

The Manitoba Association of Mathematics Teachers' journal is an official publication of The Manitoba Teachers' Society.

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President's Message

[Donna Slobodzian](#)

The school year is well underway. How is your year going? I always like this time after Christmas as the students seem to be more settled and routines are well established. A lot can be accomplished!

January 23rd, MAMT hosted an in-person workshop with Shelley Gray. Shelley is from MacGregor, Manitoba and has been a classroom teacher as well as resource teacher. Shelley shared how to use Cuisenaire rods (that might be dumped in a container somewhere in the school), Base ten blocks, and other ideas and games with us. Shelley stressed that we need to move from the concrete to representational and abstract with our students (CRA model). Also, we should call Base Ten Blocks units, rods, flats and cubes in order to make the transition when teaching decimals easier instead of labeling them with a "value" of ones, tens, hundreds and thousands. Shelley has also created many resources available through her website. Thank you to Sarah Melo and Charmaine Hayden for organizing the day. There were many positive comments from teachers, such as: "it was so nice to finally have the opportunity to be in person", "it was good to connect with other teachers and share ideas" and "more learning happens in person"!

Thank you to Cat Fouillard for organizing a successful MTS PD Day held October 20, 2023 at the Transcona Country Club. Graham Fletcher (from Atlanta) presented to K- Grade 8 teachers and Nat Banting (from Saskatchewan) presented to High School teachers. A lot of extra work, along with teaching full time and managing a family, goes on behind the scenes to make the day go smoothly. Thanks again Cat.

Some of us also had the opportunity to meet with Nat and Graham, Thursday evening over snacks and drinks. Both Graham and Nat are very personable and so easy to visit with. Many laughs and of course, math ideas were shared.

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It was great to meet in person for MTS PD Day and connect with teachers in order to build relationships, either with teachers from our own school or teachers from other schools. Meeting in person lends itself to more engaging discussions, a chance to share ideas and really listen to how others interpreted or solved the question being posed. Through the discussions and collaboration at my table, it gave me an opportunity to also grow as an educator. In Graham's session we had the opportunity to use manipulatives which in turn triggered ideas how I could use them in my class. I know I am no different than my students, I need to "play" with manipulatives first before I make sense of them and use them effectively. Having the opportunity to see the exhibitors was also a highlight. Books, resources and manipulatives can sometimes be misleading in the catalogs.

As we look forward to MTS PD Day 2024, we have had much discussion whether to be in person or create a hybrid model (in person and online) or be completely online. Many of us on MAMT, feel an in-person day is best for many reasons and yet sense that many teachers prefer online. We (MAMT) see our role to provide good and relevant Professional Development to teachers in the province. PD needs to be effective, thought provoking and not just a one off. The last few years taught us much about technology and how to use it as we learned to teach online. Were our students fully engaged and on task when we taught via ZOOM or TEAMS? The same goes for us. Are we fully engaged and on task when we do PD via ZOOM or TEAMS? Was I totally engaged, let alone awake when doing a Pilates class online? Much to think about. If you have any comments or feedback about MTS PD Day, please contact me.

Excellent Resource With Problems for Senior and Middle Years Classrooms

[Submitted by Kira Burkett](#)

Looking for excellent problems and puzzles for your older learners? A friend recently told me about a website documenting math problems collected and created by Don Steward (<https://donsteward.blogspot.com/>).

The website has a plethora of problems, prompts, and puzzles for older math students. The problems are sorted by topic, making it easy to find prompts relevant to what you are teaching. Many of the problems scaffolded to get harder as students solve them and many come with an accompanying PowerPoint. There are some great problems on this site to challenge your thinkers and have them think deeply about math concepts.

The Murray McPherson Award

[Will Penner](#)

Sincerely Submitted by Sandy Margetts

I am proud to introduce you to Will Penner, one of our award winners this year. Will is an accomplished elementary, junior and senior high educator with demonstrated ability to teach, innovate, motivate, and direct students while maintaining high interest and achievement. He is an articulate communicator able to effectively interact with diverse populations of students at a variety of academic levels. He maintains excellent relationships with students, parents, faculty and administrators. He is self-motivated with strong planning, organizational and leadership skills. He consistently looks for means to create learning environments that are exciting, utilizing technology as a tool and creates lessons that incorporate STEAM to ensure critical thinking and collaboration take place.

Will received a Bachelor of Arts in 2001 from the University of Winnipeg and a B.Ed. in 2003 from Brandon University. He has been a classroom teacher since 2005 in Calgary and Winnipeg. In the past three years Will has maintained the title of Grade 8 Team Leader in addition to Chairing the Numeracy Committee and serving as Chair of the Professional Development Team. During his tenure as a classroom teacher he has offered countless professional development sessions in Numeracy / Mathopoly at WestCAST, SWATCA (South Western Alberta's Teacher's Convention Association), MTS PD Day, CATCA (Central Alberta's Teacher's Convention Association), NDCTM (North Dakota's Council of Teachers of Math), and NWMC (North West Math Council in Oregon) to name a few.



Will has been twice nominated for the APEGA (Association of Professional Engineers and Geoscientists of Alberta) Science / Math Innovation in Education Award. He was voted Top 100 Manitobans in 2020 by Ace Burpee and recognized by Winnipeg Mayor Brian Bowman for this achievement.

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Murray McPherson Award

[Continued - Will Penner](#)

I met Will when he enrolled in the Faculty of Education After Degree program at Brandon University. He was a star student in my Middle Years Math & Science Methods classes. It was during the math course that he and Cameron Reilly developed the prototype for 'Mathopoly' as a class assignment. "It was kind of weird because the game was only worth 10% of our mark" laughs Reilly. "It was a lot of work for little credit if you look at it that way, but it totally worked out." Penner said the interest the two received from others about the game motivated them to continue. "I think the reason we kept on going with it was because it generated a bit of a buzz once we showed it to our (peers)". The rest of course is history as to the popularity and usefulness of that fine resource.

The following statement is a testimonial of Will's talent from a colleague. She says: "I am deeply honoured to be writing this letter of support for the nomination of Will Penner for the Murray McPherson Award. I have known Will for over 10 years and can attest that, in every aspect of his professional career in education, he has distinguished himself as one of the most engaging, inventive, and thoughtful math educators in the field. Will's passion and exemplary career in the field of mathematics and teaching is a model for educators across Manitoba and beyond." (Kelly Plunkett)

His principal has this to say: "Will is a passionate lover of math and a teacher who thinks outside the traditional teaching box. He provides his students with hands on learning experiences where they are encouraged to solve problems creatively using a variety of methods collaboratively. Will embraces STEAM education with cross curricular projects that are hands on, preparing them for the demands of the future work world. From VR to self-crafted escape rooms to clothing made from newspaper, there is always something dynamic happening in Will's classroom to foster creative thinking and collaborative problem solving." (Trevor Holroyd)

Will has this to say about himself... So, I'm a Math Guy
 Quotient, product sum guy,
 Hypotenuse is C guy,
 3.14 Pi guy
 Acute type
 BEDMAS too
 And yah type
 Sharpen pencils loud type
 Smarter than your Dad type"
 I'm a Math Guy
 Duh!!!

Congratulations Will! I hope you keep teaching kids and teachers what counts for many more years to come.

The Murray McPherson Award

[Kari Bergmuller](#)

As Head of the Senior School Mathematics Department at St John's-Ravenscourt School, it is with great pleasure that I write this letter of nomination of Kari Bergmuller for the Murray McPherson Award. As a recipient of the award myself in 2012, I can not think of anyone more worthy.

I first met Kari in 1999 when she was a student teacher in my classroom. Being only a second-year teacher myself at the time, we made a lot of mistakes together but formed an amazing friendship and professional relationship. Over the years, we have collaborated on many projects. I can email Kari anytime with "I have an idea..." and she will immediately want to know more with excitement! One project that stands out in my mind is, while working in two different schools, we had our grade 9 classes work on a project together. They had to design a container that would stop a pringle chip from breaking, while minimizing surface area. We mailed the packages to each other, and the students opened then live on Skype to reveal if the pringle was still intact.

Kari has had an amazing career thus far. She has worked in three high schools, serving as Mathematics Department Head in the last two. In 2019, she was seconded to the department of Education as the Senior Years Math Consultant. When Covid hit in 2020, Kari was moved into the very prestigious role of Director of the COVID-19 Incident Management Team. When her secondment ended, she joined WSD 1 as the Program Lead. Kari is the most giving math educator I have ever know. She is always willing to help, lending her entire binder of resources to anyone in need. She goes above and beyond for her students, often staying late into the evening to give extra help before exams.

I am honoured to call Kari a friend, but more honoured to have had the pleasure of watching her develop into an amazing math educator. Thank you for taking the time to consider my nomination of Kari. Sincerely, Ellen Thompson

Kari Bergmuller worked for 19 years in SJASD as a math teacher and department head before joining Manitoba Education (now MEECL) in 2019 to work as the mathematics curriculum consultant for the province. She recently joined the Winnipeg School Division and is the Vice Principal at Wellington School.



Manitoba Association of Mathematics Teachers Scholarships in Education

MAMT continues to work with our secondary education faculties to establish scholarships on behalf of MAMT that will be awarded annually to a student in their certification year who demonstrates excellence in the field of mathematics.

In 2023, MAMT provided scholarships for two recipients:

Université de Saint-Boniface recipient: Nadia Casaubon

Brandon University recipient: Minjun Oh

See next page for a Spotlight on the recipient from Brandon University.

MAMT is looking forward to awarding many future scholarships.



**BRANDON
UNIVERSITY**

2023 MAMT Mathematics Scholarship Award Winner at Brandon University

Submitted by Sandy Margetts

It is my pleasure to introduce you to Minjun Oh who received the 2023 MAMT Mathematics Scholarship this fall. Minjun (MJ) Oh is in the second year of his After Degree Education Program at Brandon University. His teachable subjects are Mathematics and Sociology, and he is registered in the Middle Years Stream. He was born in Seoul, South Korea and immigrated to Canada when he was only 10 years old. Being exposed to a diverse education system, he grew fond of diverse learning implications and differentiated instruction strategies.

I asked MJ to jot down his thoughts about why he likes teaching math and why he has been so successful. Here is what he had to say...

“When I first moved to Canada, I barely spoke any English and had some difficulties adjusting to new curriculum and culture. Amid the time of chaos there was one subject I excelled in. The ‘Language of Mathematics’ is universal and was one of the few things I enjoyed doing in middle school. However, the excitement of math plateaued as I grew older and adjusted to the Canadian culture. Academically, I wasn’t interested or motivated during high school. The struggles of math didn’t really exist for me until university classes. Unfortunately for me, I wasn’t ready for it. In my very first calculus class, I couldn’t grasp concepts like I was used to in my earlier schooling. This was quite the learning experience for me. Although, my grades weren’t stellar, I learned tremendously through this experience. This experience taught me that being wrong doesn’t mean that you fail, rather it gives you an opportunity to learn and grow from it. The idea of productive struggle, the effort you put in to get the wrong answer, spending time to see where it went wrong, and fixing those mistakes wasn’t wasted time. The struggle gave me a better understanding of the language of math and helped me develop strategies to combat those questions. Having been on both ends of the spectrum of a math learner, (Excelling and Underperforming) showed me that I want to be able to understand all types of math learners and facilitate a fun learning environment using diverse methods and strategies to engage all my future students.”



Manitoba Association of Mathematics Teachers

Professional Development Initiative Fund (MAMT PDI Fund)

The Manitoba Association of Mathematics Teachers (MAMT) has established a new fund to support the professional development of mathematics teachers across the province. We have called it the Professional Development Initiative Fund and we have set aside \$5000 in our budget for this initiative. MAMT is looking to support members who wish to develop and offer PD initiatives in early, middle or senior years mathematics teaching by offering grants for up to a maximum of \$1500 per successful applicant.

Some of the important information from the PDI Fund document are as follows:

Requirements to Apply:

- Applicant (including the majority of all participants) must be a current MAMT member for at least one year prior to the year of the application

How to Apply:

- Applicants must complete the MAMT PDI application form (available on the MAMT website)

Successful applicants will be required to:

- make a short presentation for the next MAMT monthly meeting after the PD initiatives concludes summarizing the learning that took place and how it benefits students and/or teachers
- Submit a short article for the MAMT Journal/Newsletter sharing your PD experience

Once the budget has been depleted for the current fiscal year, no further applications will be considered until the following year.

Visit the website www.mamt.mb.ca to see the complete PDI Fund document and the application form.

Any questions can be directed to:

Shane Shumsky
MAMT Treasurer
sshumsky@hds.ca

OAME - Inquiry Based Mathematics Classroom

Submitted by Melissa Dean

The 2023 Ontario Association of Mathematics Educators (OAME) conference took place in May in Toronto, ON. This is a gathering of mathematics educators from all over Ontario, and it's an amazing opportunity to share practices, be inspired and network with other educators. I was privileged to have my proposal accepted to speak and to be able to share my thoughts on creating an Inquiry based Mathematics Classroom.

As part of my presentation, I shared my experience in learning to solve a Rubik's cube. This was a pivotal moment for me as an educator. While learning to solve the cube, I experienced several things that I believe are crucial for learning. I had something I wanted to learn, and so I learned it. I used feedback right in the moment to know how I was doing. I was supported by a community of other learners who had come before me as I accessed a Youtube video. At the final moment of solving, the joy I felt was incredible, and it's something I want to recreate for my learners in the mathematics classroom.

Reflecting on this experience led me to the 5 pillars of my mathematics classroom. These pillars represent the types of activities that my learners progress through within the classroom, and it was these pillars on which I focused my presentation.

5 SHIFTS: 5 PROGRESSIONS OF MY INQUIRY MATH CLASSROOM

1. Provoke or Play
2. Problem
3. Pattern
4. Propose
5. Practice

Each day, we move through this progression – from play and wonder, through to problem solving and question asking. We look for patterns and propose ideas and conjectures. We use purposeful practice to build and consolidate our skills and understandings. The keys to this progression, though, is understanding that the very foundation of our instructional practices is what we believe about

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OAME - Inquiry Based Mathematics Classroom

assessment. It is crucial that we assess what we value – if we tell our learners that we value collaboration, critical thinking, communication, and creativity, we must assess in a way that values these things. After exploring these instructional practices, we turned our attention to real-time and authentic asset based assessment practices within the mathematics classroom.

In addition to presenting my ideas, I was able to hear Dan Finkel share his thoughts on the mathematics classroom, and attended several other sessions around building authentic assessment practices within the highschool mathematics classroom. These were all ideas that I have brought back to my own classrooms, and have been sharing with my colleagues. This would not have been possible without the support of MAMT, and I'm very grateful for the opportunity. I believe that these opportunities are crucial for educators as we seek to refine our practices to best support our learners.

Melissa Dean

Niverville High School

Hanover School Division

Twitter, Instagram: @dean_of_math

Email: medean@hsd.ca

Winnipeg Advanced Placement Conference

Date: March 15, 2024

Time: 8 am to 4 pm

Location: Collège Miles Macdonell Collegiate, 757 Roch St., Winnipeg, MB

Workshops for new and experienced AP educators in:

AP Biology

AP Chemistry

AP Physics 1

AP English Literature & Composition

AP Calculus AB

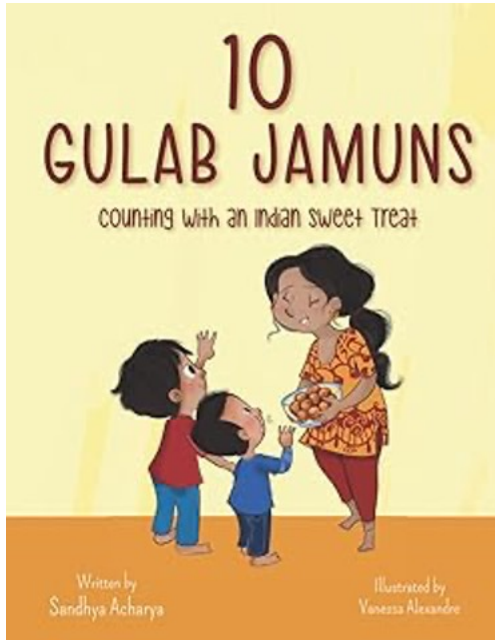
AP School Leaders and Coordinators

AP Psychology

AP Computer Science Principles

Registration: Through the College Board's **AP Workshops** page (search for Winnipeg) or follow the link <https://eventreg.collegeboard.org/event/db519c36-323d-45aa-95ac-477b5a5e48a0/summary>

10 Gulab Jamuns



Counting with an Indian Sweet Treat
 Written by Sandhya Acharya
 Illustrated by Vanessa Alexandre
 Review Submitted by S. Margetts

Gulab jamun is a **sweet confectionery or dessert**, originating in Persia and then later introduced to the Indian subcontinent. It is popular in India, ... Homemade gulab jamun is usually made up of khoya, a pinch of all-purpose flour/refined wheat flour/ wheat flour (optional), baking powder and clarified butter (ghee); milk kneaded to form a dough, moulded into balls, deep fried and dropped into simmering sugar syrup. Gulab

jamun is traditionally served warm, drenched in sugar syrup, and offers a milky sweet aroma coupled with a melt-in-the-mouth tenderness. Some people define its taste as raisin-like with a subtle spiciness from the cardamom and a floral aroma from the rose syrup.

“This light-hearted, humorous story will warm your heart and tantalize your tastebuds. It also includes some basic lessons in counting and an easy recipe to make those delicious Gulab Jamuns yourself. Read this book aloud and enjoy a fun activity with your young mathematicians.”

“Join two adorable brothers in a fun-filled adventure and discover a tasty sweet from India. The brothers are very excited as guests are coming over for dinner and their Mamma has already cooked a lot. Next, she is cooking Gulab Jamuns, but the brothers don’t know what Gulab Jamuns are. Before long they discover just how good these wonderful, golden, sugary syrup-soaked balls are and how quickly they melt in their mouths. But Mamma only made 10 Gulab Jamuns. Will they last until their guests arrive?”

The information in the ‘Author’s Note’ at the back of the book is well worth sharing with you , our members, at this time...

Continued on next page...

10 Gulab Jamuns

Book Review continued...

“Close to 37% of children identify themselves as multicultural, but only a small fraction of children’s books have characters that look like them. Books like **10 Gulab Jamuns** function both as windows into new worlds and mirrors to children from different cultures.”

“There are several ways *10 Gulab Jamuns* can be used by parents and educators in the curriculum. Here are some suggestions:

- Initiate class dialogue about diverse foods: Food is an integral part of cultural identity. *10 Gulab Jamuns* empowers South-Asian origin kids to see foods they eat in books they read. For non-South-Asian background families, it is an excellent opportunity to learn about new foods including Rotis, Samosas, Pilaf, and Paneer along with Gulab Jamuns.
- Educate readers about South Asian festivals like Diwali, Holi, and Eid: Making, eating, and sharing sweets like Gulab Jamuns is an essential part of the festivities across different communities in the South-Asian region. The book is a great way of discussing various festivals across South Asia.
- Explore different geographies and do an in-depth study of India and South Asia: For classrooms researching world cultures is a great way of studying the South Asian region including its food, festivals, dress, language, and geography.
- Cooking Gulab Jamuns: The recipe by food blogger Hetal Vasavada in the back of the book is an excellent way of doing a class or family cooking project.
- Practice counting and subtraction: *10 Gulab Jamuns* incorporates counting and subtraction concepts that kids can easily follow. Math concepts become much clearer when applied to real life, and the story offers the perfect opportunity to practice math by counting Gulab Jamuns.
- Practice writing techniques: The format of “how-to” is emphasized in the book while listing out the steps to make Gulab Jamuns. The usage of key phrases “first”, “next”, and “then” are essential building blocks of writing. It is a rich experience for children to use stories like these to illustrate the techniques of writing.
- Make South-Asian themed crafts: The details in the book can be used as an inspiration to create South-Asian themed art. Children can make elephant-shaped wall hangings, paint diyas or earthen lamps or make rangoli patterns with sidewalk chalk.”

Please head to www.sandhyaacharaya.com for more ideas and downloadable resources. The author would love to hear more about your ways of including **10 Gulab Jamuns** as an immersive learning experience for your students.

How'd They Get That Answer?

By Mark Roche

A few weeks ago, I gave my students a short quiz on addition and subtraction of fractions. As I was reviewing the answers later the next day I noted that, despite an overall average of just over 80%, one question in particular seemed to have stumped the majority of the class; only 5 students out of 22 that completed the quiz got it correct. I decided that this was a perfect opportunity to do a deep dive into untangling some of the common errors, misconceptions and gaps in understanding that were keeping students from successfully answering this question and others like it. The plan was to project each of the incorrect answers onto the screen and have them work in small groups of 3-4 to try to figure out exactly how that answer was derived. This is of course, very different than asking them to figure out why a student got the wrong answer. It was challenging for students to differentiate between these two ideas and in retrospect I should have been more clear about this from the start of the lesson, but I will come back to this point later.

My rationale for the lesson was two-fold: Even though we were only going to look at 1 question, my hope was that they would be able to use what they learned throughout the lesson and successfully apply it when they got their full quizzes back and had a second chance to review and correct any mistakes. At the same time, the lesson was aimed to promote a culture of error where, as Craig Barton explains in his massively useful book *Tips for Teachers*, “students...are not afraid to make mistakes as they see mistakes as a natural part of the learning process.”

I prepared the lesson by taking screenshots of each possible incorrect answer and putting them into a PowerPoint presentation with one answer per slide. I ordered the slides so that students would progress through them from the simplest to decipher to the most complex. My motivation behind this was that students would most likely be able to figure out relatively quickly how the answers in the first several slides had been reached, therefore getting some early success in the activity which would help with motivation and perseverance when they had to face the more challenging tasks of untangling the less obvious answers towards the end.

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How'd They Get That Answer?

Each student was given a mini-whiteboard, a dry-erase marker and an eraser to start the lesson. I explained the task to them in the following way: “While I was going over your quizzes for adding and subtracting fractions I noticed that one question in particular seemed to pose a lot of difficulty for a large majority of the class. For question 14 (*I put the question on the board for students to see*) there was a total of 9 different answers, including the correct response, which were given by the class. This morning we are going to look at each of those answers individually and as a group, you are going to determine how those answers were derived. Asking someone how they derived their answer is another way of asking how they obtained their answer. We’ll start with this answer (*figure 2 displayed on screen*) which was the second most common response from the class. Your task is to determine how this response was derived. Discuss as a group and then show your thinking on your whiteboards.”

14

Work out $\frac{4}{50} + \frac{3}{75}$

Give your answer in its simplest form.

$\frac{18}{150}$

Figure 1 - The second most common student

At this point I began walking around the room listening to the conversations between students. This is my second year with most of these students so there is an established practice of discussion and sharing of ideas with classmates, and most of them jumped into discussion right away. I heard many students exclaim, “Oh, that’s what I got” and, “Yeah, me too!”. It only took a minute or so before students began putting their thinking down on their whiteboards. As I circulated the room, several students showed me their work and said, “Monsieur, they forgot to simplify”. Upon hearing this I stopped the class –“Un, deux, trois, regardez-moi” – and emphasized that their task wasn’t to find other students’ mistakes, but simply to demonstrate how the student got the answer they got. It took around 3 minutes for most groups to discuss and write up their thinking on whiteboards. I gave an extra minute for those weren’t quite there yet and added that groups should be prepared to explain their thinking to the class.

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How'd They Get That Answer?

While circulating I made a mental note of a student whiteboard which I thought clearly showed the rationale behind this answer. I put the board under the visualizer and did a quick Think-Pair-Share: I told students to take 40 seconds to look at the rationale and think how they would explain it to the class. I gave another 30 seconds to share their thinking with a partner. Afterwards I cold-called a student (another established routine in the class) to explain the math and thinking on the whiteboard which was displayed on the visualizer.

“They found a common denominator of 150. They changed each fraction into an equivalent fraction with a denominator of 150. For the first fraction they multiplied 50 by 3 to get 150, and then they also multiplied the numerator 4 by 3 to get 12. For the second fraction they multiplied 75 by 2 to get 150 and then the numerator also by 2 to get 6. Now that the denominators were the same, they could add the two fractions which gave them 18/150.” Most students nodded in agreement to this explanation. I asked if there were any other interpretations or if any group had a different rationale for the answer of 18/150. Everyone seemed satisfied with the rationale and explanation, so we continued on the next slide.

14 Work out $\frac{4}{50} + \frac{3}{75}$
Give your answer in its simplest form.

$\frac{9}{75}$

The answer of 9/75 was the most common response for this question, with 7 students, almost 1/3 of the class, having this as their answer. I used the same format as during the first slide. Since this answer is a natural progression from the previous one, most groups had their discussion and thinking done in 2 minutes or less.

Figure 2 - Most common student response

I displayed a sample of student thinking on the visualizer and we went through the same Think-Pair-Share process as before. It was agreed upon

that the same reasoning had been followed as in the first answer of 18/150, with the additional step of finding a common factor of 2 between numerator and denominator and factoring it out to simplify the fraction to 9/75.

How'd They Get That Answer?

We continued in this fashion for several more slides, with the class discussing and explaining the next 3 slides relatively quickly (Figures 4, 5, 6).

14 Work out $\frac{4}{50} + \frac{3}{75}$
Give your answer in its simplest form.

$\frac{7}{125}$

Figure 3 - Student simply added numerators and denominators together.

14 Work out $\frac{4}{50} + \frac{3}{75}$
Give your answer in its simplest form.

$\frac{8}{75}$

Figure 5 - Miscalculation when simplifying 18/150. Student knew 150 divided by 2 was 75 but thought 18 divided by 2 was 8.

14 Work out $\frac{4}{50} + \frac{3}{75}$
Give your answer in its simplest form.

$\frac{7}{150}$

Figure 4 - Student found common denominator but did not change numerator to make an equivalent fraction.

The last 3 slides (Figures 6, 7, 8) were the most challenging to untangle and students had various ideas regarding how these responses were generated.

Some of their ideas included:

- simplifying the denominator but not the numerator
- incorrect calculations: such as calculating incorrectly when factoring out
- legibility: misreading a number on their whiteboard but continuing with their calculations

We used the same Think-Pari-Share as before, however I noted that there were fewer ideas and some whiteboards were blank – some students didn't even know where to start to look for rationales to these answers. Admittedly, even I struggled to find a solid rationale for these last few responses and as a class we concluded we couldn't be certain without the full explanation of the actual student who gave that response. Although I never directly linked any of these answers to a particular student, nor did I ask them to openly share which responses they had got on the quiz, I did have 1 student voluntarily admit that her answer was 1/5 and that, although she had a logical rationale for her answer, she couldn't remember it at this point (2 days had already passed since taking the quiz). In retrospect I should have asked the students with these outlier responses to explain their thinking to me shortly following the quiz, ideally on the same day before the end of school. I will discuss this idea further in my reflections on the lesson.

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How'd They Get That Answer?

14 Work out $\frac{4}{50} + \frac{3}{75}$
Give your answer in its simplest form.

$\frac{2}{50}$

Figure 6

14 Work out $\frac{4}{50} + \frac{3}{75}$
Give your answer in its simplest form.

$\frac{1}{5}$

Figure 7

14 Work out $\frac{4}{50} + \frac{3}{75}$
Give your answer in its simplest form.

$\frac{4}{75}$

Figure 8

After the lesson was completed, I gave back the quizzes to the students and allowed them 30 minutes to review and correct any mistakes, errors, or wrong answers. I would then remark the quiz and give them an average of the 2 grades.

Reflections

In general, I felt the lesson went very well. Students were engaged in the activity and persevered in trying to figure out how other students got their answers even when it became more challenging.

What did students learn: Although they only looked at 1 question during the lesson, when they were given the chance at the end to review their quizzes, all students were successfully able to find and correct many of their other mistakes (particularly simplifying errors). The average grade after the second round of marking was 90%, which gave a final median grade of 85% for the class.

What did I learn:

My biggest takeaway from this lesson was to realize many of my students continued to struggle with simplifying fractions, particularly when they strayed away from the more comfortable realm of the times tables. It made me consider including some lessons on divisibility rules in advance of our work on addition and subtraction of fractions.

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How'd They Get That Answer?

What would I do differently next time:

The next time I do this lesson or something similar to it, I will do 2 things differently from the outset. First off, I will make it clear that the task is to find the out how the answer on the screen was obtained. Several minutes were wasted have to re-explain to several groups that were they weren't trying to find out what they got wrong in the answer, or what they didn't do right. My solution to this would be to use a simple example with them such as $7/18 + 2/18 = 9/18 = 3/6$ and model my thinking out loud how I would want them to explain how $3/6$ was derived. I would then do it again using another example $7/16 - 3/16 = 4/16 = 2/8$, and then model what I DON'T want them to do. To check for understanding, I would give the students a 3rd example to do on their own which they would then model for me.

The second thing that I would do differently is that I would talk to students who had some of the outlier responses immediately after the quiz to get their thinking down and so that neither they nor I will forget if there happens to be a few days between the quiz and when we go over it together. Alternately, I could have them write down their thinking on paper for each question and hand it in with their work.

Editor's Message Tricia Perry

I've always enjoyed this time of year, however this year has been a little bit more challenging with our unseasonably warm weather. We usually see this in March as the weather starts to change and we begin to look forward to a break from the winter cold.

I had the opportunity to attend the NCTM conference in Washington this past October. It was so reassuring to hear the same underlying message that started from Nat Banting at our MTS PD day and continued throughout each session I attended at NCTM, including Pam Harris, Robert Kaplinsky, Fawn Nguyen, Peter Liljedahl, Jo Boaler and so many more...stay tuned to hear more about what everyone is saying about current math education.

As always, I'd love to hear from you (EditorMAMT@gmail.com), whether it's to share an "aha moment", send in an activity that your students enjoyed, or some questions you have for other Manitoba teachers.

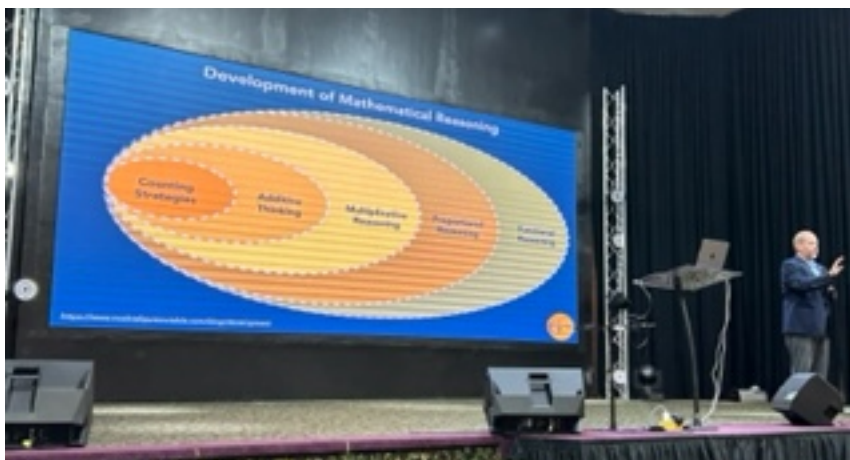
I'm looking forward to hearing from you!

MTS PD DAY - Graham Fletcher's K-8 Session

[Submitted by Allan Stevenson](#)

Graham Fletcher's session, Power of Progressions: Untangling the Knotty Areas of Teaching & Learning Mathematics did not disappoint! MB teachers were treated to Graham's dynamic delivery.

Graham spent the day working with K-8 teachers in the Development of Mathematical Reasoning. We went on a journey through the counting phase, additive thinking, multiplicative thinking, proportional reasoning and functional reasoning that students experience in their own K-8 journeys.



Teachers were provided concrete examples that included student work samples and video clips that allowed us to make better sense of what each of these phases looks like. Graham provided opportunities for teachers to tackle problems and engage in professional discourse at their table groups with colleagues. These opportunities were appreciated and meaningful for the MB teachers present.

It was amazing to have teachers begin to see and talk with one another about how we are all working together to support kids in this important journey and how these stages work together and build on one another.

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We talked about the “Traits of Sticky Tasks” and what the six elements are that create meaningful and memorable experiences for students in our numeracy classrooms.

1. Simple – Is it accessible at its core?
 2. Unexpected – Does it fire up the guessing machine?
 3. Concrete – Does it connect to new and old knowledge?
 4. Credible – What validates the math?
 5. Emotional – Does it create a need or AHA moment?
 6. Stories – How will the math story be shared?
- Which of these traits might some of your lessons include? Are we building math residue and memories that might stick for our students?



It might make more sense to you if you were in the room with us on October 20th, but I thought that I would include just a few more of my own personal take-aways. (even though I had significantly more than that)

1. Assess is the latin root word that means “to sit beside”. Are we assessing kids or grading them? Sitting next to kids provides a powerful opportunity to see what kids are truly thinking.
2. No longer refer to kids as high, medium and low abilities. Instead, start to think of students as early thinkers, developing thinkers and more complex thinkers
3. “Differentiation should be just in time, not just in case” – Juli Dixon

On behalf of all MB teachers and our MAMT Executive Committee, thank you Graham for a fabulous day spent helping to build teacher capacity! You definitely hit your north star my friend! Allan Stevenson, K-12 Numeracy Program Leader – Sunrise School Division



The Mean, Median, and Mode Card Game

[Submitted by Ruby Schilke, Seven Oaks Adult Learning Car](#)

We had the pleasure of meeting Ruby at our MAMT evening just before our MTS PD Day in October and she shared this game that we got the chance to play! Thanks Ruby!!! Have fun playing this with your students!

Understanding **mean**, **median** and **mode** is a critical early math skill. Help your kid master mean, median and mode with this hands-on card game, designed to appeal to every kind of child.

What You Need:

Pencils

White paper

Playing cards (A = 1, Face Card = 10)

Calculator (optional)

What You Do:

Review the definitions of these key terms with your child:

Mean is the average of all of the numbers in a sample. Add up all of the numbers in a set and divide by the total number of items to calculate a mean.

Median is the middle number in a series of numbers that's ordered from least to greatest. If there's an even number of items in the data set, the median can be calculated by averaging the two middle numbers.

Mode is the number that appears the most times in the data set.

Once your kid grasps the differences between these vocabulary words, gather 4 players to tackle this card game and practice each of these math concepts. Using only the Ace through 10 cards, deal out 7 cards to each player. Have everyone arrange their cards in sequential order, with every Ace representing the number 1.



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The Mean, Median, and Mode Card Game - continued

Then, depending upon which game you want to play, follow the directions below:

- 1. Finding the Mean Game.** Instruct everyone playing to find the total value of the numbers on their cards. Each player should then divide their total by 7 (the total number of items in the set) and round to the nearest whole number to find the mean. For example, if the cards in your hand are 2, 2, 3, 6, 7, 7, 9, then the sum of those digits is 38. Divide the sum by 7 to get 5 as your answer. Your answer represents the number of points you receive in each round. Provide scratch paper and pencils to help players find the answer to every division problem, or use a calculator to speed up the process.
- 2. Finding the Median Game.** In this game, players get a number of points that match the median card in their hands. For example, the point value for the hand above would be 6, since 6 is the value of the median card in that set.
- 3. Finding the Mode Game.** Just like in the games above, the number of points in the game rounds here is reflected by the mode in each hand of cards. If there isn't a mode (a number appearing more than once), then that player scores a 0 for that round. In the situation where there are multiple modes, such as in the hand above, the player receives a number of points that matches the sum of the modes. For example, the mode for the hand above would be 9, since 7 and 2 are both modes.

In each game, the winner is the first person to score a total of 21 points. This number can be lowered for kids who have shorter attention spans.

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VARIATIONS:

- 1. Highest score after 4 rounds wins.**
- 2. Round 4: Range**
Highest card - lowest card
Add the total of all 4 rounds. The highest score wins.

Annual General Meeting Reports

[June 2023](#)

President's Report Submitted by Donna Slobodzian

September 1, 2022, I attended Sarah Melo and Faith Loewen's workshops in Winnipeg. Great day of PD!

We started the year off with our annual organization meeting called "Think Tank" in September. We met in person as well as over Zoom. We made plans for the upcoming year, set meeting dates and discussed plans for MTS PD Day 2022.

I was fortunate to attend the NCTM Conference in Los Angeles, September 28th to October 1st. It was so nice to finally meet in person. I attended many great workshops and made connections with some presenters. Thank you for the opportunity to attend.

MTS PD DAY, October 2022 was online again. Thanks to Cat Fouillard, our MTS PD Day coordinator for organizing a successful MTS PD Day. There were many great presenters to choose from. It was great to be able to listen to the many recorded sessions afterwards.

I chaired the monthly meetings which were in person as well as on ZOOM.

I attended the SAGE forum with Cat Fouillard in November.

I also attended SAGE planning day April 25th offered by MTS along with Cat Fouillard and Shane Shumsky.

May 2nd we celebrated with the High School Math contest winners and their teachers at the Pony Corral. It's a great evening to acknowledge the accomplishments of these four young students and wish them well in their future studies.

In June, I will be attending the Murray McPherson award dinner. It is always exciting to recognize teachers who are outstanding as educators, for their hard work, ingenuity, curriculum connections, leadership and dedication. This year's award winners are Will Penner and Kari Burgmuller.

This year we welcomed Charmanine Hayden, Sarah Melo and Lea-Jay Bulawka to MAMT. All three come with much expertise and enthusiasm for furthering mathematics education in Manitoba. Earlier in the year, Ellen Thompson resigned her position. Ellen was a valuable member of MAMT and was always willing to step in and help pick up the pieces when plans did not go as planned.

NCTM Representative's Report Submitted by Shane Shumsky

MAMT has continued our affiliation with NCTM as a partner affiliate in 2023-24. Please contact me if you have any questions or suggestions.

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Secretary's Report Submitted by Kira Burkett

This year I fulfilled my duties as secretary by taking minutes and sending out agendas for all MAMT meetings. I helped coordinate the day-of logistics for our MTS PD day and joined the MTS PD day committee for 2023. I attended a variety of wonderful math PDs, put on by both MAMT and other groups. The highlight of my year with MAMT was using MailChimp as a new method to reach our membership. Watching the numbers jump as members receive and open our newsletters is quite a thrill! I look forward to another great year of math PD with MAMT.

Treasurer's Report Submitted by Shane Shumsky

This year as Treasurer, I developed a budget/ledger sheet that would most effectively represent and track our financial situation. I attended Think-tank in September. In September I was fortunate to attend the NCTM conference in Los Angeles and saw several speakers. Throughout the year, I attended most of the monthly executive meetings. Please contact me if you have any questions or suggestions.

Editor's Report Submitted by Tricia Perry

I attended monthly virtual executive meetings when possible and published the two journals for this year.

January 2023:

- Winter Journal published

May 2023:

- Spring Journal published

Dates for publications for 2023-2024, TBD.

Decision to be made at Think Tank August 2023 if our publications will be switched to online posting only!

Thank you to everyone who contributed to our publications throughout this year.

Membership Report Submitted by Garry Strick

The spring MAMT membership count always reflects the number of people who attended the PD Day in the previous fall. This spring, MAMT has on record 1062 members. Current members have opportunities to attend complimentary professional development workshops and to access funding to engage in professional development projects approved by the MAMT Executive. Non-members get neither benefit. If you would like more information about access to complimentary workshops or MAMT funded professional development projects, please see the MAMT website, www.mamt.mb.ca, or contact me at 2solveornot2solve@gmail.com.

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Early Years Representative's Report

Submitted by Allan Stevenson

I have just completed my 5th year serving as an EY representative for MAMT Executive. Our meetings were in person, with an option to join virtually if that better meets your needs. I continue to find it very valuable to attend in person when I am able to do so. The networking and collaboration opportunity is refreshing. I wasn't able to attend in person nearly as often as I would have liked, but I still often sent in some resources or ideas for the group to think about. I still wanted to contribute even if I couldn't be there.

As an EY rep, I continued to participate in a variety of professional learning opportunities to help me facilitate a variety of learning with teachers and students here in Sunrise.

I attended the NCTM Conference in Late September, early October in Los Angeles. Some of the sessions that I found to be particularly interesting were Fawn Nguyen, Marian Small, Graham Fletcher and Robert Kaplinsky. I found the sessions that I attended to be engaging, worthwhile learning that connected to a lot of the work I did in my Numeracy Residencies in Sunrise this year. Thank you once again to NCTM for helping me attend by supporting me with \$1500 to pay for my hotel stay. I wrote an article for the journal to highlight the session that I attended facilitated by Graham Fletcher.

Connecting with him at this conference was actually how getting him to come to MB for our MTS PD Day in October started!

I also attended virtual sessions that were offered by our MAMY Executive as part of this year's MTS PD Day and accessed some of the recordings as well that were provided to our members for several weeks afterwards.

I helped to facilitate the 2nd year of two cohorts for grades 4 & 5 as part of the NAP (Numeracy Achievement Program) work for MRLC. We wrapped up training with these groups of teachers with 2 full days in person together in Winnipeg along with 6 virtual sessions. I have agreed to continue to facilitate for them next year involving different cohorts and networks, but those haven't been determined yet.

I completed an Agile Leadership course by Simon Breakspear. This focuses on his work involving Teaching Sprints. I have continued to do some learning around Tom Sharrington's Walk Thrus as well. There continues to be nice alignment in both of these pieces. I have continued to use some of their work as a structure to help support some of the work I'm doing with teachers in Sunrise.

Some of the other main projects that I've been involved with this year are:

1. Continuing to maintain and add materials & resources to the K-12 Numeracy Support Team in Office 365. This platform continues to be a great way to support and connect our teachers.
2. Math Tool Kits that encourage the use of concrete materials and manipulatives continue to grow and build momentum. I have continued to work with several groups of teachers in Sunrise modelling how to implement these tools in meaningful ways with kids. These are being used as ways for students to create mathematical models that represent their thinking. It's nice to see a continued shift towards "teaching through problem solving" and how these tool kits are supporting students while engaging in that problem solving process.
3. Numeracy residencies. I supported 5 schools in Sunrise this year using the mini residency approach we've developed. This was the most ever! This model is helping to support the sustained positive change in teaching practices. I am in the midst of trying to plan in a way that can support the 8 requests I've already received for something similar next year. It's fantastic that most teachers involved want to continue this learning since they describe it being delivered in manageable chunks with the gentle accountability to try what's been modelled in classrooms before we meet again.
4. I made an intentional change this year and scheduled NAP School Visits in all Sunrise Schools. This allowed me to meet face to face with every Grade 6-9 teacher. I was able to meet each teacher wherever they are at in their own NAP journey. This is helping to deliver a consistent message about what is important and expected. I will be continuing with this plan for next year and continuing to build in some positive changes.

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5. Our sub-committee that pursued university interest in scholarship opportunities from MAMT is excited to see some of this come to life this spring and next fall with some of our first recipients awarded the scholarship at several universities.

6. I am also a part of the MTS PD Day committee. We have worked together to secure Graham Fletcher and decided that he would offer a full day of learning for teachers attending. We also secured the location of the Transcona Golf and Country Club. We will continue to work together in order to plan for this day of learning in the fall.

I look forward to continuing to work with all of the other MAMT executive members in 2023-2024! Our committee is in a good place and we will continue to support mathematics teachers across the province. I remain proud and honoured to be one of our executive members.

Brandon University Representative's Report Submitted by Sandy Margetts

The 2022-2023 school year was full and exciting as many traditions were back. I was able to teach all of my courses in person. No one felt compelled to wear masks and social distancing was no longer compulsory. I presented two Math Workshops for the BSD in Fall, 2022 on SUM BLOX. I attended Sarah Melo and Faith Loewen's workshop in Winnipeg on September 1, 2022. A great day was had by all in attendance. Thanks to Kira's hosting of ZOOM meetings I was able to attend most of the MAMT meetings last fall and this spring.

Fall has traditionally been a busy time at Brandon University with respect to mathematics workshops. Fall 2022 was no exception to this tradition. Box Cars and One-Eyed Jacks presented two workshops via ZOOM to my early years and middle years math methods classes on Dominoes in December. The students played along and received a very comprehensive handout package which was also posted on our Moodle site. Bob Lee booked Sarah Melo to do a virtual workshop with our education students in the 2022/23 school year as well.

Manitoba Teacher's Society Professional Development Day was held on October 21. MAMT's virtual conference was a huge success due to the dedicated work of our executive, in particular, Cat Fouillard and Garry Strick. I joined in on a session with Donna in her classroom in Oak Bluff. It worked out great being in the same space because we could discuss ideas as they were presented. We were fortunate to be able to host so many national and international speakers who would not have been able to attend in a face-to-face setting. Plans are well under way for a similar format Fall 2023. Another professional development opportunity I have enjoyed in the 2022-23 school year has been to participate in the BSD Peter Liljedahl project on Building Thinking Classrooms. On April 18 he came to Brandon and to spend a day with him Face-to-Face was stellar.

I am teaching a middle years math methods course for PENT May 29-June 22, 2023. Jane Felling (Box Cars and One-Eyed Jacks) will once again ZOOM into my Class on June 8. Box Cars and One-Eyed Jacks has a team of internationally recognized authors and consultants who provide excellent workshops at a variety of grade levels for staff, parents and students. Regardless of the format, their team will bring enough supplies, (including door prizes which they mail out to the winners) and the expertise to ensure a successful event. During the workshop Best Practices for teaching are used and strategies for effective management of manipulatives, the virtual world and game play are shared. Participants have often expressed "I can use what I learn the next day in class!" "Best professional development session I've ever attended." This was greatly appreciated as these students are mostly from Northern Communities and would rarely have an opportunity to attend such a workshop.

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I made a commitment to once again write math book reviews for the MAMT publications for the 2022-2023 year and to date have submitted two to Tricia. The best book I reviewed (in my opinion) this year was “**Peyton & Charlie Challenge Math**” by Erin Maloney & Sheri-Lynn Skwarchuk. “This book will help teachers, parents and students learn important concepts including socio-emotional learning, anxiety-reduction strategies, and the value of persevering through challenging situations.” The best thing about this book is that Sheri is ‘one of our own’. She is a professor at the University of Winnipeg. I highly recommend this book. I also reviewed “**BLockHead: The Life of Fibonacci**” by Joseph D’Agnese

I am also very proud of the fact that I was able to nominate Mr. Willi Penner, a middle years teacher from Arthur Day Middle School in Winnipeg, for the Murray McPherson Mathematics Award. He will be receiving it on June 2, 2023. In addition, Brandon University proudly awarded our first MAMT \$500.00 Scholarship to Andrew Brereton-Waller. I would once again like to thank the executive for the chance to attend your meetings and for all your work for Manitoba Mathematics teachers. Have a great summer! See you at the think tank on August 24/23

Workshop Representative Report Submitted by Charmaine Hayden

Donna Slobodzian, Sarah Melo and Charmaine Hayden attended most of the monthly meetings.

Fall/Early Winter

The workshop committee met twice online to discuss potential workshops for January to March.

Garry Strick continued to work with Laura Masterson, arranging for her to facilitate two full days on the topic of assessment. Garry arranged for the location and managed the Eventbrite sign up and Charmaine created the advertisement poster. Laura presented on December 2nd at the MTS Building and January 27th at Breezy Bend Country Club.

Plans moved ahead to co-host with Louis Riel School Division an evening with Dr. Erin Maloney and Dr. Sheri Skwarchuk for parents and educators on the topic of math anxiety. Sarah worked with Dr. Maloney to nail down the details and arrange snacks. Charmaine created the advertisement poster and registration was taken care of through Eventbrite. This took place on January 19th at the LRSD office.

Late Winter

Arrangements got underway to have Dr. David Costello (retrieval practice) and Melissa Dean (assessment) present after school sessions online at a small cost to participants. Kira Burkett set up the Zoom meetings, Shane Shumsky managed the Eventbrite and Charmaine created the advertisement posters. Due to low registration, Dr. Costello’s sessions were cancelled. Melissa’s session had approximately 20 participants.

The Workshop Committee will meet again in the fall to brainstorm and move forward with new plans for offerings of workshops for the 2023-2024 school year.

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Senior Years Representative's Report Submitted by Lea-Jay Bulawka

For those of you who have not met me, my name is Lea-Jay Bulawka. I am a math teacher at Lord Selkirk Regional Comprehensive Secondary School and the chair of the Numeracy Committee.

As a mathematics educator, I have always sought out opportunities to be involved in the Mathematics community in Manitoba. In unprecedented times of the pandemic, my role within Pre-Calculus assessment was cut short. As a result, another opportunity presented itself for me to join MAMT this year. I first attended a few of the regular monthly meetings and enjoyed working with a group of people so passionate about math. A few months later, I agreed to take on the role of Senior Years representative within MAMT Executive.

I attended regular monthly meetings as well as MTS PD day sessions. I also attended the Manitoba Mathematics contest dinner to honour high school student winners and their teachers. I also plan to attend the Murray MacPherson Award dinner.

There are a lot of behind-the-scenes tasks that are required to provide successful professional development opportunities for MAMT members. A huge thank you to everyone who has contributed to these fabulous events and I look forward to contributing in a more significant capacity next school year.

Vice President's Report Submitted by Garry Strick

As vice-president, my role is to be ready to act as president, should the need arise, attend executive meetings, and work for the overall well-being of MAMT. One specific duty of the vice-president is to manage the Murray McPherson Award nomination screening and the award dinner. Every spring, MAMT Executive members decide who, after a review of nominations - there have been times where there has been more than one winner, receives the Award in a given year. The Award is presented to the winner(s) at a dinner hosted by MAMT, and dinner attendees include the Award winner(s) and the person(s) who submitted the nomination(s) for the winner(s). The Award is given to Manitoba educators who have made outstanding contributions to mathematics education, and a winner must always be nominated by someone else. More about the Murray McPherson Award nomination process can be found at the MAMT website, www.mamt.mb.ca, or those interested may contact me at 2solveornot2solve@gmail.com.

The 2023 Murray McPherson Award was won by two very worthy recipients: Will Penner and Kari Bergmuller. Will is a Winnipeg educator currently serving middle school students, and is the creator of the famous board game Mathopoly. Kari is a former high school math teacher and Department Head who has served as a Provincial math education consultant, and who currently serves as a Divisional Program Lead. A complete list of Murray McPherson Award winners can be found at the MAMT website, www.mamt.mb.ca.

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2023 - 2024

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