Texas Instruments for awarding Grace with a new TI-Nspire CAS to begin her college work.





Dear MMC Members, Please Share Your Experiences!

By Serg Cvetkovic

The abrupt closure of schools and transition to remote learning due to COVID-19 has been rather difficult for us educators, to say the least. Not only do we miss our students and being in their presence as they grow and succeed, many of us are also grappling with a plethora of other issues that have arisen during this catastrophic time – students who do not have the technology or internet services required to participate in remote learning due to financial issues, students who are unable to meet during virtual classes due to caring for younger siblings while their parents are working, students who are struggling to learn and need additional academic support, and students who are experiencing difficult situations and need someone there to listen to and comfort them. The list goes on and on. The MMC would like to hear from you, our members, about your personal experiences with remote learning:

- What successes did you have?
- What difficulties did you encounter?
- Do you have any strategies or activities that you would like to share?
- Are there any good resources that you would like to recommend?
- What have you done to minimize your own personal stress?

Whatever your experience has been with remote learning, the MMC would love to hear about it! Please go to our website (mmccchicago.org), and click the tab that says, “*Share Your Experiences.*” Submissions will be posted on the MMC website and may appear in a future issue of *Points & Angles*. We look forward to hearing from you!

Congratulations to the Newly Elected MMC Board Members!

President-Elect:

Aimee Hart

Directors:

Sara Curran
Serg Cvetkovic
Sheila Hardin
Laura Kaplan
Carol Nenne

Congratulations



Officers

Matthew Moran, President
Serg Cvetkovic, President-Elect
Mary Wiltjer, Past President
Sheila Hardin, Board Chair
Beth Ann Ball, Secretary
Carol Nenne, Treasurer

Directors

Beth Ann Ball (2018-2021)
Maine South H.S., Park Ridge

Steve Condie (2018-2021)
Illinois Math & Science Academy
(retired), Aurora

Serg Cvetkovic (2017-2020)
Thomas Kelly H.S., Chicago

Peter DeCraene (2017-2020)
Evanston Township H.S. Evanston

Carrie Fraher (2018-2021)
Glenbrook South H.S., Glenview

Joyce Gajda (2019-2020)
Oak Park & River Forest H.S., Oak Park

Sheila Hardin (2017-2020)
Oak Park & River Forest H.S., Oak Park

Aimee Hart (2019-2022)
New Trier H.S., Winnetka

Maryjoy Heineman (2019-2022)
Evanston Township H.S., Evanston

Janice Krouse (2019-2022)
Illinois Mathematics & Science Academy, Aurora

Danielle Grenader (2018-2021)
Cicero East Elementary, Cicero

Matthew Moran (2017-2020)
Chicago Public Schools (retired)

Nicolette Norris (2019-2022)
Chicago Vocational Academy, Chicago

Steven Starr (2019-2022)
Lakeview H.S. (retired), Chicago

Mary Wiltjer (2019-2022)
Glenbrook South H.S., Glenview

Officials

Community Relations and Development	Aimee Hart
Conference Co-Chairs	Nicolette Norris Rose Sterr
Conference Registrar	Peter DeCraene
Finance Committee Chair	open
Historian	Paul Christmas
Membership Coordinator	Mary Wiltjer
NCTM/ICTM Affiliate Representative	Steve Condie
Points & Angles Editor	Sara Curran
Publicity and Posters	Paul Christmas
Scholarship Chair	Carrie Fraher
Social Media Chair	Danielle Leibowitz
Webmaster	Peter DeCraene

February & May Board Notes

By Beth Ann Ball

February meeting:

The MMC Board of Directors met on Tuesday, February 18, 2020, at Maine South High School in Park Ridge, IL.

The MMC Conference of Workshops held at Stevenson High School on February 1, 2020, was a success. In spite of reducing the mailed brochures (to reduce cost), the number of participants was comparable to 2019. Stevenson High School was a great facility for the conference and provided tremendous support. The board discussed the upcoming dinner meeting and Saturday workshops with Eli Luberoff, the NCTM Centennial Annual Meeting scheduled for April 1-4 in Chicago, and the May dinner meeting with Zal Usiskin.

May meeting:

The MMC Board of Directors met on Sunday, May 24, 2020, via Zoom, due to the state of Illinois shelter-in-place order. The link to the Zoom meeting was on the MMC website, and any future virtual meetings will have the Zoom link posted there as well. The board said goodbye to Peter DeCraene, Joyce Gajda, and Matthew Moran and thanked them for their service. Laura Kaplan, Carol Nenne, and Sara Curran are joining the board in 2020. By consensus, the board decided to suspend dinner meetings through December 2020. A committee was appointed to determine the best way to serve the membership virtually during the pandemic.

Another point of discussion involved MMC approving out-of-state CPDUs for members of MMC. A committee was appointed to look further into this matter. The next regularly scheduled meeting of the Board of Directors is Tuesday, July 21, 2020, at 7:00 p.m. via Zoom. MMC members are welcome to attend any board meeting. Anyone interested in attending the next board meeting, please contact Serg Cvetkovic at scvetkovic@cps.edu.

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



MMC
7339 W. Ibsen St.
Chicago, IL 60631