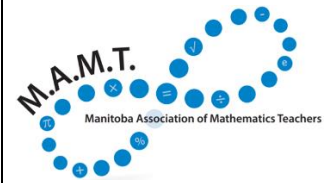


Manitoba Association of Mathematics Teachers (MAMT)

Online/Virtual MTS PD Day 2020: Math Transcends Pandemics

October 23, 2020

9:00 AM – 2:45 PM



About the 2020 MAMT MTS PD Day

This PD Day is entirely online with sessions being virtual. Presenters will be running their own sessions with either the Zoom or Microsoft Teams online meeting system. There will be three live 75-minute sessions during the day: 9:00 – 10:15 AM, 10:45 AM – 12:00 PM (Noon), and 1:30 – 2:45 PM. Pre-recorded sessions, accessible at anytime during the day, may also be offered.

The morning of the PD Day, participants will be sent links to join the live sessions for which they registered. It is the responsibility of the participants to monitor their e-mail and find in their mailbox the invites to join the online sessions. For every session, only one entry per e-mail address will be allowed. Registrant e-mail addresses will be screened. Pre-recorded sessions will be accessed at the MAMT website and accessible only with an access code.

Many sessions will be recorded while they are being given live. By registering for this PD Day, you consent to your participation in sessions which will be recorded. This means, for example, that if there were Q & A in your session and you ask a question, your voice will be heard in the recording.

The links to watch the sessions after the PD Day will be made available on the MAMT website for 30 days after the PD Day. Teachers who are not able to attend this PD Day due to the day being made an instructional by their school division can register for this PD Day and still watch recordings of the sessions later. Participants who attended live session on the PD Day will also be able to watch the recorded sessions. MAMT will monitor the views of the recorded sessions for unauthorized access to them. Sharing of link access codes will be prohibited.

Cost to attend: \$40, which includes a MAMT membership. This fee applies to all registrants. There are no pro-rated fees for part time teachers, or half-day or student fees. Registration will occur at the MTS website, www.mbteach.org. You must sign into you MTS account and choose MAMT PD Day from the list of events available to attend. Payment to attend will be made by credit card through PayPal.

Registration will commence on Monday, September 28, 2020 at 9:00 AM and will close October 22, 2020 at 3:30 PM.

Presenter biographies can be found here: [2020 MAMT MTS PD Day Presenter Biographies](#).

Should you have any questions regarding this PD Day or registration for it, please contact Garry Strick, MAMT PD Day Coordinator, at mamtpdday@gmail.com. Have a great MTS PD Day 2020!

SESSIONS LIST

9:00 – 10:15 AM

(11 Sessions)

Title: Primary Place Value Games and Activities

Description: Come prepared to play our favorite games and learn many strategies for working on K – 3 place value concepts including ideas for: using benchmark 10's and 100's, pattern counting, estimation and mental math strategies, understanding the value of a given place holder, comparing numbers, exploring range, and more. Large format gameboards, journal writing and math talk extensions, concept skill checklists will be included in an extensive PDF Handout. Ideas for differentiating the activities to meet the needs of all learners will be provided, as well as ideas on how to adapt games to social distancing, solitaire play and remote teaching settings. All primary resource books have been rewritten to reflect the needs of teachers for extending games from practice to deeper levels of understanding.

PARITICIPANTS WILL NEED; 6 X REGULAR SPOTTED DICE, CARDS, 1 – 100 NUMBER LINE, 10 SIDED PLACE VALUE DICE (OPTIONAL) PDF OF HANDOUT

Time: 9:00 – 10:15 AM

Presenter Name(s): Jane Felling

Max Participants: No Limit

Recorded: Yes

Grade Level(s): Early Years

Title: Building Mastery of Math Facts

Description: Join us for an interactive session on building mastery of basic facts with Celia Baron's Thinking Strategies series. We will cover 'chunking' the facts into group for ease of learning, efficient thinking strategies for each chunk, practice to reach mastery, and ensuring this learning is fun and engaging.

Time: 9:00 – 10:45 AM

Presenter Name(s): Roni Kraut

Max Participants: 50

Recorded: Yes

Grade Level(s): Early Years

Title: Touch, Tap, Grasp and Zap: Different Ways for Elementary Students to See, Experience and Understand Multiplication

Description: Developing student understanding of multiplication is essential for future success in mathematics. In this session, we will explore TouchTimes, a new iPad app that provides children with alternative ways to think about, manipulate and visualize multiplication. I will share why being able to think multiplicatively is so important to mathematical learning and provide examples of tasks that can be used with students to promote the development of this thinking. Have your iPad ready with TouchTimes downloaded from the app store (it's free) so that you can touch, tap, grasp and zap multiplication for yourself while we explore these tasks.

Time: 9:00 – 10:15 AM

Presenter Name(s): Sandy Bakos

Max Participants: 30

Recorded: Yes

Grade Level(s): Early Years

Title: A Matter of Equity: How to Use Evidence Based Methods to Close the Achievement Gap in Math

Description: JUMP Math starts with the premise that "all children can learn math, all teachers can teach math, and both can and should enjoy it." JUMP Math, featured in *Scientific American Mind*, draws on cognitive science research to reduce anxiety and build self-confidence, helping every student's brain work efficiently. Students tackle sequences of problems that push them slightly outside of their comfort zone but with scaffolds to allow them to succeed. This approach, which I will demonstrate, helps every student engage more deeply in the process of discovery and enables teachers to move the whole class forward together while still tailoring lessons to individual student needs. The process breaks down destructive classroom hierarchies and destroys the persistent myth that only some students can learn math. I will share results of a randomized controlled trial in which students who were taught by this method of "structured inquiry" learned significantly more than students in the control group.

Time: 9:00 – 10:15 AM

Presenter Name(s): John Mighton

Max Participants: No Limit

Recorded: Yes

Grade Level(s): Early/Middle Years

Title: Guided Math in a Multigrade Class

Description: Structuring a Multigrade classroom for guided math in order to promote high level mathematics with rich tasks, mathematical discourse and student independence. Teachers will learn about Guided Math Workshop as well as how to hold students accountable during class time. They will learn about what to do to get started with Guided Math and what sort of math activities to implement to promote high level, rich mathematics for all learners.

Time: 9:00 – 10:15 AM

Presenter Name(s): Jocelynn Foxon

Max Participants: No Limit

Recorded: Yes

Grade Level(s): Early/Middle Years

Title: Upper Elementary Place Value Games and Activities

Description: Come prepared to play upper elementary place value games that incorporate the use of cards, regular dice, place value dice (optional) and 0 – 100 number lines. Concepts covered include: whole numbers to the millions, decimals, rounding, expanding and comparing numbers, identifying values, number patterns, and powers of 10. Ideas for whole class, remote teaching setting will be shared as well as ideas on how to adapt the games for social distancing and solitaire play. Differentiation strategies will be provided so you can meet the needs of all students in your classroom. An extensive handout will be provided.

PARTICIPANTS WILL NEED: 6 REGULAR SPOTTED DICE, A DECK OF CARDS, 1-100 NUMBER LINE, TEN-SIDED PLACE VALUE DICE (OPTIONAL), PDF HANDOUT

Time: 9:00 – 10:15 AM

Presenter Name(s): John Felling

Max Participants: No Limit

Recorded: Yes

Grade Level(s): Upper Elementary, Grades 4-6, Resource 7-9

Title: The Power of Awe: Promoting Mathematics through Wonder and Exploration

Description: Playing games, folding paper, and solving puzzles are great ways to improve engagement, develop positive classroom culture, and develop mathematical thinking. These activities allow students to use logic, problem solving, and deductive reasoning, as well as engaging students in their mathematics. Whether games, paper folding and puzzles are used as a brain break, or as a conceptual lesson, you will be sure to reach each student in the classroom with these activities.

We will explore how to notice, wonder, and engage in mathematical moments. These are the first steps in developing the appreciation of mathematics. In this workshop, participants will have opportunities to take risks, question, and be mathematically curious in a caring learning space.

Time: 9:00 – 10:15 AM

Presenter Name(s): Carole Bilyk and Sherri Burroughs

Max Participants: No Limit

Recorded: Yes

Grade Level(s): Middle Years

Title: Problem Solving in the Middle Years

Description: This presentation will use several examples of open-ended problems for illustrating teaching techniques intended to develop the problem solving abilities of students in middle years.

Time: 9:00 – 10:15 AM

Presenter Name(s): Paul Betts

Max Participants: No Limit

Grade Level(s): Middle Years

Title: The Mathematician's Notebook

Description: In this session geared to middle and senior years classrooms, we will explore the role of writing in the mathematics classrooms, as well as helping students create authentic and organic records and documentations of their thinking, learning, questioning, connecting and exploring of mathematical concepts. These living documents can then be used as part of mathematical discourse, and assessment of, as and for learning, creating rich collaborative learning opportunities.

Time: 9:00 – 10:15 AM

Presenter Name(s): Melissa Dean

Max Participants: No Limit

Recorded: Yes

Grade Level(s): Middle/Senior Years

Title: The Art of Arranging Letters along a Line, Circle or Curve

Description: In this virtual session, Ron Lancaster will discuss how students can design a sign for a store or a card for family, friends or front-line workers that has letters placed and angled on a line or along a curve. We will discuss how students can do this using manipulatives and technology and we will examine different mathematical models that can be made on a set of coordinate axes. References will be made to the following mathematics content: angles, slope, equation of a line, trigonometry, equation of a circle, radius of a circle, tangent to a circle at a point, perpendicular lines and the product of their slopes, slope of a curve at a point, derivatives and arc length.

Time: 9:00 – 10:15 AM

Presenter Name(s): Ron Lancaster

Max Participants: No Limit

Recorded: Yes

Grade Level(s): Middle/Senior Years

Title: Optimizing Student Understanding in Optimization Situations

Description: Topics: linear programming and quadratic max-min problems. Considerations: discrete vs continuous data, data collection, sweep vs corner-point method, independent and dependent variables, implicit and explicit constraints, Pre-Calc vs Applied approaches.

Time: 9:00 – 10:15 AM

Presenter Name(s): Bruce Waters

Max Participants: No Limit

Recorded: Yes

Grade Level(s): Senior Years

10:45 AM – 12:00 PM (Noon)

(9 Sessions)

Title: The Canadian Math Wars: A Disagreement over School Mathematics

Description: The Math Wars, Eh? Believe it or not, the teaching and learning of mathematics was (once again) a staple of local, provincial and national media coverage for a period of over five years. The purpose of this talk is to provide an abridged version (many years condensed into 1 hour) of the last heated debate over the teaching and learning of mathematics. Time for questions and comments will be strictly preserved.

Time: 10:45 AM – 12:00 PM (Noon)

Presenter Name(s): Egan Chernoff

Max Participants: No Limit

Recorded: No

Grade Level(s): All Grades

Title: Fostering Spatial Reasoning in the Classroom to Promote Mathematical Meaning and Fluency

Description: Spatial reasoning has been shown to be a very significant factor in mathematics achievement. It has often been undervalued in the curriculum, particularly with the diminished attention to geometry in k-12 education. In this talk, I will show why spatial reasoning is so important to mathematical learning and offer examples of tasks, tools and questions that can be used to promote the development of spatial reasoning not only in geometry, but across the mathematics curriculum.

Time: 10:45 AM – 12:00 PM (Noon)

Presenter Name(s): Nathalie Sinclair

Max Participants: No Limit

Recorded: Yes

Grade Level(s): Early Years

Title: Cross Number Discovery Puzzles & Games

Description: Have you been looking for independent work and games to support you instruction in numeracy at the elementary school level? Celia Baron's Cross Number Discovery Puzzles and Games are

aligned with the Learning Framework in Number, which is used in Math Recovery® assessment and instruction. As students work through the Cross-Number puzzles, the concepts they are missing are easily identified. Not only does it then become clear why they are “not getting it”, but more importantly, what needs to be done so they can move forward. This session will give hands-on experience with the puzzles and games and we will discuss ways to incorporate this resource into your instruction.

Time: 10:45 AM – 12:00 PM (Noon)

Presenter Name(s): Dawn Dibley

Max Participants: 50

Recorded: Yes

Grade Level(s): Early Years

Title: TGIF! Upper Elementary Math Games for Operational Fluency

Description: Many students have gaps in their math understanding and competency, this workshop will provide you with many games and activities to help teach the following concepts: number sense, fact fluency, operational fluency with order of operations, multi-digit numbers and decimals. Throughout the workshop participants will receive ideas for differentiating the activities to meet the needs of all students, how to adapt the games for social distancing, solitaire or remote teaching, how to use the games for assessment, and how to generate math journal and math talk extensions. Games will incorporate the use of easily found manipulatives that students and teachers can access at school or in a home setting. All resources have been rewritten to support the above. You will receive an extensive handout with gameboards, concept skill checklists that you can use right away.

PARTICIPANTS WILL NEED: 6 REGULAR SPOTTED DICE, A DECK OF CARDS, PDF PRINTOUT OF HANDOUT

Time: 10:45 AM – 12:00 PM (Noon)

Presenter Name(s): John Felling

Max Participants: No Limit

Recorded: Yes

Grade Level(s): Upper Elementary, Grades 4-6, Resource 7-9

Title: Problem Solving in the Middle Years (Repeat Session)

Description: This presentation will use several examples of open-ended problems for illustrating teaching techniques intended to develop the problem solving abilities of students in middle years.

Time: 10:45 AM – 12:00 PM (Noon)

Presenter Name(s): Paul Betts

Max Participants: No Limit

Recorded: Yes

Grade Level(s): Middle Years

Title: From Learning Behaviours to Engaging Students in Course Activities: Secondary School Mathematics and the Mix of Affective and Cognitive Learning and Teaching Strategies

Description: StatsCan data shows that only 12% of Canadians go to university for mathematics or STEM learning. But what has energized my teaching and made me so proud of my students is working with students who live in that other “88% group”. My driving questions to myself are: what do they value? Why do they come to school? How can they be successful in school, achieve a secondary school diploma? What am I doing to help them?

With anecdotal evidence, a student’s voice, and 29 years of thinking about what ‘mathematics education’ means if the math is not ‘calculus’, I hope to weave at least five of the Effective Practices (nos. 2,4,5,7,8) by looking at leveraging Learning Behaviours in the classroom while simultaneously building student mathematical thinking capacity and ability to achieve the learning outcomes of the course. It’s about how they learn more than how I teach.

This session is for Manitoba secondary school mathematics teachers (and interested others, grades 7-12), looking at engaging students to value and care about 'math class' through affective strategies and pedagogical strategies, connected and relevant to the Effective Practices and mathematics teaching strategies which are the current year's focus for MAMT this year.

Time: 10:45 AM – 12:00 PM (Noon)

Presenter Name(s): Jamie Pyper

Max Participants: 50

Recorded: No

Grade Level(s): Middle/Senior Years

Title: A Magical Mystery Tour of Fascinating Sequences

Description: In this virtual session, Ron Lancaster will lead participants on an excursion into a world beyond arithmetic and geometric sequences where the patterns are full of mystery and intrigue. The rules for these sequences are simple and easy to state, yet the patterns that emerge are full of surprises, moments of joy and baffling results. These sequences can be used to provide students with an opportunity to practice basic skills, pose questions, make conjectures, test them using coding and prove them using mathematics. References will be made to the following mathematics content: basic

operations (+, - \times , \div); factors; exponents; absolute value; linear, quadratic and rational functions; cubic equations.

Time: 10:45 AM – 12:00 PM (Noon)

Presenter Name(s): Ron Lancaster

Max Participants: No Limit

Recorded: Yes

Grade Level(s): Middle/Senior Years

Title: Learning From Home - Using OBS Software and YouTube Studio

Description: Despite having almost no previous video production experience, I found that during the COVID-19 shutdown, I was able to continue to be reasonably effective at delivering lessons to my high school math classes using OBS software, YouTube studio, and a document camera. I can share my experiences and musings with anyone interested in learning how to do the same.

Time: 10:45 AM – 12:00 PM (Noon)

Presenter Name(s): Clay Kellough

Max Participants: No Limit

Recorded: Yes

Grade Level(s): Middle/Senior Years

Title: Mental Mathematics in Senior Years

Description: In order for students to connect concepts and build procedural fluency, they need opportunities for regular practice on skills as one activity among several designed to balance the student's experiences with mathematics. This session will look at the practice of starting class with approximately 10 questions that increase fluency, revisit prior learning and provide an opportunity for discussion on connections that can be made between concepts in Senior School Mathematics. The courses looked at will primarily be Grade 9 Mathematics 10F and Grade 10 Introduction to Applied and Pre-Calculus Mathematics. A few examples will also be available from Grade 12 Pre-Calculus Mathematics and Introduction to Calculus 45S.

Time: 10:45 AM – 12:00 PM (Noon)

Presenter Name(s): Carole Bilyk

Max Participants: No Limit

Recorded: Yes

Grade Level(s): Senior Years

1:30 – 2:45 PM

(11 Sessions)

Title: Social Media for Mathematics Education: I've Wasted Years of My Life, So You Don't Have to...

Description: Full disclosure, for over a decade, I've been using social media for mathematics education. Name a platform (e.g., Facebook, Google+, Twitter, Tumblr, Delicious, StumbleUpon, YouTube, Instagram, Pinterest, LinkedIn, Academia, Listserves and others) and, to varying degrees of success, I've used it. Armed with my wealth of experience, it's time for me to share lessons that I've learned. The good, like how I'm able to stay on top of, essentially, everything related to the teaching and learning of mathematics. The bad, for example, the extremely useless information that I've had to endure from following people who post a mixture of personal and private information on their various platforms. And, the ugly, like how irrationally irate people because I followed nobody, zero people, on Twitter and other platforms. Ultimately, then, this presentation is my latest overview of the current state of social media for mathematics education. In other words, come see how I've wasted years of my life so you don't have to waste yours when it comes to using social media for the teaching and learning of mathematics.

Time: 1:30 – 2:45 PM

Presenter Name(s): Egan Chernoff

Max Participants: No Limit

Recorded: No

Grade Level(s): All Grades

Title: Touching Number

Description: Children in K-2 benefit from learning situations that encourage exploration while actively engaging the senses. In this session, participants will learn about and explore *TouchCounts*, an iPad app that lets children use their fingers, eyes and ears while learning about counting, addition and subtraction. Activity ideas that can be used with *TouchCounts* to promote the development of a strong number sense will be also be shared. In order to experience the visual, auditory and tactile nature of these activities for yourself, be sure to bring an iPad with *TouchCounts* downloaded from the app store (it's free).

Time: 1:30 – 2:45 PM

Presenter Name(s): Sandy Bakos

Max Participants: 30

Recorded: Yes

Grade Level(s): Early Years

Title: Building Mastery of Math Facts (Repeat Session)

Description: Join us for an interactive session on building mastery of basic facts with Celia Baron's Thinking Strategies series. We will cover 'chunking' the facts into group for ease of learning, efficient thinking strategies for each chunk, practice to reach mastery, and ensuring this learning is fun and engaging.

Time: 1:30 – 2:45 PM

Presenter Name(s): Roni Kraut

Max Participants: 50

Recorded: Yes

Grade Level(s): Early Years

Title: Cross Number Discovery Puzzles & Games (Repeat Session)

Description: Have you been looking for independent work and games to support your instruction in numeracy at the elementary school level? Celia Baron's Cross Number Discovery Puzzles and Games are aligned with the Learning Framework in Number, which is used in Math Recovery® assessment and instruction. As students work through the Cross-Number puzzles, the concepts they are missing are easily identified. Not only does it then become clear why they are “not getting it”, but more importantly, what needs to be done so they can move forward. This session will give hands-on experience with the puzzles and games and we will discuss ways to incorporate this resource into your instruction.

Time: 1:30 PM – 2:45 PM

Presenter Name(s): Dawn Dibley

Max Participants: 50

Recorded: Yes

Grade Level(s): Early Years

Title: Developing a Class Culture that Supports Engaged and Successful Problem Solvers

Description: New research in cognitive science shows that students are more likely to become engaged and successful problem solvers when they are given sequences of challenges in which (initially) only one or two dimensions of the problem are varied at a time. By raising the bar incrementally and combining scaffolding with continuous feedback, teachers can help students learn to persevere and develop the conceptual foundations they need to tackle complex problems. We will demonstrate free resources that use these evidence based strategies to teach problem solving. In a large randomized controlled trial, students taught by these methods made significantly more progress in problem solving than student in the control group.

Time: 1:30 – 2:45 PM

Presenter Name(s): John Mighton

Max Participants: No Limit

Recorded: Yes

Grade Level(s): Early/Middle Years

Title: Rolling into Fact Fluency – Primary Games to Develop Operations

Description: Come prepared to play our favorite games for operational fluency. You will learn how these activities can be adapted to virtual, in-person settings, how to adapt the games for social distancing and solitaire play as well as how to differentiate the games for instruction and use them for assessment. The workshop will focus on cards, regular spotted dice, and adaptations for our math shaker activities. Concepts covered will include: early numeration and number sense, operations fluency for addition, subtraction, doubles, doubles + 1, make 10, 20, commutative and associative properties, mental math and multi-digit operations. PDF handout will contain concept skill checklists, gameboards, math talk and journal writing extensions.

PARTICIANTS WILL NEED: DECK OF CARDS, 7 REGULAR SPOTTED DICE, PDF OF HANDOUT

Time: 1:30 – 2:45 PM

Presenter Name(s): John Felling

Max Participants: No Limit

Recorded: Yes

Grade Level(s): Early Years

Title: Guided Math in a Multigrade Class (Repeat Session)

Description: Structuring a Multigrade classroom for guided math in order to promote high level mathematics with rich tasks, mathematical discourse and student independence. Teachers will learn about Guided Math Workshop as well as how to hold students accountable during class time. They will learn about what to do to get started with Guided Math and what sort of math activities to implement to promote high level, rich mathematics for all learners.

Time: 1:30 – 2:45 PM

Presenter Name(s): Jocelynn Foxon

Max Participants: No Limit

Recorded: Yes

Grade Level(s): Early/Middle Years

Title: Problem Solving in the Middle Years (Repeat Session)

Description: This presentation will use several examples of open-ended problems for illustrating teaching techniques intended to develop the problem solving abilities of students in middle years.

Time: 1:30 – 2:45 PM

Presenter Name(s): Paul Betts

Max Participants: No Limit

Recorded: Yes

Grade Level(s): Middle Years

Title: The Seamlessness of Instruction, Assessment, and Classroom Management and Its Impact on Student Learning from Classroom Experiences

Description: This is a session exploring the interdependence of important facets of teacher practice. There is a lot of classroom practice, research, and theory-into-practice work that sheds light on different aspects of what mathematics teachers do for student learning. Since I like metaphors to describe and explain complex ideas, let's use the metaphor of a centre of gravity to unpack and put back together again, how instructional strategies, assessment strategies, and classroom management strategies can support each other for the benefit of student learning. To start this session a metaphor that can be used to represent teacher practice will lay the foundation for the rest of the session to critically look at bell

work, rich learning tasks, cheap and engaging manipulatives, for learning in any level and course of mathematics.

This session is for Manitoba secondary school mathematics teachers (and interested others, grades 7-12), looking at engaging themselves more closely into their students' learning through pedagogical strategies connected and relevant to the Effective Practices and mathematics teaching strategies which are the current year's focus for MAMT this year.

Time: 1:30 – 2:45 PM

Presenter Name(s): Jamie Pyper

Max Participants: 50

Recorded: No

Grade Level(s): Middle/Senior Years

Title: Reno Math

Description: “When am I ever going to use this stuff?” You’ve heard this question! Let me share what I have learned from three decades of renovation work. Bring your tape measure!

Time: 1:30 – 2:45 PM

Presenter Name(s): Bruce Waters

Max Participants: No Limit

Recorded: Yes

Grade Level(s): Middle/Senior Years

Title: Formative Assessment Using Knowledgehook

Description: There is a great deal of research that suggests that formative assessments that are embedded in instruction and are done “just in time” help to improve student learning, and provide students with a better opportunity to show what they do know and can do (Suurtamm et al., 2016; William, 2007).

Knowledgehook is an online teacher tool, a multimodal formative assessment platform that can inform and guide instruction. Gaps, misconceptions and competencies are recorded in student profiles alerting teachers to remediation and recovery opportunities. Knowledgehook provides opportunity for inquiry, increases math discourse in your class and online, and positions the teacher as the educational decision maker for their students.

In this session we will explore how Knowledgehook can assist teachers in embedding formative assessment as a natural part of the learning cycle. Teacher learning supports, concept background and remediation suggestions are integral to the platform. Knowledgehook is currently geared to support Manitoba students Grades 3-10. I will be speaking through the experience of Grades 5-10 application. Participants will receive a premium license for this 20-21 school year.

Time: 1:30 – 2:45 PM

Presenter Name(s): Jerrold Wiebe

Max Participants: No Limit

Recorded: No

Grade Level(s): Middle/Senior Years

Pre-Recorded

(2 Sessions)

Title: Contests: What Are They Good For?

Description: Are mathematics contests elitist or an opportunity for all students to engage in challenging their thinking? A look at several different contests aimed at Grade 9 to 11 students and a discussion about ways to engage students in problem solving that is not just application of prior knowledge will guide the session. Participants are encouraged to bring technology to explore various resources on the web during the session.

Time: Pre-recorded Session

Presenter Name(s): Carole Bilyk

Max Participants: No Limit

Grade Level(s): Senior Years

Title: The Mathematician's Notebook

Description: In this session geared to middle and senior years classrooms, we will explore the role of writing in the mathematics classrooms, as well as helping students create authentic and organic records and documentations of their thinking, learning, questioning, connecting and exploring of mathematical concepts. These living documents can then be used as part of mathematical discourse, and assessment of, as and for learning, creating rich collaborative learning opportunities.

Time: Pre-recorded Session

Presenter Name(s): Melissa Dean

Max Participants: No Limit

Recorded: Yes

Grade Level(s): Middle/Senior Years