



ONTARIO ASSOCIATION FOR MATHEMATICS EDUCATION



# EQUITY COUNTS

## NOW FULLY VIRTUAL!

NEW, MORE ACCESSIBLE  
DATES AND TIMES  
MAY 17-21, 2021

FROM 4:00 TO 9:00 PM  
FULL REGISTRATION FEB 1, 2021

### KEYNOTE SPEAKERS



ROBERT  
Q. BERRY  
III

EUGENIA  
CHENG



DAN  
MEYER

### FEATURED SPEAKERS

GAIL BURRILL  
GRAHAM FLETCHER  
NANCY KAWAJA  
RON LANCASTER  
LISA LUNNEY BORDEN  
KAREN MURRAY  
JON ORR • KYLE PEARCE  
MARIAN SMALL  
CHRISTINE SUURTAMM

OAME2021.CA  @OAMELEARNS

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*Most of our sessions have been scheduled and will be presented at their designated times. Most scheduled sessions will be archived and available for on-demand viewing by paid registrants until June 11, 2021*

*We also have a selection of pre-recorded sessions that will have staggered release times. These sessions will be available on demand by paid registrants until June 11, 2021.*





## Deliver meaningful and effective curriculum-aligned 1–8 Math content to students

D2L is proud to announce that we have partnered with Bayfield Design to offer Course Packs, a series of curriculum-based resources, submitted to the Trillium List, built to meet all expectations set by the Ontario Ministry of Education. Course Packs give students access to curriculum-based content and built-in assessments so teachers can save time to focus on providing meaningful feedback. Teachers can tailor how items are presented to students and create additional content as needed. Best of all, every Course Pack is fully integrated into and optimized for Brightspace, providing a seamless learning experience for all students.



### **Enhance teacher time and effectiveness**

Course Packs provide a solid foundation to start building courses. Knowing that the curriculum requirements are covered, teachers can focus their time on personalizing content to their students' individual needs and interests.



### **Improve student engagement and success**

With the flexibility of Course Packs, teachers save time and focus on teaching to the individual needs of students. Course Packs are easy to use, and students can self-pace their learning or use in blended environments.



### **Equity and inclusion for all learners**

Regardless of abilities, means, location, or device, your students can access world-class learning material to achieve their full potential. Teachers can utilize all the standard benefits in Brightspace, including superb accessibility standards, teaching and learning flexibility, meaningful feedback opportunities, intuitive rubrics and assessments, communication tools and more.



### **Comprehensive course content**

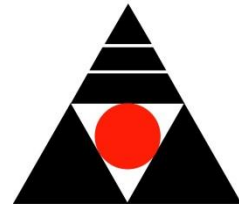
Choose from a catalog of Grades 1–8 Math Course Packs. These are more than just assessments or content; all aspects of a thoughtfully designed lesson are included, such as themes, hooks, storylines, practice, teaching, assessments, and growth-mindset feedback.

**Learn more** about D2L and Bayfield Design math content.

**D2L.com**

## ABOUT OAME

The **Ontario Association for Mathematics Education** is a non-profit professional organization for everyone interested in Mathematics Education in Ontario. Our mission is to promote, support, and advocate for excellence in mathematics education throughout the Province of Ontario. OAME is run by volunteers and has about 2000 members in 15 chapters spread across the province. We are now in our 47<sup>th</sup> year serving the teachers of Ontario and beyond.



OAME supports the teaching of Mathematics by publishing a quarterly Math Journal, (*The Ontario Mathematics Gazette & The Abacus*), by providing an annual fall conference geared to leaders in the Mathematics community, by hosting Math workshops through local OAME chapters, and by presenting a comprehensive province-wide Mathematics conference annually in the spring. Also, OAME provides voluntary consultation to the Ministry of Education, The Education Quality and Accountability Office, as well as other provincial math organizations. Further, annually, OAME recognizes outstanding educators in Mathematics.

## WELCOME FROM THE PRESIDENT OF OAME/AOEM

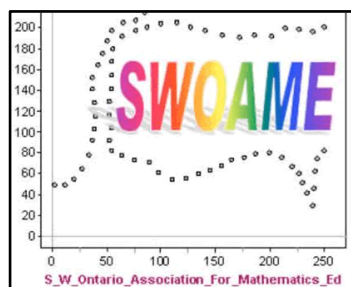
Hello and welcome to OAME/AOEM 2021 - Equity Counts. How wonderful it is that, in these times of tremendous upheaval and change, there are still things in our lives on which we can always depend. The extraordinary volunteers at the Ontario Association for Mathematics Education/ l'Association Ontarienne pour l'Enseignement des Mathématiques work so very hard to ensure that you can always count on us to provide meaningful and relevant learning opportunities and excellent teacher and student resources.

As you know, the main focus of OAME/AOEM 2021 is equity. Long gone are the days when it was the expectation that only relatively few students would “need” mathematics in their futures. We know that an understanding of mathematical concepts and a proficiency with mathematical procedures is essential in the 21st century, and their importance will continue to grow as big data becomes more and more the source of the information upon which we make our decisions. All students must be provided with access to excellent classroom experiences in mathematics, regardless of race, gender, language, socioeconomic status, or learning style.

On behalf of all the people on the Executive Committee and the Board of Directors of OAME/AOEM, congratulations to the members of the Organizing Committee of OAME/AOEM 2021! They have been working very hard for three years to provide a memorable face-to-face conference this spring and they, like so many others, have had to work even harder to change course in these final months to offer this remarkable conference in an online environment. We are certain that you will find this year's conference as rich and rewarding as any we have ever had.

*Judy Mendaglio*  
President, OAME/AOEM

## OAME 2022 IN WINDSOR



### "50 Years of OAME: A Golden Math Story"

Join us in Windsor, Ontario, for OAME 2022, sponsored by SWOAME. The dates are May 5 – 6, 2022. If you would like to get involved, or just want more information, email [inquiries2022@oame.on.ca](mailto:inquiries2022@oame.on.ca).

## LINKS AND CONTACT INFORMATION

Conference Registration Website: [www.oame.on.ca/mcis/index.php](http://www.oame.on.ca/mcis/index.php)

Problems with the Registration Site: [MCIS@oame.on.ca](mailto:MCIS@oame.on.ca)

Contact Conference Organizing Team: [inquiries2021@oame.on.ca](mailto:inquiries2021@oame.on.ca)

OAME 2021 Website: [www.oame2021.ca](http://www.oame2021.ca)

OAME Website: [www.oame.on.ca](http://www.oame.on.ca)

Twitter @OAMElearns

Facebook <https://www.facebook.com/OAME-2021-100740894965770/>

## FEE SCHEDULE

Delegate Type (includes OAME membership)	Full Conference Fee
Conference Delegates	\$175
Lifetime & Retired OAME Members, ECEs & Students	\$150

You can register at [www.oame.on.ca/mcis/index.php](http://www.oame.on.ca/mcis/index.php)

Are you looking for engaging math lessons activities and stories that support the new Ontario curriculum and are developed for in-class and at-home use

Have you tried **Mathology.ca** yet

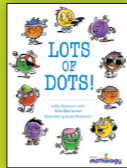


VALUE BY THE NUMBERS

Your on-line teacher hub for Early Math. Inside you have everything you need to search, plan, teach, assess & track and receive in-the-moment professional learning. Great value is built right in!

Each teacher license currently includes access to the following K-6 Mathology resources.

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OVER 380

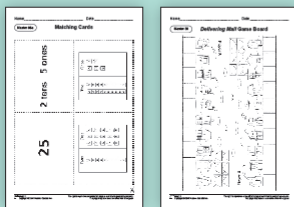
Curriculum Focused Lessons from our Grades 1-3 Activity Kits



AND OVER 200 Professional Learning Videos

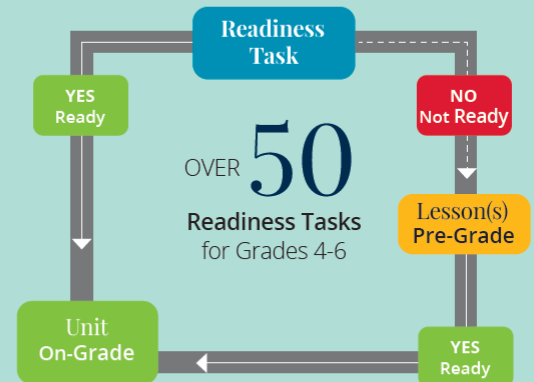
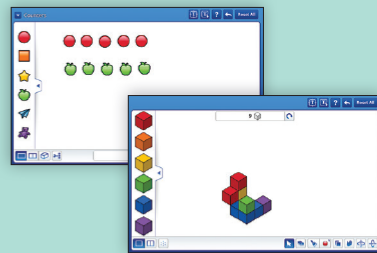


MORE THAN 140 Student Activities



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OVER 20 Interactive Math Tools



"I have already approached my admin to encourage them to purchase Mathology for my classroom next year. I found it very easy to use and was super helpful with my planning for distance learning. I think it will be a great tool to use next year when it is likely we will have a combination of in-class and distance learning"

— Ontario Teacher



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\$665 for a 5-Year License



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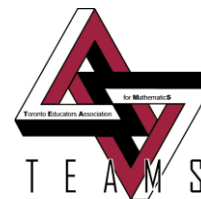
Follow us on Twitter @PearsonMathology





## THE OAME 2021 PLANNING COMMITTEE

Thank you to such a great team from the TEAMS chapter of OAME



<b>Conference Co-Chairs</b>	Wayne Erdman	Margaret Quinn
<b>Exhibitors &amp; Sponsors</b>	Rose Salerno (Co-chair) Kathleen Wong Elizabeth Bernier Grace Mlodzianowski	Lucas Vetta (Co-chair) Pearl Anfer-Hegedus Alvarine Aldridge
<b>Finance</b>	Olive Creary-Satchell (Co-chair) Margaret Quinn	Najwa Chalabi (Co-chair) Wayne Erdman
<b>MCIS &amp; Registration</b>	Henry Tam (Chair)	Wayne Erdman
<b>Program</b>	Michele Goveia (Co-chair) Bart Vanslack (Co-chair) Andrea McPhee Wayne Erdman	Julie Sousa Nicolau (Co-chair) Priscilla Bengo Pat Margerm Margaret Quinn
<b>Promotions &amp; Website</b>	Anthony Meli (Co-chair) Mary Card (Co-chair)	Joseph Indovina (Co-chair)
<b>Technical Hosting</b>	Earl Totten (Co-chair) Peter Wei Geetha Victor Vira Furtak	Rob Donato (Co-chair) Rosanna Mortillaro Valia Reinsalu
<b>Virtual Program Delivery</b>	Rebecca Colaiaacovo (Chair) Vera Sarina Caroline Schmeing Peter Saarimaki	Jane Silva Gerry Lewis Andrea McPhee
<b>Volunteers</b>	Jason To (Co-chair)	Sam Garrison (Co-chair)

# FROM IMAGINATION TO THE REAL WORLD



Engage students in the classroom  
with powerful technology

The TI-Nspire™ CX II CAS graphing calculator:

- » Supports the revised Ontario Elementary Math Curriculum
- » Codes in Python directly on the handheld
- » Introduces students to coding, STEM and physical computing
- » Features Micro:bit module support (available early spring 2021)

For activities mapped directly to the Ontario Math Curriculum,  
visit [education.ti.com/canada](https://education.ti.com/canada) and [stemsupports.ca](https://stemsupports.ca).



To get started, contact Tom Steinke:  
[tsteinke@ti.com](mailto:tsteinke@ti.com) | 613.601.6535

 **TEXAS INSTRUMENTS**



## KEYNOTE SPEAKERS



### ROBERT Q BERRY III

Robert Q. Berry III is past president of the National Council of Teachers of Mathematics (NCTM), for the 2018-2020 term of office.

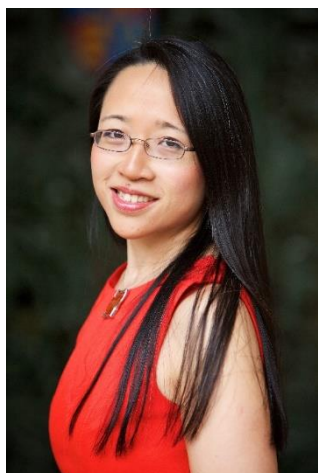
Robert Q. Berry III is the Samuel Braley Gray Professor of Mathematics Education in the Curry School of Education and Human Development at the University of Virginia with an appointment in the Curriculum Instruction and Special Education. Berry teaches in the teacher education program and graduate-level mathematics education course. He is a former middle

school teacher and was twice named teacher of the year.

Equity issues in mathematics education are central to Berry's research efforts with four related areas: a) understanding Black children's mathematics experiences (mathematical identities and agency); b) measuring standards-based mathematics teaching practices; c) unpacking equitable mathematics teaching and learning; and d) exploring interactions between technology and mathematics education. Berry has extensive experiences in-classroom observation and is the lead developer of an observation instrument, *Mathematics Scan*, which measures standards-based mathematics teaching practices.

Berry has collaborated on the Children's Engineering Initiative in the Curry School of Education to use digital fabrication to incorporate engineering design principles into mathematics education. His most recent work has focused on using qualitative meta-synthesis as an approach to understanding the mathematics experiences of learners

Jump to Robert Q Berry III [keynote address](#)



### EUGENIA CHENG

Eugenia Cheng is a mathematician and concert pianist. She is Scientist In Residence at the School of the Art Institute of Chicago, and won tenure at the University of Sheffield, UK. She has previously taught at the universities of Cambridge, Chicago and Nice and holds a PhD in pure mathematics from the University of Cambridge. Alongside her research in Category Theory and undergraduate teaching her aim is to rid the world of "math phobia". Eugenia was an early pioneer of math on YouTube and her videos have been viewed around 15 million times to date. She has also assisted with mathematics in elementary, middle and high schools for 20 years. Her first popular math book "How to Bake Pi" was featured on the Late Show with Stephen Colbert, and "Beyond Infinity" was shortlisted for the Royal Society Science Book Prize

2017. She also writes the Everyday Math column for the Wall Street Journal, and recently completed her first mathematical art commission, for Hotel EMC2 in Chicago. She is the founder of the Liederstube, an intimate oasis for art song based in Chicago. Her latest book, "The Art of Logic in an Illogical World" was released in July of 2018.

Jump to Eugenia Cheng [keynote address](#)



## DAN MEYER

Dan Meyer taught high school math to students who didn't like high school math. He has advocated for better math instruction on CNN, Good Morning America, Everyday With Rachel Ray, and TED.com. He earned his doctorate from Stanford University in math education and is the Chief Academic Officer at Desmos where he explores the future of math, technology, and learning. He has worked with teachers internationally and in all fifty United States. He was named one of Tech & Learning's 30 Leaders of the Future. He lives in Oakland, CA.

Jump to Dan Meyer [keynote address](#)



***We support you in the implementation  
of the new mathematics curriculum in Ontario.***

***For Grades 1 to 8***

***All the material for the acquisition  
of the fundamentals of mathematics  
and the strategic integration of technology  
for a diversity of students.***

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## FEATURED SPEAKERS



### Lisa Lunney Borden

Lisa Lunney Borden is a Professor of mathematics education at St. Francis Xavier University and holds the John Jerome Paul Chair for Equity in Mathematics Education. Having taught 7-12 mathematics in a Mi'kmaw community, she credits her students and the community for helping her to think differently about mathematics teaching and learning. She is committed to research and outreach that focuses on decolonizing mathematics education through culturally based practices and experiences that are rooted in Indigenous languages and knowledge systems. Lisa teaches courses at the undergraduate and graduate level in mathematics education and Indigenous education.

### Graham Fletcher

Graham Fletcher has served in education as a classroom teacher, math instructional lead, and currently as a math specialist. His work with the math progressions and problem-based lessons has led him to present throughout North America and beyond. Graham is the author of *Building Fact Fluency: A Toolkit for Addition and Subtraction* and openly shares many of his resources at [gfletchy.com](http://gfletchy.com).



### Gail Burrill

Currently an Academic Specialist in the Program for Mathematics Education at Michigan State University, Gail Burrill was a secondary teacher and department chair in suburban Milwaukee, Wisconsin for over 28 years. She is the Immediate Past President of the International Association for Statistical Education, served as President of the National Council of Teachers of Mathematics and as Director of the Mathematical Sciences Education Board. She received the Presidential Award for Excellence in Teaching Mathematics, the NCTM Life-Time Achievement Award, the Ross Taylor /Glenn Gilbert NCSM service award, and is an elected member of the International Statistics Institute. Burrill is past co-chair of the College Board's Advanced Placement Calculus Development Committee, directed the Teachers Program component of the Park City Mathematics Institute and is a T<sup>3</sup> National Instructor. Her research interests are statistics education, the use of technology in teaching mathematics, and professional development for mathematics teachers.

Thank you to **Texas Instruments** for sponsoring Gail's featured session





### Karen Murray

Karen Murray is a Centrally Assigned Principal for Equity, Anti-Racism and Anti-Oppression in the Toronto District School Board. In this capacity she leads initiatives focusing on Black Students Success and Excellence from K-12. Karen has recently been appointed the Ontario College of Teachers to lead the development of an Additional Qualification for Anti-Black Racism. This is not Karen's first provincial appointment as she was previously a Student Achievement Officer with the Literacy and Numeracy Secretariat- Ministry of Education. Karen is the co-writer for the Equity Continuum: Action for Critical Transformation in Schools and Classrooms and has been honored in 2020, as one of the 100 Accomplished Black Canadian Women.

### Ron Lancaster

Ron is an Associate Professor (Teaching Stream) at the University of Toronto where he teaches mathematics courses for pre-service middle and high school teachers. He has over 20 years of experience teaching grades 7-12 mathematics. Ron's professional activities include consultations and conference presentations in North America, Asia, England, the Middle East, Africa, India and Europe. He is the recipient of the 2015 Margaret Sinclair Memorial Award Recognizing Innovation and Excellence in Mathematics Education awarded by the Fields Institute.



### Marian Small

Marian Small writes and speaks about K-12 math across the country. Her focus is on teacher questioning to get at the important math, to include all students, and to focus on critical thinking and creativity. Some resources she has written include *Making Math Meaningful for Canadian Students: K-8*, *Big Ideas from Dr. Small*, *Good Questions: A Great Way to Differentiate Math Instruction*, *Leaps and Bounds toward Math Understanding*, *Uncomplicating Fractions*, *Uncomplicating Algebra*, *Open Questions for the Three-Part Lesson (at several levels)*, *Fun and Fundamental Math for Young Children*,

*The School Leader's Guide for Building and Sustaining Math Success*, *Math that Matters: Targetted Assessment and Feedback, Gr 3- 8*, and *MathUp*, a digital teaching K – 8 resource.

### Nancy Kawaja

Nancy Kawaja is a teacher with McHugh Education Centre at the Children's Hospital of Eastern Ontario (CHEO) in Ottawa, Ontario. She was an Assistive Technology teacher within the Special Education & Student Services Department at the Ottawa Catholic School Board, a resource teacher, a classroom teacher. Nancy is also an Apple Distinguished Educator.

Thank you to **Apple Corp** for sponsoring Nancy's featured session.





### **Chris Suurtamm**

Dr. Chris Suurtamm is Professor of Mathematics Education at the University of Ottawa. She is well known for her expertise and research in mathematics teaching, curriculum, and the use of formative assessment to support student learning. She has been Lead Researcher on several large-scale projects, and most recently an advisor to the Ministry of Education on the Ontario elementary mathematics curriculum. She is also the recipient of several university and national teaching and research awards, including most recently, the Fields Institute Margaret Sinclair Memorial Award, recognizing innovation and excellence in mathematics education.

### **Jon Orr**

Jon is a math teacher at John McGregor Secondary School in the Lambton-Kent District School Board in Ontario Canada. When not teaching his students and spending time with family he leads workshops and presentations on teaching pedagogy in the math classroom. He is a co-host of the podcast Making Math Moments That Matter along with his friend Kyle Pearce. Lately he is excited about promoting struggle in his students and talking math with primary aged kids while creating math prompts for [MathBeforeBed.com](http://MathBeforeBed.com). You can follow his classroom lessons, routines, and educational thoughts at [Mrorr-isageek.com](http://Mrorr-isageek.com), [makemathmoment.com](http://makemathmoment.com) and also on Twitter: @MrOrr\_Geek



### **Kyle Pearce**

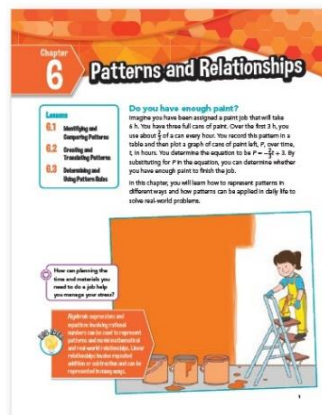
Kyle is the K-12 Mathematics Consultant with the Greater Essex County District School Board, where his passion for mathematics fuels him to Make Math Moments by sparking curiosity, fuelling sense making, and igniting teacher moves. When he is not working on the next media-rich contextual math task and recording episodes of the Making Math Moments That Matter Podcast, he is spending time with his wife and two children. He shares his most recent noticings, wonderings, reflections and resources in mathematics content knowledge and pedagogy by delivering workshops across North America and blogging on [www.makemathmoments.com](http://www.makemathmoments.com), [www.tapintoteenminds.com](http://www.tapintoteenminds.com), [www.mathisvisual.com](http://www.mathisvisual.com) and @MathletePearce on all social media platforms.



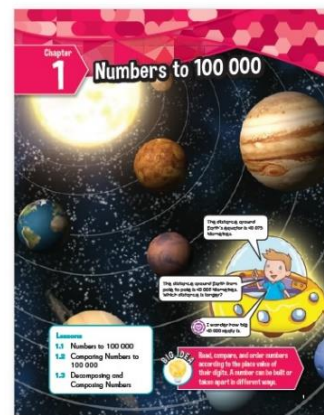
Fully aligned to the 2020 Ontario mathematics curriculum,  
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**Financial Literacy**



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To learn more about My Math Path and how Nelson is  
supporting the new 2020 Math curriculum, visit

[school.nelson.com/ontario](https://school.nelson.com/ontario)

**NELSON**



## DAILY SCHEDULE

### Monday, May 17

<b>M1 – Release of Pre-recorded Sessions</b>	1:00 pm
<b>M4 – Featured and Breakout Virtual Sessions</b>	4:00 – 5:00 pm
<b>M5 – Virtual Trade Show</b>	5:15 – 5:45 pm
<b>M6 – Keynote Address by Dan Meyer</b>	6:00 – 7:00 pm
<b>M7 – Virtual Trade Show</b>	7:15 – 7:45 pm
<b>M8 – Featured and Breakout Virtual Sessions</b>	8:00 – 9:00 pm

### Tuesday, May 18

<b>T1 – Release of Pre-recorded Sessions</b>	1:00 pm
<b>T4 – Featured and Breakout Virtual Sessions</b>	4:00 – 5:00 pm
<b>T5 – Virtual Trade Show</b>	5:15 – 5:45 pm
<b>T6 – Featured and Breakout Virtual Sessions</b>	6:00 – 7:00 pm
<b>T7 – Virtual Trade Show</b>	7:15 – 7:45 pm
<b>T8 – Featured and Breakout Virtual Sessions</b>	8:00 – 9:00 pm

### Wednesday, May 19

<b>W1 – Release of Pre-recorded Sessions</b>	1:00 pm
<b>W4 – Featured and Breakout Virtual Sessions</b>	4:00 – 5:00 pm
<b>W5 – Virtual Trade Show</b>	5:15 – 5:45 pm
<b>W6 – Keynote Address by Robert Q Berry III</b>	6:00 – 7:00 pm
<b>W7 – Virtual Trade Show</b>	7:15 – 7:45 pm
<b>W8 – Featured and Breakout Virtual Sessions</b>	8:00 – 9:00 pm

### Thursday, May 20

<b>R1 – Release of Pre-recorded Sessions</b>	1:00 pm
<b>R4 – Featured and Breakout Virtual Sessions</b>	4:00 – 5:00 pm
<b>R5 – Virtual Trade Show</b>	5:15 – 5:45 pm
<b>R6 – Featured and Breakout Virtual Sessions</b>	6:00 – 7:00 pm
<b>R7 – Virtual Trade Show</b>	7:15 – 7:45 pm
<b>R8 – Featured and Breakout Virtual Sessions</b>	8:00 – 9:00 pm

### Friday, May 21

<b>F1 – Release of Pre-recorded Sessions</b>	1:00 pm
<b>F4 – Featured and Breakout Virtual Sessions</b>	4:00 – 5:00 pm
<b>F5 – Virtual Trade Show</b>	5:15 – 5:45 pm
<b>F6 – Keynote Address by Eugenia Cheng</b>	6:00 – 7:00 pm
<b>F7 – Virtual Trade Show</b>	7:15 – 7:45 pm
<b>F8 – Featured and Breakout Virtual Sessions</b>	8:00 – 9:00 pm

# MATHUP CLASSROOM

Now aligned  
to the new  
2020 Ontario  
curriculum!

Created by Marian Small, **MathUP Classroom** is a comprehensive, online, K–8 instructional solution that combines the power of rich professional learning for teachers with engaging material for students that covers the entire curriculum.

MathUP Classroom:

- Is an easy-to-use resource aligned to the new 2020 curriculum.
- Provides just-in-time professional learning in the form of hundreds of videos of Marian Small.
- Supports the needs of all learners by giving teachers access to all content from Kindergarten to Grade 8.
- Provides tools to help parents support their children.
- Offers a versatile learning experience that can be implemented in both a virtual and an in-class environment.

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**FIND YOUR REP**

5

8

4

## MARIAN SMALL

### Don't Miss These Marian Small Sessions:

**May 17, 8–9pm - M8.09** *"What Matters Most When Using MathUP"*

**May 18, 8–9pm - T8.01** *"What Do We Owe Our Students?"*

**May 19, 4–5pm - W4.02** *"Building Parent Capacity to Support Students [K–6]"*

**May 21, 4–5pm - F4.04** *"MathUP and the New Ontario Curriculum"*



Ru**bi**con

## VIRTUAL TRADE SHOW

With an in-person trade show, you are able to visit our exhibitors' physical booths and hold discussions with the companies' representatives. In our **Virtual Trade Show**, you will be able to sign up for a dedicated Zoom chat with representatives of our participating companies. Find out what new products or services they may offer to help you in the classroom. Discuss the pedagogical uses of their materials. Have an open discussion with others interested in the particular company's offerings, and share ideas to bring back to the classroom. Dedicated times will be set at 5:15 and 7:15 each day so that you can easily fit them in between sessions.

## VIRTUAL SWAG BAG

Our sponsoring companies would love to have you as a customer or client. What better way than to offer you a discount code or special coupon? Perhaps enter your name in a draw for a special prize. You can have all of this via our **Virtual Swag Bag**. This will be available as a live link during the conference in May.

## THANK YOU TO OUR GENEROUS SPONSORS

Click on the individual logos to visit their websites

### Gold Sponsors





## Featured Sponsors



## Advertisers and Session Presentations



## MY PERSONAL SCHEDULE

*Print this page to record your personal schedule or download [here](#).*

TIMESLOT	TIME	SESSION ID	SESSION NAME
<b>MONDAY, MAY 17</b>			
M4	4:00 – 5:00		
M5	5:15 – 5:45		
M6	6:00 – 7:00		
M7	7:15 – 7:45		
M8	8:00 – 9:00		
<b>TUESDAY, MAY 18</b>			
T4	4:00 – 5:00		
T5	5:15 – 5:45		
T6	6:00 – 7:00		
T7	7:15 – 7:45		
T8	8:00 – 9:00		
<b>WEDNESDAY, MAY 19</b>			
W4	4:00 – 5:00		
W5	5:15 – 5:45		
W6	6:00 – 7:00		
W7	7:15 – 7:45		
W8	8:00 – 9:00		
<b>THURSDAY, MAY 20</b>			
R4	4:00 – 5:00		
R5	5:15 – 5:45		
R6	6:00 – 7:00		
R7	7:15 – 7:45		
R8	8:00 – 9:00		
<b>FRIDAY, MAY 21</b>			
F4	4:00 – 5:00		
F5	5:15 – 5:45		
F6	6:00 – 7:00		
F7	7:15 – 7:45		
F8	8:00 – 9:00		

## PROGRAM

### Scheduled Sessions Presented Using Zoom

*Most of these sessions will also be archived and available for on-demand viewing until June 11, 2021*

**Monday, May 17**

**M4: 4:00 pm – 5:00 pm**

Session ID	Session Title	Presenter(s)	Session Description	Levels
M4.01 Featured Session	Mathematical Modelling: An Opportunity for All Students to Engage in Rich and Meaningful Mathematics	Chris Suurtamm	This session will focus on the new initiative on mathematical modelling in the elementary mathematics curriculum in Ontario. The presentation will highlight how to engage students of all grades in mathematical modelling in ways that make mathematics meaningful to them and address their interests. Several examples from different grades will be used to help participants see what mathematical modelling might look like from early elementary through secondary school.	Pri Jun Int
M4.02	Embrace the Chaos - Small Group Guided Math Instruction	Pamela Morris, Adam Mercer	Wondering how to get the most out of your mathematics learning block? Step back and let the students and their work do the talking! By integrating small group instruction and math game centres into the classroom, teachers will have more opportunity to closely observe student learning, which in turn allows for a greater understanding of student learning needs. This session is designed to help you develop the classroom structures needed to implement and assess independent math centres and small-group guided math instruction. Part presentation, part hands-on experimentation, this session allow you to try out a series of hands-on math game and apps, participate in math talk activities, and review additional resources to help you get the most out of your math program. We will look at open-ended math problems and learn how to let the students take the lead. Participants will walk away with a series of math resources for all learning levels including hands-on math games, number talk strategies and assessment/monitoring templates. Participants are encouraged to BYOD! #embracethechaos	Pri Jun



M4.03	Where do I even start with Coding in the Math Curriculum?	Tom Steinke	<p>This session is for grades 7-12 math teachers who know nothing about coding and are left wondering where to even start with helping their students learn coding. Using thoughtfully constructed, low-floor, high-ceiling, high-engagement activities, aligned to the Ontario Math Curriculum, Tom will help you realize how easy and powerful the world of physical computing - where coding comes to life - can be for you and all your students. We will experience coding in Python on the TI-Nspire CX II CAS with TI-Innovator Hubs, TI-Rover robotic cars, and Micro:bits. Tom will share how the TI-84Plus CE, TI-Nspire CX II CAS, TI-Innovator, and TI-Rover are the ideal learning tools to help teachers and ALL students access coding with Python, Computer Algebra Systems (CAS), data literacy, and financial literacy in our new Ontario Math Curriculum. A rich array of activities, directly aligned to the Ontario Math Curriculum, will be shared. Tom will also share how you can access and use our Workshop Loan program as well as our innovative PD supports. In addition, all participants will receive a copy of the teacher software.</p> <p>This session is presented by Texas Instruments and will be pedagogical in nature, not a sales promotion.</p>	Int Sen
M4.04	Leading Math Change	Caitlin Twitchin, Candida Thompson	<p>This session focuses on how a Math Team was formed to create change within a Math Department and School. The previous Math Head and current Department member will share a journey including: creating a math team, having a common prep, fostering conversations, Faces on the Data and more. We will discuss and answer questions around how we have supported a team and how we have implemented various programs to support change in instruction and assessment.</p>	Int Sen
M4.05	Beyond Food Fractions	Kit Luce	<p>Building Deep Conceptual Understanding of Fractions in Primary</p> <p>Mention of fractions often triggers math anxiety for children and adults however understanding of fractions is central to mathematics understanding, not just in number sense but across all mathematical strands and concepts. Understanding of fractions is a predictor of success in algebra and is intricately connected to probability, spatial reasoning and proportional reasoning.</p> <p>Fractions are emphasized in the 2020 Mathematics Curriculum beginning in grade 1. We need to begin to develop a deep conceptual understanding of the big ideas and key concepts in fractions in the early grades so that, as students progress through elementary, they do not have to rely on rules and tricks to work with fractional quantities.</p>	Pri

M4.06	Financial Literacy in Elementary Math: Lessons from the OAME/AFEMO project	Anne Prevost, Lisa Rossiter-Thornton	OAME and AFEMO have had teams of classroom teachers writing new lesson and assessment plans for Ontario teachers since the revised elementary curriculum was released in 2020. In this session, your hosts will provide an overview of how to support your students to meet the new Financial Literacy expectations, and we will walk you through some of the highlights of the resources that have been produced for these expectations. Since all resources are available in English and in French, presenters will attempt to answer your questions in either language.	Pri Jun Int
M4.07	Integrating Mathematics in our lives and what does this look like in the Classroom	Hager Awara	<p>In the session we will explore a variety of Mathematics activities that can be integrated in the Mathematics Curriculum linking it to the curriculum expectations. Equitable practices and inclusion are the key themes where questions allow access to all levels of learners and encourages all students to participate.</p> <p>The participants will have hands on experience with the tasks and will get copies of booklets that can be used for planning their lessons.</p>	Jun Int
M4.08	Coding from A to Z Using Books & Games in K-3	Melissa Seco, Lesley Pike	<p>In this session, we will unpack the new coding expectations in the 2020 mathematics curriculum for the primary grades.</p> <p>Participants will engage in and learn new activities and experiences that they can provide for their young learners for both unplugged and plugged coding. Connections to various picture books will be used as a starting point to get students to begin coding!</p> <p>To connect with Melissa and Lesley, follow us on Twitter at: @MelissaSeco and @TeachMsPike</p>	K Pri
M4.09	Student Engagement in Math Through Social Media	Will Gourley, Elli Weisdorf, Michael Frankfort	Social Media plays a large role in our society these days, from #fakenews to #challenges. In this workshop, participants will examine the mathematical connections that can be made from social media topics, viral videos and things that are "hashtagable". In order to engage today's learners, teachers need to expose students to explorations and experiences that are authentic and relevant. By using social media items, such as the water bottle challenge and news events (fact or fiction), we can learn to examine these from a mathematical perspective and connect them to our Mathematics learning in the classroom.	Pri Jun Int Sen
M4.10	Introducing STEM activities and resources to support language learners in the virtual classroom.	Rosalia Cha, Dania Wattar	In this session, we will present different strategies and technological tools we used in a MITACS project to implement STEM activities in a virtual classroom that respects the 6 threads of inclusion. We will share practices adapted to the language, culture and needs of the students. Participants will be invited to reflect on a differentiated approach to STEM that builds on the strengths and interests of their own students. They will explore STEM activities and their implementation to create a safe environment for all students.	Jun Int

M4.11	Building Critical Thinking Through Global Issues	Nicole Atkins, Maria Andrade	By bringing global issues into the math classroom, we allow students to have the space to become critical thinkers, problem solvers, and change makers. A perspective-driven math curriculum engages students to find the importance of math in the real world. We will demonstrate examples of how to bring global issues into the primary, junior and intermediate classroom all while teaching a spiralled Ontario math curriculum. For example, we will discuss the issue(s) of poverty / disparities around the world, how we integrate this organically into our classroom, and connect specific expectations within the Ontario math curriculum.	Pri Jun Int
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### KEYNOTE ADDRESS BY DAN MEYER

**M6: 6:00 – 7:00 pm**

M6. Keynote	Math Without Mistakes	Dan Meyer	The math education community has worked to destigmatize mistakes in recent years, yet it continues to misdiagnose as a "mistake" what is very often purposeful student thinking. We'll learn about curriculum, technology, and pedagogy that celebrates that thinking instead, helping learners grow in their math identity and knowledge.	All
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**M8: 8:00 – 9:00 pm**

M8.01	Connected and Creative Math Classrooms in a Time of Crisis	Dan Meyer	With teachers and learners in crisis, we need new technologies and pedagogies to help us maintain our connection and creativity in math class. We'll look at some of the ways math software separates us and several ways it can connect us, and help us flourish even now.	Jun Int Sen
M8.02	Ideas and Inspiration for J/I- support for the coding expectations in the new mathematics curriculum	Lisa Anne Floyd	Join Lisa Anne as she shares ideas and inspiration to help junior and intermediate (grades 4-8) teachers incorporate the Coding Skills from the new Ontario 1-8 Mathematics Curriculum (2020) into their practice. Sample applications and resources that incorporate multiple math strands will be highlighted.	Jun Int
M8.03	Infuse Creativity in your Math Class	Isabella Liu	Experience a math lesson as Apple Distinguished Educators share how the new Everyone Can Create learning materials help middle school students observe, synthesize, and share learning through creative expression. A Numbers spreadsheet becomes the canvas for visualizing data through drawing, and learning comes to life in Clips.  This session is presented by Apple and will be pedagogical in nature, not a sales promotion.	Jun Int

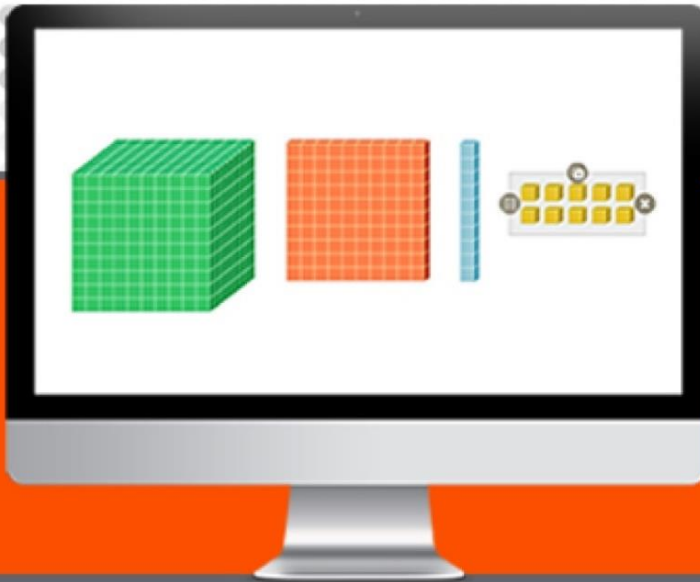
M8.04	Learning and Leading with Intention	Heather Wark, Melanie Biesenthal, Ben Hazzard	There is no doubt that mathematics instruction is a complex task that requires a mix of pedagogical and content knowledge, but what about the task of an instructional leader? This session brings together the varied experiences of superintendent, coach and mathematics researcher to share a blended model of leading system change that combines intentional professional learning with a job-embedded approach. The learning in this session draws on the "Student Continuum of Numeracy Development" based on Dr. Alex Lawson's research. What are the skills that are needed when co-planning, co-teaching and co-debriefing? How does the system support the teacher and the coach to achieve a successful relationship that supports and develops teacher pedagogy and content knowledge in the learning of mathematics? As leaders in mathematics you will learn about a developmental approach and the knowledge and skills needed for both educator and instructional leader.	K Pri Jun Int
M8.05	A Mathematical Modelling Journey	Cristen Carson, Stacey Collins	<p>We went on a mathematical modelling journey. When we first looked at the 2020 Mathematics curriculum and saw the mathematical modelling expectation, we thought what is this and how do we implement it? This workshop will answer those questions, about what mathematical modelling is and isn't.</p> <p>Take a journey with us as we share our experiences, perspectives and connections to other curricula. We'll walk you through our initial attempt of trying it out in classes, exploring what we learned along the way and discovering the power and impact of creating the opportunity for authentic connections in math. Walk away empowered and inspired to return to your classroom and explore this critical and creative process with your students.</p>	Pri Jun Int
M8.06	The Power of Co!	Andrew Cook, Milica Westbrook	<p>As an administrator, Math Coach, or Lead Learner, the Power of Co can be a helpful framework for building mentoring relationships. By moving flexibly from 'Co' to 'Co' you allow for a reciprocal and meaningful relationship to flourish while focusing on mathematical pedagogy and content knowledge.</p> <p>We will be looking at the three different roles in the Power of Co (Consulting, Collaborating, and Coaching), as well as highlighting cues and strategies that will help you build strong mentoring relationships with colleagues. In addition, we will be exploring the six beliefs of better conversations (Better Conversations by Jim Knight) and how they weave throughout the Power of Co!</p>	All



M8.07	Creating a Markless Classroom	Erin Marsella, Carmen Sinatra	This session will demonstrate the rationale for creating a "markless" classroom. We will discuss the process, benefits, results, and challenges experienced, including how to create a grade for reporting. We will also show how this approach can support students who struggle with test writing and mental health concerns.	Int Sen
M8.08	Changing a Math Class Culture	Alice Aspinall, Chez Cetra	We will take you through the small changes we have implemented in our math classes that improved the overall learning culture for students - reducing math anxiety and increasing the desire to learn mathematics. We will outline our journey using elements from the Thinking Classroom and the Growth Mindset that has led to an environment where students enjoy learning mathematics. Leave the session with several ideas you can execute immediately in your classroom to contribute to a positive learning atmosphere.	Jun Int Sen PostSec
M8.09	What Matters Most When Using MathUp	Marian Small	<p>Lots of Ontario teachers are using MathUp. But where should you turn first? What should you definitely pay attention to? Let's talk about how MathUp is being used most effectively by teachers. We will talk about all grade levels K - 8 in both a virtual and in-person environment. Let's look, too, at how using certain features of MathUp promote equity in the classroom.</p> <p>This session is presented by Rubicon and will be pedagogical in nature, not a sales promotion.</p>	K Pri Jun Int
M8.10	Age vs Grade Level: Misplaced Students	Nkechi Ibeh, Ami Mamolo	<p>"How can teachers support students who are new to Canada and find themselves in a system that works against their learning needs? Over the years, I have had many experiences in Toronto with students who were misplaced into a system based on their ages rather than their learning stages.</p> <p>One example is with a 14-year old girl from Syria. She is motivated to learn and wants to work for NASA one day, but her life prior to coming to Canada set her education back many years.</p> <p>Another example is with a 10-year-old boy who came to Canada from Eastern Europe. He was advanced for his age but was held back to be with his age group and eventually lost interest in learning. Both these students were told these placements were best for their self-esteem, but I wonder how this can be true if it thwarts their dreams. My experiences with these students have left me with tears in my eyes. What can we do to help them realize their goals, regain their self-esteem, and grow in their academic lives?"</p>	Pri Jun Int Sen
M8.11	Who thinks learns!	Jules Bonin-Ducharme	Top 5 strategies for creating a thinking high school classroom will be explored. We will also explore what those strategies have in common in order to help students to think mathematically instead of to "do math".	Int Sen



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## DIGITAL MANIPULATIVES



Algebra Tiles



Base Ten Blocks



Clock



Color Tiles



Cuisenaire® Rods



Fraction Circles



Fraction Tiles



Geoboard



Hundred Board



Linking Cubes



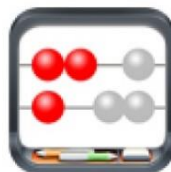
Number Lines



Pattern Blocks



Place Value Disks



Rekenreks



Two-Color Counters



Coordinate Board

**Tuesday, May 18**

**T4: 4:00 – 5:00 pm**

T4.01 Featured Session	A Math Walk at the CNE	Ron Lancaster	Imagine if students went out for a math walk on a regular basis to make measurements; to collect data; to observe how things change; to study designs, logos, architecture and public art; to notice the little things that are often missed and to ask and answer mathematical and non-mathematical questions about what they encounter during their walk. Imagine how much time students are spending on screens, especially when learning online, and consider how a math walk can take the learning of mathematics beyond the walls of a classroom and off the surface of a screen. Imagine how much exercise students can get from this exercise. Finally, imagine a world where students do not wonder why they are studying mathematics - they know because they have seen where mathematics lives and how it connected to the world around us. Join Ron Lancaster and let's go beyond imagining to developing an action plan to take our students outside!	Int Sen
T4.02	CODAP: Cloud-based data analysis and visualization	Michael Lief, David Petro	Do you want to move your students' data analysis into the 21st century? Are you still mourning the loss of Fathom and looking for a substitute to use with your MFM1P, MPM1D, MBF3C, MAP4C or MDM4U students? Equity counts and making sure your students can access and analyze all the data they have is easy now with CODAP. CODAP is free, open-source software developed by the same people that developed Fathom. It contains many of Fathom's features, but it is cloud-based, works on every platform and can sync with Google Drive! Come to this session to be introduced to how easy it is to MYDDA (Make Your Data Dynamic Again).	Int Sen PostSec
T4.03	Count on Great Assessment!	Cathy Chaput	See your students through a new lens! Assessment in mathematics can be energizing and rewarding using practical and efficient strategies that provide maximal information in a minimal amount of time. This session will share current research on using diagnostic, formative and summative assessment and provide practical tips and strategies that you can implement easily and quickly - even when using games and stories! Classroom-tested ideas will support you in bringing all of your learners into focus and using this perspective to make next steps easy to follow.	Pri Jun
T4.04	A Case for Team Math Competitions	Adam Gregson	I will lay out a rationale for using team competitions to expand the number and profile of students involved in co-curricular mathematics, and describe my own experience and results. Focus on attracting and retaining more female students into their senior years of high school.	Jun Int Sen

T4.05	A Pathway from Silos to Spirals	Tracy White	Teaching in isolated units of mathematics has been a common method to 'cover the curriculum' and 'meet report card guidelines'. However, the result for students has been a view of mathematics as a disconnected collection of concepts and processes. In order for students to make connections, teachers need to make connections; in order for students to retain concepts, teachers need to spiral concepts. This workshop will demonstrate how year-long connected pathways have been developed to front-load effective numeracy models and make connections between and among strands; furthermore, it will show how concepts are spiraled throughout the year to avoid the 'forgetting curve' that is common with so many of our students. Finally, we will examine how the use of data checks has allowed teachers to use predictive data to inform instruction. The result of this combined methodology has been significantly improved student achievement in several schools.	Pri Jun Int
T4.06	Communauté de codage Scratch: Les pages jaunes	Andrew McDonald, Elizabeth Pearsall	Cette session invite tous les enseignants, quel que soit leur niveau de connaissances en codage, à y assister. Son but est d'informer les participants des ressources dont disposent les Scratchers pour apprendre et continuer à développer leur compréhension de ce sujet fascinant. À mesure que les enseignants de la 1re à la 8e année apprennent à enseigner et à mettre en œuvre le codage dans leur routine quotidienne, ils savent qu'une aide leur est disponible. Scratch, un langage basé sur des blocs, est connu dans le monde entier comme une organisation qui offre à ses utilisateurs plus qu'un simple endroit pour coder. L'organisation Scratch a de nombreuses façons d'aider les éducateurs à apprendre et à enseigner le codage. Au cours de cette séance, les participants feront partie d'une rencontre virtuelle Scratch avec des gens de partout en Ontario et au Canada et sont invités à continuer de participer à de futures rencontres. Au cours de cette réunion, les éducateurs découvriront les ressources Scratch, notamment le Wiki Scratch, ScratchEd, ScratchPals et Discuss Scratch. On accordera du temps aux éducateurs pour essayer ces ressources.	Pri Jun Int
T4.07	The Power of Story: Using Mathology Little Books to Develop and Early Love of Math	Nadine McSpadden, Patricia Paterson	Join Ottawa Catholic Educator Pat Paterson and Indigenous Author/Educator Nadine McSpadden as they introduce you to the compelling math stories that sparked curiosity and wonder in Pat's Kindergarten students. Nadine will share her Mathology Little Book stories and how she collaborated virtually with Pat's class to inspire curiosity and better understanding of Indigenous culture through a Math lens. This will be a hands-on session and you will receive access to one of Nadine's Mathology stories to use in class tomorrow. This session supports Pearson's Mathology Series.  This session is presented by Pearson and will be pedagogical in nature, not a sales promotion.	K Pri



T4.08	Supporting Students with Learning Disabilities in Mathematics	Gina Micomonaco, Robert Cannone	Students with learning disabilities comprise a large number of underachieving students in mathematics in Ontario. This workshop will focus on understanding the profile of the student with a learning disability and practical strategies teachers can implement to maximize student strengths and support knowledge-building. Participants are encouraged to use their own technology device.	Jun Int
T4.09	Teaching Math to English Learners	Dania Wattar, Emmanuelle Le Pichon-Vorstman	This session highlights findings from two different research projects conducted in the Greater Toronto Area. It aims to support math teachers and math assessors who work with Arabic-speaking students. The session presents a comparative overview of the mathematics curriculum in both Ontario and Syria with a focus on curriculum expectations for grades four to eight. Next, it proposes a multilingual approach to assessing and teaching mathematics. Participants will get the opportunity to explore both print and digital resources that can be used to support the teaching of mathematics and build on students' assets and prior knowledge. Participants are encouraged to bring a device to the session in order to try the digital material and explore the multilingual resources that will be introduced.	Jun Int Sen
T4.10	Re-centering Power in Math Class	Octavia Beckles Golriz Karoubi	<p>In this workshop, participants will consider how to support learners by building relationships, disrupting oppression, assessing ethically and attending to social identity. The workshop will challenge colonial perceptions of the neutrality of math and invite participants to consider how their social identities, privilege, and power constructively impact the way that they perceive the world, interpret the math curriculum and interact with learners in the math classroom.</p> <p>Participants will be introduced to how YRDSB has worked towards teaching mathematics in a culturally responsive way. This will be done through the sharing of a new YRDSB document that pushes math educators to consider how attending to social identity can help inform classroom planning and pedagogy. This intentional shift in thinking is done with a core belief that centering historically and currently marginalized students in math class benefits mathematics learning for all students, elevates student voice and inspires a love of mathematics.</p>	All
T4.11	Supporting the new Elementary Mathematics Curriculum: Educator Learning Modules	Moses Velasco, Chantal Fournier, Anne-Marie Legault, Yves Rainville	This session will provide an overview of the educator learning modules that have been developed to support educators and school teams in implementing the new elementary mathematics curriculum modules. These modules are designed to allow educators to access professional learning at any time!	Pri Jun Int

**T6: 6:00 – 7:00 pm**

T6.01 Featured	Engaging All Students in Mathematics Through Data and Science	Gail Burrill	<p>Too often students see mathematics as unrelated to their world. Real data can motivate students to explore, conjecture and investigate mathematical relationships involved in contexts such as herd immunity, median incomes for men and women, changing levels of CO<sub>2</sub> in the atmosphere or even rating professional football players. With technology and some simple coding commands, every student can be engaged in reasoning and sense making, using mathematics to model the world in which they live.</p> <p>Thank you to Texas Instruments for sponsoring this Featured session.</p>	Int Sen
T6.02	Getting Real with Mathematical Modelling	Chris Suurtamm	This workshop session will focus on sample mathematical modelling tasks for primary, junior, and intermediate students. Participants will receive an overview of the modelling process and then will engage in specific tasks and discussion related to the grade they are teaching to see how the task might play out in their own classroom. We will work on planning for the task, and anticipating student responses. Assessment will also be considered.	Pri Jun Int
T6.03	Destreaming Math: Equity, Practice, and Politics	Jason To	This session will highlight several concrete pedagogical practices for developing more equitable learning spaces in a new destreamed environment using Rochelle Gutierrez's four dimensions of equitable math education. As politics of power and privilege are inextricably connected to policy shifts that address equity, this session will also touch upon those dynamics as they relate to math programming and suggest possible responses. This session will be geared towards math leaders (department heads, school administrators, instructional coaches, etc.) who will play important roles to ensure that destreaming math addresses societal inequities as intended.	Int Sen
T6.04	Levelling the Algebra Playing Field in Grade 9 Destreamed with CAS	Natalie Robinson	Natalie has taught with Computer Algebra Systems (CAS) for the past 15 years. With the new destreamed grade 9 math curriculum, it will be critical to find ways to help ALL students access important algebraic ideas. Natalie will share how she has had her students use CAS in ways that develop their algebraic fluency and confidence, and build stronger symbol sense. All participants will receive a copy of the teacher software to allow them to take CAS back to their classrooms.	Int Sen
T6.05	Leveraging Challenges for Learning	Melissa Peddie	During the 2020-21 school year, school-based math facilitators have had to adapt the way they work to support student success. Developing teacher efficacy through classroom-embedded mastery teaching experiences with students of interest is the best form of PD! Join a board-based math facilitator for a discussion of how she and the school-based math facilitators used the unique challenges of this school year to create valuable learning opportunities for both students and teachers.	K Pri Jun Int

T6.06	Cultivating Critical Thinkers with Learn To Code	Suhayl Patel	<p>Coding is essential for students to thrive in a future driven by technology. When you teach coding, you also teach critical thinking and problem-solving skills. Learn from an Apple Distinguished Educator who uses the free Swift Playgrounds app and Learn to Code lessons in their middle school classes. Hear how these resources and app can support educators teach coding as part of the ON new math curriculum or coding clubs.</p> <p>This session is presented by Apple and will be pedagogical in nature, not a sales promotion.</p>	Jun Int
T6.07	Promoting Equity, Well-Being and Engagement in Mathematics	Christine Rowe Quinn, Shayle Graham	<p>A classroom teacher, a math Coach and a district social worker collaborated intensively to support student well-being as it relates to meaningful engagement in mathematics. During this time, our work focused on implementing equity-based practices in mathematics instruction, resulting in increased student achievement.</p> <p>Pelmo Park Public School is a community of 250 children and 14 staff members. Many families at Pelmo experience the challenges of low socio-economic status. In addition to this, many families are racialized with 71% of students identifying as Black. We acknowledged the need to revise our instruction therefore placing student centred learning based on students' lived experiences at the forefront of our pedagogy, resulting in high quality mathematics instruction responsive to student needs.</p>	Pri Jun Int
T6.08	Geometry: Everything is Connected	Daniela Liska	<p>This session is intended for educators FDK-6. My intention is to spark a love for mathematics through Geometry by showing educators how it is embedded in Number Sense, Measurement and Patterning strands. I want to motivate educators to start Geometry in September, as a way to create a curiosity and love for math, and not "save" it for later in the year. Resources I will be referencing will include: Paying Attention to Spatial Reasoning, Froebel's Gifts, Waldorf perspective, Taking Shape text, Origami and Euclid (in an approachable way). By using a collection of hands-on puzzles and folding activities, I want to inspire and show educators that Geometry can be the way they open the door for students to wonder, question and find happiness in mathematics!</p>	K Pri Jun

T6.09	Assessment that Moves	Jordan Rappaport	<p>Effective assessment reveals where learners are, where they need to be and how they will get there (Black and William, 2009). This is predicated on the belief that all students have mathematical experiences that need to be honoured, and using these experiences will help to leverage new learning opportunities for our students.</p> <p>By intentionally selecting and sequencing problems, puzzles and challenges, where all students have points of entry, can experience success and opportunities are built in to extend students' understanding, we are reinforcing the assertion that all students can learn mathematics and that mathematics belongs to everyone.</p> <p>But how do we know what we're looking for? How do we know when we see it? How might we respond to what students are saying or doing? How can we support the development of student thinking and reasoning?</p> <p>In this session, participants will:</p> <ul style="list-style-type: none"> <li>-Engage in mathematics routines built around conversations and collaboration;</li> <li>-Explore meaningful opportunities to assess for understanding through a developmental framework.</li> </ul>	Pri Jun Int
T6.10	Assessment Equity: Setting up for Rich Observation	Matt Murphy	<p>In the past, success in math learning has been largely defined by answer-getting and test scores and it is not news that these forms of assessment are inherently biased in many ways. Even outside-the-box type assessments can present severe limitations to certain students while giving others a leg up. So how do you minimize bias in your assessments?</p> <p>In this session, we'll investigate how cursory knowledge of key numeracy development trajectories can help teachers set the stage for rich observation. We'll look at the types of routines and questions that illuminate student thinking, foster resilience in problem-solving, and how we can translate observations and assessment data into targeted intervention strategies.</p> <p>This session is presented by Zorbit's Math Adventure and will be pedagogical in nature, not a sales promotion.</p>	K Pri
T6.11	Coding in Elementary Math: Lessons from the OAME/AFEMO project	Iain Brodie, Amanda Deneau	<p>OAME and AFEMO have had teams of classroom teachers writing new lesson and assessment plans for Ontario teachers since the revised elementary curriculum was released in 2020. In this session, your hosts will provide an overview of how to support your students to meet the new Coding expectations, and we will walk you through some of the highlights of the resources that have been produced for these expectations. Since all resources are available in English and in French, presenters will attempt to answer your questions in either language.</p>	Pri Jun Int



**T8: 8:00 – 9:00 pm**

T8.01 Featured	What Do We Owe Our Students?	Marian Small	<p>Equity is about ensuring that every student has access to high-level instruction from a teacher who has done the work to deeply consider what it means to teach the curriculum as intended, whether teaching math is comfortable for that teacher or not. So the question becomes:</p> <p>What should parents/children/ the system expect of teachers in terms of offering high level math instruction? There are varying viewpoints on what it means to deliver the curriculum, so we will explore alternative positions on that issue. We will get "into the weeds", looking at a variety of curriculum expectations at different grades levels from K - 10 as models, and specifically discuss what a teacher's obligations are to ensure instruction on those specific outcomes are top-notch.</p>	All
T8.02	Designing Classroom Explorations that Engage All Students	Gail Burrill	As an extension to Session T6.01, the session will dive more deeply into the following questions: Why are data driven tasks important for students? What are characteristics of tasks that enable equitable access for all students? What are some strategies for adapting tasks so they "measure up"? How can such tasks be implemented in classrooms in ways that increase student engagement and develop students as owners of the mathematics they are learning?	Int Sen
T8.03	Using Coding to Explore Social Issues with Scratch	Diane Tepylo, Ami Mamolo	In this session, teachers will explore rich data and probability coding tasks that involve conditionals, defined counts, sub-programs and the analysis of data using Scratch. A focus will be on using coding tasks that tackle the mathematics needed to make sense of social issues. Exploring math through context problems that tackle issues of social importance can be powerful for student learning and engagement, and pedagogies that allow students to explore and model these issues in different ways can help teachers meet a variety of learning needs. The activities we will explore address the new coding curriculum expectations for grades 7 and 8. Some familiarity in a block-based coding environment will help understand. Participants will leave with links to a growing database of math and coding activities.	Int

T8.04	Productive Math Struggle? Yes!	Steven Reid, Mary Reid	In math classrooms across the province, there should be ample opportunities for students to engage in productive struggle, sticking with a problem although the solution does not easily surface. For this to happen, students must experience opportunities that ultimately move from struggle to learning. As teachers consider how to respond to student attempts to solve problems, teachers' responses are powerful. For the responses can actually remove all cognitive demand on students or require students to engage more deeply with the problem at hand. This session will present participants with scenarios based on current research, considering various teacher responses and the effects on students' struggle. Reflecting on real problems, real student struggle, and real teacher responses, participants will have opportunities to contemplate the implications to teaching, learning, and well-being. In attempts to support students, are we inadvertently removing the excitement of math itself?	Pri Jun Int
T8.05	How TI can help you bring the new math curriculum to life for all your students	Tom Steinke	Tom will share how the TI-84Plus CE, TI-Nspire CX II CAS, TI-Innovator, and TI-Rover are the ideal learning tools to help teachers and ALL students access coding with Python, Computer Algebra Systems (CAS), data literacy, and financial literacy in our new Ontario Math Curriculum. A rich array of activities, directly aligned to the Ontario Math Curriculum, will be shared. Tom will also share how you can access and use our Workshop Loan program as well as our innovative PD supports. In addition, all participants will receive a copy of the teacher software.  This session is presented by Texas Instruments and will be pedagogical in nature, not a sales promotion.	Int Sen
T8.06	Math Games: Why, When, and How to Play	Kirsten Dyck	Developing mathematical fluency through intentionally planned games brings an element of joy and engagement to our intermediate math classrooms. Using a variety of high-quality low prep math games, explore how these activities encourage student reasoning and strike a balance between automaticity, fun, and rigour. Learn, play, and take away games for your own classroom.	Jun Int
T8.07	Blurring Lines between Math and Art	Karyn Hepburn	Students' math anxiety lessens and those reluctant to learn math are engaged when math is combined with art projects. I have been working on creating math-art projects that incorporate art and the elements of design in High School Math. I will explain how these projects have reduced math anxiety, and have given students the space to explore math in their own way. We will explore some projects incorporating elements of both art and math and try one during the workshop!	Int Sen

T8.08	Modules d'apprentissage pour appuyer la mise en œuvre du nouveau programme-cadre de mathématiques de la 1re à la 8e année	Moses Velasco, Chantal Fournier, Anne-Marie Legault, Yves Rainville	Cette session donnera un aperçu des modules d'autoformation pour le personnel scolaire qui ont été créés pour soutenir les équipes scolaires dans la mise en œuvre des nouveaux modules du programme-cadre de mathématiques. Ces modules sont conçus pour permettre au personnel scolaire d'accéder à l'apprentissage professionnel à tout moment.	Pri Jun Int
T8.09	De-streaming: Insights for Successful Reform	Kimberly Cho, Irina Kaliazine	Over the past ten years, EQAO has consistently reported lower rates of achievement in the Grade 9 applied math assessment compared to the academic math assessment. In addition, students with special education needs and students with low achievement in Grades 3 and 6 are overrepresented in the applied course. In July 2020, the Ontario Ministry of Education announced that starting in September 2021, Grade 9 math curriculum in Ontario will be de-streamed, citing that streaming into applied and academic perpetuates inequitable educational outcomes for many struggling and marginalized students. Since Ontario's unsuccessful experience with the Ministry-initiated de-streaming pilot project in the early 1990s, many countries and innovative schools worldwide have begun to shift towards de-streaming and have implemented the reform successfully. Why was the 1990s' pilot project unsuccessful, and what can we learn from others' success? Reviewing past successes and challenges can help to ensure that the upcoming reform is appropriately designed, effectively implemented, and sustained. Furthermore, this session will leverage longitudinal EQAO cohort data to identify the composition and trajectories of students who struggle with math and suggest supports for these students during the reform.	Pri Jun Int
T8.10	Beyond a CRRP Math Part 1 AQ experience	Karen Devonish-Mazzotta, Roy J. Bailey, Alok Premjee	This workshop will unpack the experience that the presenters had during a Mathematics Part 1 AQ with a Culturally Relevant and Responsive perspective. The workshop will empower and give tools to participants on how to engage students in mathematics with a CRRP posture as well as a lens from the Africentric perspective. Some foundational purposes of the AQ were to identify, interrogate and reframe assumptions made about success in mathematics, to authentically situate the particular Black students of these educators in their mathematical socialization and to teach mathematics that are relevant and meaningful. In the proposed workshop, participants will experience some of the more salient and effective professional activities, viewings, readings and resources that were used in the CRRP Math Part 1 AQ with an Africentric focus and the impacts that learning had on their class communities.	K Pri Jun Int

T8.11	Levelling the Playing Field	Fred Ferneyhough	It appears that we are moving away from different streams in grade nine mathematics. Whether you label this as "destreamed" or "Grade 9 Academic only" or some other moniker, having a wider variety of students in your classroom will require that teaching be done differently. In this session, we will look at how a Computer Algebra System (or CAS) can be used to teach algebraic concepts to all students.	Jun Int
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**Wednesday, May 19**

**W4: 4:00 – 5:00 pm**

W4.01 Featured	Building Math Residue with Lessons that Stick	Graham Fletcher	Many times, throughout the course of a year, we teach a lesson and the understanding goes out with the trash because student retention is minimal. What only makes things worse is that all the misconceptions we thought we addressed resurface towards the end of a unit. Let's explore how task selection can play a pivotal role in building math residue. Mathematical residue helps understanding stick and it can reduce the number of times that misconceptions rear their ugly head.	Pri Jun
W4.02	Building Parent Capacity to Support Students [K-6]	Marian Small	<p>We have been confronted this year with unusual teaching situations, situations that include parents in a much more significant role than ever before.</p> <p>It has become clear to me that although we still need to be the teachers, we have work to do to help parents better support their children learn the math we care about. This unusual situation also provides an opportunity for the educational community to help parents better understand why we teach math the way they do, which is important politically.</p> <p>I will share a variety of strategies that will not overwhelm parents, but will help them be the math support their children need.</p>	Pri Jun
W4.03	Transitioning from Grades 7-9 with the New Curriculum in Mind	Stephanie Bishop, Dianne Dreef	<p>Are you a grade 9 teacher wondering about how the new elementary curriculum may affect your planning for the new destreamed grade 9 course? OR Are you an intermediate teacher wondering how you will tackle some of the newer concepts in the curriculum?</p> <p>This session will highlight the exciting changes and new approaches that the new curriculum has brought. We will dive deeper into all strands of the curriculum, especially the new focus on social-emotional learning, mathematical modelling, and coding with a 7-9 continuum in mind. Let's work together to discover the best ways to engage all of our students in math concepts and support their transitions from elementary to secondary math.</p>	Int Sen



W4.04	Transforming Mathematics Instruction in our Schools: Leading Whole School Improvement	Doug Duff	The session will be centered around 4 impact markers: use of key mathematical models, math visualization routines, practical sequencing of formative, real-time assessments, and "look fors" for monitoring and acting on evidence of learning. This active session will provide ideas that can be implemented immediately in any classroom, a proven list of actions to implement school wide, as well as, a systematic approach to school improvement that follows a staged process.	K Pri Jun Int
W4.05	Teaching Math with iPad	Suhayl Patel	Join us to learn how educators use iPad to create and deliver engaging learning experiences in math class, virtually or in person. Learn how iPad can help middle school learners connect with content, demonstrate their learning, and express their understanding. Discover new resources to personalize learning and help students of all learning styles grasp challenging math concepts.  This session is presented by Apple and will be pedagogical in nature, not a sales promotion.	Jun Int
W4.06	RabbitMath - low floor, high ceiling	Peter Taylor, Rebecca Carter	Our purpose will be to give you a tour through the RabbitMath high-school curriculum. We will show-case a number of activities from Grade 9 to Grade 12, though many of these could be done at different levels. Overall, we favor more emphasis on: - inquiry-based, hands-on activities (of course). - discrete structures and recursive thinking - probability and strategic thinking- analysis in 3 dimensions involving functions of 2 variables - using technology to give insight into complex structure. Many of these promote equity and differentiated instruction.	Int Sen
W4.07	What is Social Justice Math?	Jonathan So	Thinking about Cultural Responsive Pedagogy has been at the forefront of many educators minds for some time now. However, with the Pandemic it has shown us that discussions about equity, privilege and race are needed more than ever. In this presentation, we will discuss the role of CRP in a global Math context. We will look at what social justice math is, how we can incorporate it seamlessly into our programs and how we can have relevant and meaningful conversations with our students about the world around them. Come join me as we uncover and learn what is social justice math.	K Pri Jun Int
W4.08	Problem Solving in an Online Environment	Elli Weisdorf, Michael Frankfort, Will Gourley	Educators recognize the importance of students developing problem solving and critical thinking skills in online environments while being able to access online learning synchronously and/or asynchronously to ensure equity. Using 3-Act Tasks and following the framework of the "5 Practices," teachers in York Region District School Board have been able to engage students online in curriculum-linked rich tasks with a low floor and high ceiling. Participants in this session will learn how to plan similar activities for their junior and intermediate students.	Jun Int

W4.09	Demystifying measurement formulas or Formula sheet that students will really understand	Vera Sarina	The Grade 9 EQAO Formula Sheet is a typical example of the list of basic measurement formulas used in schools all around the world. These formulas are provided to school test-takers based upon the idea that students would focus on application, rather than the memorization, of formulas. But, if you look closely, you will see that these formulas are not only redundant, they are confusing and cloud conceptual and procedural understanding of measurement techniques. A formula sheet should reflect the conceptual roots of each formula. It should be devoid of any mystery, should be easy to use and should foster the conceptual understanding of the formulas. Hands-on activities, Geogebra/Geometer's Sketchpad constructions, and a brief journey to the history of measurement will help participants of the workshop to compile a brand new, conceptually sound formula sheet that can be used in all intermediate/senior Grades.	Int Sen
W4.10	Communication in Mathematics	Fatima Assaf	This workshop will focus on students' communication as an essential process in learning mathematics. I will share two mathematical problem-solving activities from a grade 2/3 classroom, where the majority of students in the class have recently arrived in Canada and have limited to no prior schooling. Participants will be given the opportunity to explore children's mathematical thinking, meaning making, and learning experiences through examples of students' work. I will also share observations and strategies that I have developed while working with multilingual learners in mathematics classrooms. Ultimately, this workshop will provide space for the participants to share ideas and experiences focused on communication in mathematics.	K Pri Jun
W4.11	EQAO's Commitment to Equity through Modernization	Phillip Im, Ann-Mari Maatta	<p>EQAO is digitalizing Ontario's large-scale assessments. In this session, participants will learn about the new multi-stage computer adaptive testing model used for the 2020-2021 online Grade 9 Assessment of Mathematics.</p> <p>Participants will learn how the adaptive assessment meets students where they are by adjusting to their proficiency level as they complete the test. EQAO staff will also discuss preliminary studies that demonstrated how the model improves the assessment's precision and efficiency of measurement.</p> <p>This session will showcase new features of the online system that are designed to mitigate test-anxiety and improve accessibility for all students.</p> <p>Participants will also have the opportunity to provide feedback to EQAO staff planning the further modernization of large-scale assessments.</p>	Int Sen



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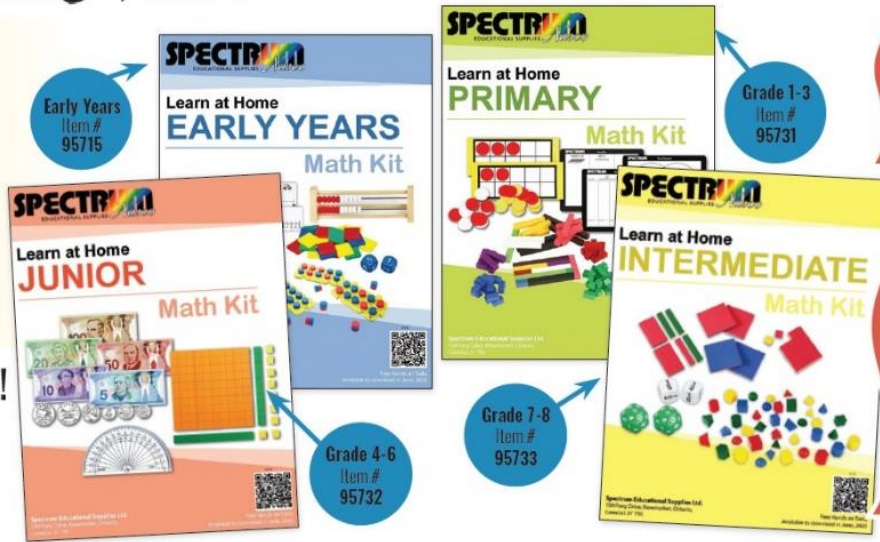
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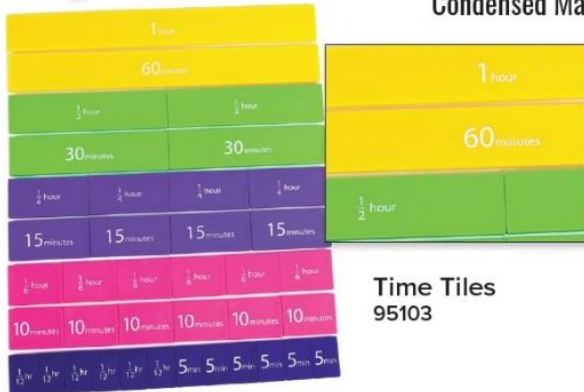
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## KEYNOTE ADDRESS BY ROBERT Q BERRY III

W6: 6:00 – 7:00 pm

W6. Keynote	Mathematics, Social Justice, & Actions	Robert Berry	<p>Teaching mathematics for social justice (TMSJ) creates the opportunities to situate mathematics content and concepts in contexts that allow students to use their cultural, social, and contextual resources to deepen their understanding of mathematics. Through deepening their understanding of mathematics, TMSJ provides students the opportunity to use mathematics to critique the world and advocate for social changes. In this way, TMSJ goes beyond merely stating the importance of connecting mathematics teaching and learning to lived experiences and interests; it positions learners as and to be actors in their world. TMSJ is critical for four reasons:</p> <ul style="list-style-type: none"><li>• Builds an informed society. Mathematics serves a role to inform both teachers and students about the lives of people, contexts, and conditions that may be different from their own.</li><li>• Connects mathematics with students' cultural and community histories. By connecting mathematics teaching and learning in students' cultural and community histories, TMSJ creates opportunities for deepening mathematical knowledge.</li><li>• Empowers students to confront and solve real-world challenges they face. Critical consciousness in mathematics teaching and learning supports identifying issues that are unjust and allows the use of mathematics as a tool to analyze, critique, and confront those unjust contexts.</li><li>• Helps students learn to use mathematics as a tool for social change. When teachers and students use mathematics to explore, understand, and respond to social injustices, they learn to use mathematics as a tool to transform inequities and create social change.</li></ul> <p>This session provides background on the purpose, strategies, and pedagogical tools for social justice as well as provide a framework for planning a Social Justice Mathematics Lessons (SJML). We will unpack a few SJML and discuss the social justice and mathematics objectives, and create a product and/or plan of action as a result of the lesson.</p>	All
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**W8: 8:00 – 9:00 pm**

W8.01 Panel Discussion	A Panel Discussion on Ontario Mathematics	Kyle Pearce, Jon Orr	Join Kyle Pearce and Jon Orr, of the podcast Making Math Moments that Matter, as they host a panel of prominent Ontario education leaders, many of whom are presenters in this conference. The members of the panel will answer questions submitted by OAME 2021 delegates, and explore relevant issues in math education today.	All
W8.02	Mathematics, Social Justice, & Actions (Followup session)	Robert Berry	Teaching mathematics for social justice (TMSJ) creates the opportunities to situate mathematics content and concepts in contexts that allow students to use their cultural, social, and contextual resources to deepen their understanding of mathematics. MSJ is critical for four reasons: 1) Builds an informed society. 2) Connects mathematics with students' cultural and community histories. 3) Empowers students to confront and solve real-world challenges they face. 4) Helps students learn to use mathematics as a tool for social change. Robert will extend the social justice framework by unpacking lessons across the grade-bands.	Int Sen
W8.03	Building Fact Fluency Through Mathematical Storytelling	Graham Fletcher	When we ask students to memorize their facts, we are essentially asking them to memorize over 100 isolated equations. This approach doesn't allow students to explore the relationships between numbers that are foundational to mathematics. In this session, we'll explore the important role that context plays in developing fact fluency. By purposefully sequencing a series of tasks and activities through the same context, students can begin to make connections and develop an understanding that is scalable well beyond single digits.	Pri Jun
W8.04	Python on your Calculator?	Chris Atkinson	The TI Nspire CX II released updated software in September that now allows you to program in Python right on the handheld. Experience an introduction to coding in Python on the calculator to see if this would be a good fit for your own classroom as you meet the expectations of the new math curriculum. We will use a combination of the handheld and computer software depending on what you have	Int Sen
W8.05	LEGO Math & Extending Mathematical Thinking	Jennifer Fannin	Lego can be used to represent concepts spanning the mathematical strands. Lego blocks are a useful visual to deepen student conceptual understanding in number sense and can promote a fluid understanding of mathematical operations. In Geometry and Spatial sense, there are applications to unplugged coding and location concepts, as well as spatial thinking and movement. As a visual representing patterning and algebraic concepts, the use of Lego can help students see how patterns can be extended and described. Connections will be made to expectations from K-8 and hands-on activities will be worked on throughout the session.	K Pri Jun Int



W8.06	Exploring Authentic Online Assessments in Math	Marieta Angjeli	In this session we will explore example of online assessments that provide students with a variety of opportunities to engage in learning and receive descriptive feedback while ensuring authenticity. Online assessments shared include: projects, rich tasks, multi-select quizzes and video responses.	Int Sen
W8.07	Support Math-Learning With TVO	Maureen Asselin, Jennifer Montgomery	<p>TVO's digital learning resources represent all Ontarians, are available free of charge, and level the playing field for virtual and at-school learning. TVO is deeply committed to supporting Ontario students with its focus on well-being, excellence, and equity.</p> <p>In this two-part session, participants will first be introduced to TVO's free K – 12 digital resources. Following the introduction, participants will be invited to join breakout sessions that will highlight the following resources:</p> <p>TVO mPower (K-6) with 65+ free online games that support Math, STEM and Social-Emotional Learning Skills in Math. Newly added games that reflect the K-6 Financial Literacy strand will be highlighted.</p> <p>TVO Mathify (Grade 6-10) a platform with an interactive whiteboard accessible to both students and educators, and free access to OCT qualified tutors to support students' existing math learning and boost their understanding and confidence.</p> <p>We invite you to bring your own devices to explore how TVO's resources can complement your face-to-face or online lessons and support your students with their math-learning needs!</p> <p>This session is presented by TVO and will be pedagogical in nature, not a sales promotion.</p>	K Pri Jun Int Sen
W8.08	What does an effective virtual classroom look like	Kieran Mills	How should a virtual class be structured? What makes a virtual assessment authentic? How do we keep students engaged and invested in their own learning, virtually and otherwise? Kieran Mills has been interested in the answers to these questions and the role that digital spaces play in education; pre-pandemic, present and future. His work in the classroom has been focused on identifying and alleviating the barriers that students face online. During this talk, we'll explore the hurdles associated with translating and augmenting physical classrooms into digital spaces, and discuss how thoughtful design within these spaces can have immediate and lasting impacts on student agency and resiliency.	Int Sen

W8.09	Scratch Coding Community: The Yellow Pages	Andrew McDonald, Elizabeth Pearsall	<p>This session invites all educators regardless of their level of coding knowledge to attend. Its purpose is to inform participants of the resources available to Scratchers to learn and continue to develop their understanding of this fascinating subject. As teachers from grade 1 to 8 are learning to teach and implement coding into their daily routine they need to know there is help available to them. Scratch, a block-based language is known world-wide as an organization that offers its users more than just a place to code. The Scratch organization has many ways to support educators learn and teach coding. In this session, participants will be part of a virtual Scratch Meet-Up with people across Ontario and Canada and are welcome to continue to participate in future Meet-Ups. In this meeting, educators will learn about Scratch resources including the Scratch Wiki, ScratchEd, ScratchPals, and Discuss Scratch. Time will be provided for educators to try out these resources. Participants will leave the session feeling they are a part of a world-wide organization with an ever-increasing local Ontario community of supporters.</p>	Pri Jun Int
W8.10	What's the Problem? Math Enrichment Made Easy	Jen Nelson	<p>At its best, math is all about the art of problem-solving. A good problem offers the opportunity to think carefully and systematically, as well as the chance to exercise creativity in discovering a path to the solution. In this session, we will experience these things for ourselves as we work through several interesting, yet still accessible problems that could be used for discussion and enrichment in your classroom. Along the way, we will discuss other resources, activities, and specific enrichment topics for promoting interest and engagement in math, to try out in your schools and classrooms.</p> <p>This session is presented by CEMC and will be pedagogical in nature, not a sales promotion.</p>	Int Sen

W8.11	MATH = Moving Achievement Together Holistically	Evan Throop-Robinson	The MATH project (Moving Achievement Together Holistically) works with Indigenous and African Nova Scotian students to improve achievement through the implementation of a framework for transforming elementary mathematics education. The framework emerged through a research project in Mi'kmaw communities (Lunney Borden 2010). Known as the Mawkinutimatimk (coming together to learn together) Framework, this approach is rooted in indigenous ways of knowing, being, and doing, referred to in Mi'kmaq as L'nui'ta'simk (our people's ways of knowing). The MATH project implements verbing and spatial reasoning processes to teach mathematics in a way that honors holistic learning approaches of traditionally underrepresented communities. This session presents the framework, teaching and learning processes and findings from research in Mi'kmaw Kina'matnewey schools and schools serving African communities. Discussion of implications will follow with a view to opening a space for equity education.	K Pri Jun
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**Thursday, May 20**

**R4: 4:00 – 5:00 pm**

R4.01	Numeracy Diagnostics K-3	Kelly Cullen, Laura Beaudry	This workshop will provide educators with an overview of the work of Doug Clements and Julie Sarama's Learning and Teaching with Learning Trajectories. Educators will be shown a variety of diagnostic assessments that have been created for the numeracy trajectories. They include: Subitizing, Comparing Number, Counting, Composing Numbers, Addition and Subtraction, and Patterning. Within the workshop, educators will explore the various questions they would ask their students during a diagnostic to begin to understand their students' current knowledge of mathematical concepts. Educators will learn how to access resources, tracking methods, and hands-on-activities to use in guided groups that align with their students' developmental math needs.	Pri
R4.02	Le monde merveilleux de Desmos!	Frédéric Ouellet	Vous êtes enseignant de mathématiques, vous enseignez les fonctions, vous avez besoin de Desmos et d'Activity Builder! Voyez comment inclure le grapheur Desmos et Activity Builder dans votre pédagogie! Vous aurez également la chance de découvrir le volet géométrie de Desmos! Vous verrez, après cet atelier, vous ne pourrez plus vous en passer! Vos élèves vont vous remercier de rendre vos cours aussi dynamiques que créatifs! Atelier présentation et mains sur les touches!	Jun Int Sen

R4.03	Grids as mathematical objects-to-think & act-with	Catherine Bruce, Jessica Bodnar	What does it mean to think-with and act-with spatial objects? Research is at an early stage of understanding how students use mathematical objects to make sense of complex ideas. Objects-to-think-with and act-with are spatial and dynamic life-long flexible tools we can use, both physically and mentally when we encounter new learning or contexts. For example, grids help us to coordinate relationships in multi-dimensions such as time and space, length and width, near and far, and the effects of shearing and scaling. Underlying structures, like grids, tend to be taken for granted even though they frame much of the mathematics students are learning. What is even less understood is how these objects-to-think-with can carry us over time to understanding complex mathematical ideas. In this session we will focus on grids as objects-to-think-with and to act-with. Grids help us to structure, partition, measure and quantify space which is essential for multiplicative, fractional and proportional reasoning as well as coding. Although grids are commonly found in classrooms, they are rarely the focus of the learning, and we are at an early stage of understanding how students are making sense of grids as powerful spatial structures. This session will feature: examples collected from research demonstrating a wide range of student conceptions of the grid; a working typology generated from preliminary findings; and, practical implications for classroom explorations.	K Pri Jun Int
R4.04	Equity in Early Years Math	Lisa Rossiter-Thornton, Marcia Bumbury	High expectations and pedagogical documentation are key elements of equity in Early Years Mathematics. Join us in this session as we discuss, with hands on materials, how pedagogical documentation allows us to reflect on our biases and improve our teaching practice to ensure equity and student success. The impact when we do unpack our biases, yields many benefits to student learning. We want to change the narrative of how students see themselves, how the systems sees our students and how we as educators see our students. We will discuss the benefits of multiple entry points for students to demonstrate their intuitive knowledge using hands-on materials. We will demonstrate how to bring our students identities into their math thinking using learning opportunities in the primary grades.	K Pri
R4.05	Using Coding To Teach Math Concepts and Connect to STEM and STEAM!	Kevin Spry	In this online session, no previous programming experience is needed! We will use portable TI graphing technology to turn any math class into an opportunity to connect basic ideas of coding to the mathematics curriculum. As well we will show extensions in learning to cover STEM and STEAM topics. Many free resources will be highlighted and step by step guides through the coding and projects.	Int Sen

R4.06	The Tortoise & The Hare: How Math Class Missed The Moral and What We Can Do About It	Kyle Pearce, Jon Orr	<p>When you think back to moments from your mathematical learning experience, what comes to mind? Do your memories tend to feel more like the recalling of facts, steps, and procedures or do they feel more like the process of problem solving where you were routinely left to think deeply through a productive struggle? Why does it seem that our experiences from math class tend to be a case of either/or?</p> <p>When exploring new approaches to teaching and learning mathematics, we are often confronted with very absolute views that pit one extreme against the other. Ideas such as direct instruction vs. inquiry lessons, grades vs. gradeless assessment practices, homework vs. no homework, or hands-on collaborative tasks vs. independent worksheet practice; regardless of what pedagogical approach you wish to explore, it's a sure bet that you'll find someone out there who believes it is poor practice.</p> <p>Join Kyle &amp; Jon as they explore the two systems for thinking in the brain and how mathematics education often only serves one. They'll share the practical classroom lessons and routines that not only help you find the right balance in your mathematics program, but will also help your students to define an identity that they value in your math class.</p>	All
R4.07	PBL Through Opening Problems	Elizabeth Nichols	<p>I'll share some Grade 5-10 problem openers and explain how I use them to get students thinking, talking and sharing their ideas with each other before they learn or develop a concept. Using these problems before a teacher-directed lesson allows students to have conversations in smaller groups and reduce math anxiety, particularly around problems in the thinking category. For those who are interested in moving to a problem-based or thinking classroom approach but want to try it out on a smaller scale, this is one option to try. We'll also explore how to make this possible in different environments - online, socially distant, etc.</p>	Jun Int Sen
R4.08	Mathologie In Action	Jordan Sloan	<p>Follow the Big Ideas and understand student thinking in fractions K-3 through Mathologie and classroom practices. The Pearson Mathologie set of print and digital math resources has been implemented in schools throughout Ontario as a blended approach to learning math in French Immersion and Francophone classrooms. Explore all of the Mathologie resources and delve deeper as you explore options for centres, promote literacy and encourage second language learning through math. Join Jordan in this hands-on session as she guides you through the next steps in planning, teaching and assessing using Mathologie. Share ideas and best-practices with other Mathologie users and leave with a better understanding of how to bring all of the components together in your class.</p> <p>This session is presented by Pearson and will be pedagogical in nature, not a sales promotion.</p>	K Pri



R4.09	Fidgets and Forks: Modelling Periodic Behaviour in Real-Time	Andrea McPhee	Fidget spinners and tuning forks provide excellent real-world and real-time periodic data for modelling periodic data and are low floor, high ceiling problems. Join Andrea as she shows you how to use video capture on a smartphone and microphones on a graphing calculator or spreadsheet to turn toys into math. Participants are encouraged to play along on their devices (laptops, smartphones, TI calculators).	Sen
R4.10	Some of my Favourite Problems	Mike Eden	<p>After 25 years of creating math contest problems, it seems like a good time to share some of my absolute favourites. Participants will be presented with some intriguing contest problems. Possible approaches will be discussed and multiple solutions will be shared. Take home a page of additional problems that are each compelling and clever.</p> <p>This session is presented by CEMC and will be pedagogical in nature, not a sales promotion.</p>	Sen
R4.11	Equity Counts: Numeracy Solution for all learners	James Howell	<p>In today's digital learning environment some students are facing a widening numeracy gap on core foundational skills. To succeed in mathematics whether they are beginning high school, post-secondary education, or graduating into life beyond school, digital tools can help us identify, refresh and master these concepts from almost anywhere! By providing students with the right tools and support. Gaps that exist in the numeracy skills from all student groups may be identified and upgraded in an equitable individualized manner that caters to the student's success. As a result of 10 years of funded research in the areas of student achievement in mathematics, the 24 Ontario publicly funded colleges in collaboration with the 72 school boards developed a unique Assessment-for-Learning platform called OCMT. The OCMT was field tested with over 10,000 students at 16 colleges and 112 secondary schools in Ontario. The OCMT App was adapted and introduced for students in secondary schools to identify numeracy gaps early and provide the opportunity to close them in an individualized interactive experience. The research backed OCMT App has been increasing student success outcomes equitably with mathematics with digitally rich diagnostic, formative and summative resources that cover concepts identified for success in today's society.</p> <p>This session is presented by Vretta and will be pedagogical in nature, not a sales promotion.</p>	Jun Int Sen

**R6: 6:00 – 7:00 pm**

R6.01 Featured	Building Critical Consciousness in Math: A Journey to Building Positive Racial Identity Development in Students	Karen Murray	<p>In what ways, can students' access and build a positive math identity? How might racialized students engage in Mathematics if framed from an equity-based stance? What might a math classroom look, and sound like through the tenets of Culturally Relevant and Responsive Pedagogy (CRRP)?</p> <p>This session explores how math practitioners can utilize their sphere of influence to disrupt current notions of mathematics - Numbers are Neutral, Let's Get Back to the Basics for Success in Math. This session will interrogate Belief vs Practice, as it will explore how one's belief system impacts one's practice in Math. Mathematics practitioners will also be provided with practical strategies in addressing how to build positive math identity for students.</p>	All
R6.02	Strategies for online teaching: interweaving, math kits, found objects and videos	Ron Lancaster, Drorit Weiss	With the temporary and possibly permanent move to online teaching, engaging students in the learning of mathematics has never been more important. Imagine what it is like for students to be in the nth zoom class of the year, learning mathematics in a very linear way without any physical models and watching videos that are drab and dry. Now imagine a different scenario where teachers organize the curriculum by interweaving topics and expectations; where students use found objects or materials from a kit sent to students by the school to make mathematical models and watch videos that are enticing and exciting. Join us to learn more about making the (n + 1)th zoom class more engaging for students	Jun Int Sen
R6.03	Collecting and Analysing Data Using Micro:bits	Diane Tepylo, Natasha Recoskie	In this session, teachers will explore rich data and probability coding tasks that involve defined counts, sub-programs and the analysis of data using MakeCode and Micro:bits. A focus will be on using coding tasks to explore science and math concepts. Some familiarity with conditionals and variables in a block-based coding environment is recommended. Participants will leave with links to a growing database of sensor activities for math and science.	Int Sen
R6.04	Indigenizing Primary and Junior Math	Robert Durocher, Adrienne Plumley	During this session, we will look at Indigenizing primary and junior math, as opposed to adding Indigenous content. We will share our work as Instructional Leaders of Indigenous Education supporting students and teachers in schools. We will also engage participants in hands-on learning experiences and make connections between Indigenous ways of knowing and curriculum.	K Pri Jun

R6.05	Tools of the Trade	Darren Luoma	Does your video capture software cut out after 5 minutes? Do your students have trouble entering equations into their digital work? Are you overwhelmed with synchronous and asynchronous teaching, adjusting to at home or in school classes or switching from D2L to Google Classroom and other learning platforms? In this session I will share some of the best teaching and technology tools that I have compiled together in one place for all of your teaching needs. I will also share a ton of the resources that I have created and as many tips and tricks as we have time for.	Int Sen
R6.06	The Connected Patterning Progression	Tracy White, Katie McLeod	It is effective for educators to understand how concepts develop across the grades to fully understand how to fill gaps and extend learning. This workshop will examine how patterning begins in Kindergarten and develops with models and representations through to the end of Grade 8. Get ready for some hands on learning and pattern-building to simplify and synthesize your understanding of patterning!	K Pri Jun Int
R6.07	Identity Safe Math Classrooms	Mary Reid, Steven Reid	Math is often viewed as a neutral discipline about facts and figures and therefore free from bias. However, much of the literature states the contrary. This workshop will focus on a small-scale study that illuminates the challenges girls of colour face in their math schooling. During this session, participants will examine some of the barriers experienced by racialized females, such as: math stereotyping, limited access to resources, minimal social capital, implicit bias, and lack of STEM role models. Participants will examine the intersection of gender and race in math classrooms and address the implications for teaching interventions to close the race and gender achievement gaps in math education.	K Pri Jun Int
R6.08	How Do I Know If They Understand?	Lori Johnson, Ann-Marie Hazlewood	Effective assessment practices are key to ensure that our students are growing as learners and mathematicians. This innovative and practical session will support educators by providing ideas for creating efficient, effective, and authentic assessment of students' learning, based on current educational research and moderation of student work. The facilitators will provide practical, but authentic methods of assessment of, for, and as learning that will move beyond rubrics and test scores. By creating opportunities for educators to use the Global Competencies (Social-Emotional Learning), educators will feel better prepared to excel our students toward the 21st Century and beyond.	Pri Jun Int

R6.09	Counting on Fraction Operations	David Petro	Have you ever had students get common denominators before multiplying fractions? When students only learn procedures rather than the meaning behind them they are more likely to use them incorrectly. In this hands on session we will explore how using manipulatives can help conceptualize operations with fractions. We will make all four operations visible and show how to use physical manipulatives to both introduce and strengthen fraction understanding. We will also end with the use of free virtual manipulative tools like Desmos and Mathies to enhance both understanding and practice.	Int
R6.10	Rethinking Fractions: 8 Core Concepts to Support Assessment and Learning	Shelley Yearley, Tara Flynn	Do you wonder what to do in response to your students' fragile or even conflicting understanding of fractions? Explore teaching based on a fractions learning trajectory emerging from 8 years of research in Ontario K-12 classrooms. Eight core concepts, focused on unit fractions, provide the foundation for deep understanding. Assessment questions selected from a new Pearson teacher resource (Bruce, Flynn, Yearley), along with follow-up tasks, provide a structured, research-based teaching and learning sequence. Together we will consider how this research can be used in your classroom.  This session is presented by Pearson and will be pedagogical in nature, not a sales promotion.	Pri Jun Int Sen
R6.11	New Math curriculum - new learning!	Laura Inglis	During this session we will be examining and learning about "the strategies" in number sense that we can explicitly teach, pull out during consolidation, practice through games or number talks. Activities explored during this session will be ready to take back to class and use the next day!	Pri Jun Int

#### R8: 8:00 – 9:00 pm

R8.01	Engaging in Equitable and Culturally Relevant and Responsive Mathematics	Karen Murray	This interactive session will provide participants with an opportunity to explore various toolkits for teaching and learning in mathematics through an Equitable and Culturally Relevant and Responsive Pedagogical stance. These toolkits will focus on designing curriculum and engaging in mathematics learning in both a virtual and/or face to face environment.	All
R8.02	Problem Solving in a Math Literate Environment	David Costello	Problem solving is the focus in many classes; however, instruction must go beyond surface level. In a literate environment, instruction moves beyond strategy selection to ask not only "what strategy did you use" but also "why that strategy," "how did you know that strategy would work," and "what would you have done if that strategy didn't work?".	K Pri Jun Int

R8.03	Sharing Evidence of Mathematical Growth in Learning in Kindergarten	Debbie Watters	What are the most effective ways to show evidence of growth in learning in Kindergarten? This session will explore how educators can document and assess the mathematical conceptual understandings and expectations through play. We will unpack examples of math documentation from Kindergarten classes and see how we can make connections between Demonstrating Math and Literacy Behaviours and the other 3 frames. Together we will explore some developmentally appropriate math routines that educators can use to document learning through authentic and purposeful experiences.	K
R8.04	Slow Reveal Graphs As Social Justice Provocations	Jennifer Fannin, Kyle Pindar,	We will be looking at examples of slow reveal graphs for different grade levels (K-8) and demonstrating how revealing small chunks of information can spark student questioning, math talk and critical thinking. Tie ins to inquiry and social justice math practices will be made throughout. Links to different supporting resources will be shared with participating teachers.	K Pri Jun Int
R8.05	Empowering Students in Mathematics	Sam Garrison	I have spent the last few years working as a learning coach for the Toronto District School Board, and in that time I have had the opportunity to work with teachers utilizing innovative teaching practices to help their students take on real ownership of their own learning. Now that I'm back in a classroom teaching secondary mathematics, I am implementing as many of those strategies as I can to help empower my students to take charge of their education.  In this session, we will be exploring strategies that can be used to help students move beyond compliance to full on engagement in the mathematics classroom. Some of the strategies we will be exploring in the workshop include: differentiated project based learning, badge-based differentiated assessment, Peter Liljedahl's work on de-centring the classroom, spiralled curriculum and student-driven gap closing strategies.	Int Sen
R8.06	Ideas and Inspiration for Primary- support for the coding expectations in the new math curriculum	Lisa Anne Floyd	Join Lisa Anne as she shares ideas and inspiration to help primary (1-3) teachers incorporate the Coding Skills from the new Ontario 1-8 Mathematics Curriculum (2020) into their practice. Sample ScratchJr applications, resources and unplugged activities that incorporate multiple math strands will be highlighted. ScratchJr is a free app for iPads and android tablets (and Chromebooks).	Pri
R8.07	Math Acknowledgement	Amy Scales, Teresa Renecker	Inspired by our FNMI AQ and the work from Dr. Ruth Beatty and Nelson we have endeavoured to honour Indigenous ways of knowing, being and doing through the creation of lessons that make visible the mathematics present in various artifacts. On this journey, we have collected stories and created a few lessons that could be used in classrooms. Additionally, we will share our process for responsibly and respectfully facilitating these activities.	Int



R8.08	Integers: Beyond the Rules	Heather Theijsmeijer, Richard Duffy	As young learners, children spend years developing sense of number as well as the ability to count efficiently, as a foundation for higher operations. However when we introduce students to integers, we often jump right into operations without laying that same solid foundation with students' sense of negative numbers. This results in students often confusing the "rules" for adding and subtracting integers throughout the intermediate grades, and without the ability to judge the reasonableness of their solutions. Join us as we restore the balance between using integer rules efficiently and being able to reason through problems using multiple representations, by looking at a new twist on time-honoured number sense activities. Appropriate for grade 6-10 teachers.	Jun Int
R8.09	Creating a Spiralled Course - Is it Really Worth It?	Natalie Robinson	"Spiralling" has become one of the recent buzz words in math education. But is the shift in delivery really worth the effort? Natalie will share the multiple courses that she has delivered using a spiralled delivery. She will also share why now, more than ever, is the right time to make this change. As we shift to virtual learning environments and prepare to destream the grade 9 math curriculum this is a game changer for supporting our students. You will leave this session with a framework to convert your current plans to a spiralled framework.	Int Sen
R8.10	Learning math with infographics	Ami Mamolo, Nkechi Ibeh	This workshop will look at how question-posing and visual approaches can help learners become critical readers and consumers of data, including through the creation of infographics, in an in-person or online setting. We will explore different examples, resources, activities and technologies through which students can develop critical reasoning skills related to collecting, questioning, and communicating data. We take a "remixing approach" to infographics that fosters robust mathematical understanding, critical thinking about real-world issues, and opportunities for learners to be creative with mathematics. Remixing is a term we borrow from recording music to describe when an artist might alter a song by adding, removing, or changing aspects of it, so as to create a new piece of media that can offer new insight, express new voices, reach new audiences, and open up new possibilities. The workshop will focus on connections to the new math curriculum.	Int
R8.11	Rethinking Equity Practices	Mark Chubb	The meeting point between instruction, assessment and differentiated instruction viewed through the lens of equity. Looking at equity in theory and in application requires us to reflect on what we value and the decisions we make. Participants in this session will engage in doing mathematics to determine the intentional equity-based practices involved.	K Pri Jun Int

“This has totally energized my math class!”

Erin Sudakis  
Grade 7 Teacher



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**Friday, May 21**

**F4: 4:00 – 5:00 pm**

F4.01 Featured	Moving Achievement Together Holistically (MATH)	Lisa Lunney Borden	In this session, Lisa will share understandings developed from long-term collaborative work done in Mi'kmaw communities of Atlantic Canada. The session will explore ways to teach mathematics from an Indigenous perspective, looking beyond ethnomathematical investigations to explore the ways in which Mi'kmaw epistemology or L'nui'ta'simk, can be used to root pedagogical approaches in Indigenous knowledge systems and what this might mean for other contexts. Lisa will share examples from an on-going research project called Moving Achievement Together Holistically (MATH) as a way of demonstrating what it looks like to teach from this decolonizing approach that focuses on repairing student relationships with mathematics. Sample activities will be shared and we will discuss how these ideas are good for all students but essential for some.	All
F4.02	Grade 7 Coding Expectations using Scratch	Imtiaz Damji, Marcel te Bokkel	In this hands on session, we will walk through some examples of how to achieve grade 7 coding expectations (defined count and sub-programs) using Scratch. There will also be time to code some tasks on your own and you will walk away with resources that you can use in your classroom. Knowledge of other control structures such as repeating events and conditional statements will be helpful. Participants are asked to bring their own laptop to the session.	Int
F4.03	Math Rage! Preventing and Addressing Math Anxiety	Susan Carkner	This session will discuss my experiences with explicitly addressing math anxiety, and how it helps create a more equitable classroom environment. I teach my students about the effects of anxiety on the brain, how to identify feelings of anxiety, and coping strategies they can use to reduce its impact on their learning. Virtually all of my students have learning disabilities - learning strategies to identify and cope with anxiety helps them feel safer and be more resilient in math learning.	Int Sen
F4.04	MathUp and the New Ontario Curriculum	Marian Small	As I updated MathUp to meet the requirements of the new Ontario curriculum, I learned a lot about the new curriculum. I had a chance to see things that made me happy and things that surprised me and that I had to think about more.  This work also provided yet another opportunity to reconsider the content of MathUp. I can honestly say that I am even more committed than I ever was to the importance of the professional learning aspect of a teaching program to ensure equity in our classrooms, especially when teachers teach unfamiliar content. We will talk about both of these issues in this session.  This session is presented by Rubicon and will be pedagogical in nature, not a sales promotion.	K Pri Jun Int

F4.05	Supporting Students Post-Concussion	Patricia Clark	Does this sound familiar: "What are we doing?" How about: "Where do I start?" or "I don't get it". Students transitioning back to learning after suffering a concussion can face a wide range of challenges, which can include: cognitive, emotional and physical challenges. After suffering a concussion in December 2015 and then transitioning back to teaching in a secondary mathematics classroom and participating in professional development I noticed myself asking these very same questions. I began my own journey to understand how these challenges impact learning and the supports students need while trying to manage symptoms and learn classroom material. This informal talk is designed to give insights into, and simple strategies to support students as they "return to learn".	Int Sen
F4.06	Fear of Coding? Fear No More - Grades 4-7	Diane Tepylo, Joy Benjamin	Are you struggling with the new coding expectations in the curriculum? Are you thinking, "How am I ever going to teach my students to code when I know so little about it myself?" If you are, you are not alone. In this session, we will walk through the specific curriculum expectations and how to use Code.org to support yourself and your students in this journey. We will discuss what is coding, how it connects to math and how to help students make connections to and between mathematical concepts. Participants will leave with the tools they need to get started and continue with coding. This session is suitable for beginning coders.	Jun Int
F4.07	New Ontario 2020 Curriculum - Grade 7-8 Strategies and Resources	Gerard Lewis	The new 2020 Ontario Math Curriculum is an exciting overhaul that streamlines and offers a spectrum of expectations for students, teachers, and parents. This workshop will focus on the Grade 7-8 classroom; we will discuss the new curriculum context, review changes from the previous curriculum, offer in-person and distance learning strategies, and refer to sample long-range plans to assist with planning. Grade-specific examples related to coding, mathematical modelling, and financial literacy also be provided.	Int
F4.08	Math Continuums for Equitable Teaching K-2	Michelle Carr, Kaylin Nauta	Our Early Years learners come to our classrooms with a variety of mathematical experiences that have shaped their understanding. The use of learning continuums values a student's personal math journey to recognize that all students have a mathematical understanding to contribute. By starting here, we reduce both teacher and student math anxiety as the curriculum is broken down into a continuum of key skills and strategies; a continuum every child is on, no matter their math history. Join two primary educators as they share their experiences in implementing math learning continuums (e.g., Lawson, Clements, Small) to support learners of all abilities as well as recognize and celebrate the knowledge and experiences each student brings to shape their math understanding. Learn how to effectively 'notice and name' student thinking along a continuum to promote student success using games, activities and big questions. This approach will help	K Pri

			teachers move students forward in numeracy and overall mathematical reasoning (in coordination with the 2020 curriculum) while celebrating individual student growth.	
F4.09	Let's Get to the Math!	Richard Duffy	"If my students can only get to the math, then they are often able to solve the problem." As coaches working with teachers, we hear this all the time. If we consider the number of steps involved solving math problems (decontextualizing, mathematizing, applying the strategy, and finally recontextualizing problems), it's no wonder students often get lost in the process, or give up without really trying. As educators, we are often used to employing high-yield literacy strategies when teaching language, and mathematical strategies when teaching math. What would happen if we crossed the two? Join us to see examples of how teachers in grades 1-10 in our board have used a shared reading approach in mathematics to help students at all levels unpack, make sense of, and solve complex problems.	Pri Jun Int
F4.10	Ontario's new Grade 9 Mathematics Course	Trish Steele, Jules Bonin-Ducharme	In this session participants will develop an understanding of how the course has been designed to reinforce concepts from the elementary curriculum and provide a foundation for future secondary math courses for all English and French Language schools.	Int Sen
F4.11	Bayfield Design Math 1 - 8 Course Pack	Kim French	D2L, Bayfield Design, and Fair Chance Learning have formed a unique partnership that supports educators with an award-winning LMS (Brightspace), Trillium Listed math resources for the new math curriculum, and professional learning opportunities that help teachers incorporate strategies that promote equity and inclusion in their teaching practices. In this session you will learn how to promote equity in mathematics education, regardless of your students' race, gender, language, socioeconomic status or learning style, and promote best classroom practices using the new Bayfield Design Math 1 – 8 Course Pack, available through Brightspace.  This session is presented by D2L and will be pedagogical in nature, not a sales promotion.	Pri Jun Int



## KEYNOTE ADDRESS BY EUGENIA CHENG

**F6: 6:00 – 7:00 pm**

F6. Keynote	Inclusion-exclusion in mathematics: who stays in, who falls out, why it happens, and what we could do about it.	Eugenia Cheng	The question of why women and minorities are under-represented in mathematics is complex and there are no simple answers, only many contributing factors. I will focus on character traits, and argue that if we focus on this rather than gender we can have a more productive and less divisive conversation. To try and focus on characters rather than genders I will introduce gender-neutral character adjectives, "ingressive" and "congressive", as a new dimension to shift our focus away from masculine and feminine. I will share my experience of teaching congressive abstract mathematics to art students, in a congressive way, and the possible effects this could have for everyone in mathematics, not just women.	All
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**F8: 8:00 – 9:00 pm**

F8.01 Featured	Access and Inclusion Open the Doors to Joy and Creativity	Nancy Kawaja	<p>I believe that when we design and create learning communities where all voices are heard and seen; where stories have a chance to be found and told, we are creating a strong community for our students.</p> <p>Call to action: Having accessible resources in trauma-informed classrooms opens a world of creative opportunities in supporting students as they cope with the challenges in their lives. As educators, how have we designed learning environments to be both accessible and inclusive for all learners?</p> <p>Thank you to Apple for sponsoring this Featured session.</p>	All
F8.02	What does it look like? Decolonizing Mathematics	Lisa Lunney Borden	In this session we will explore tasks that draw from Indigenous knowledge and practices as well as tasks that are rooted in Indigenous ways of knowing. We will look at tasks that range from early years to high school and have time to discuss ways to transform tasks to support a decolonizing approach to mathematics teaching and learning. We will discuss the importance of ensuring classroom tasks support student identities as mathematical learners.	Pri Jun Int
F8.03	The Power of Abstraction	Eugenia Cheng	This will be a workshop activity with a surprising application of abstract mathematics. We will do an activity involving finding geometric structures in the factors of numbers. We will then explore the abstract version and show that it then applies to clarify and give a framework for discussions of privilege, identity and intersectionality, which are not things one would usually think of as being applications of abstract math. No prior knowledge is required beyond multiplying and factoring numbers (e.g. with a calculator). An awareness of the concept of prime numbers may help.	Jun Int

F8.04	Hyperdocs In The Mathematics Classroom	Melissa Hughes	This session will focus on explaining how teachers can use Hyperdocs to help differentiate instruction and create a better-blended learning experience in their classrooms. A Hyperdoc is a digital document that has all the components of a lesson put together into one digital location. Students are provided with links to all of the resources they need to complete a lesson or unit that they are working on. We will highlight how a Hyper doc can be used to promote collaboration, provide opportunities to use digital and non-digital resources, and allow for student creation and communication of their learning.	Pri Jun Int
F8.05	What is Mathematical Modelling	Mark Chubb	Many students and teachers across Ontario have not explicitly learned about the process of mathematical modelling before our new curriculum arrived. In our data rich world, models are becoming more and more necessary for us to use and understand. Together we will discuss ideas about how we help our students learn how to engage in this process.	Pri Jun Int
F8.06	Nouveau cours de mathématiques de 9e année de l'Ontario	Trish Steele, Jules Bonin-Ducharme	Dans cette session, les participantes et participants développeront une compréhension de la façon dont le cours a été conçu pour renforcer les concepts du curriculum élémentaire et fournir une base pour les futurs cours de mathématiques du secondaire pour toutes les écoles de langue anglaise et de langue française.	Int Sen
F8.07	Gender equity: Promoting females' presence in STEM fields	Atinuke Adeyemi	The issue of gender inequity in STEM fields continues despite similar achievements in mathematics by high school female and male students. There is sufficient evidence that female students in Canada and the United States are unwilling to engage in career paths that require advanced mathematics skills. This presentation will include data to illustrate gender gaps in enrolment trends in STEM fields in Canada. A variety of factors, such as psychological, biological, and social, that may impact females' enrolment, achievement, and participation in mathematics will be discussed. Findings from my study with undergraduate female students in Ontario who opted for pure mathematics and physics disciplines will be shared; including lived experiences in the fields and the gender inequity/barriers they encountered and how they overcame them. Research-based recommendations on specific changes that need to take place, at different educational levels, to accomplish gender equity in STEM disciplines and careers will also be provided.	Jun Int Sen PostSec

F8.08	Is Getting the Right Answer Really Enough?	Brenda Stone, Kristy Hawkins	<p>Have you ever wondered, "is getting the right answer really enough?"</p> <p>To answer this question, you first need to know your student's thinking and the strategies they are using to solve problems. HINT: The right answer is not always enough. In this session we will provide practical examples to identify student thinking on a continuum from counting to additive to multiplicative. We will walk you through how to use this information to make intentional instructional decisions and plan next steps to move student thinking forward towards deeper understanding of the math concepts. As a result, you will feel more confident in being responsive to all of the students in your class.</p>	Jun
F8.09	Making Real-life and Authentic Math Connections with Students In-Class and On-line	Noralee Yarra	<p>Join Dufferin-Peel Catholic Elementary Teacher Noralee Yarra as she shares her experiences and strategies she learned while teaching in-class and virtually before and during the pandemic. Noralee will use examples from her class that will show you how you can make real-life and authentic math connections in any classroom setting using Mathology print and digital resources. You will leave this hands-on session with creative ideas you can use in your classroom tomorrow.</p> <p>This session is presented by Pearson and will be pedagogical in nature, not a sales promotion.</p>	K Pri
F8.10	Virtual Hands On Coding Introduction with a Math Focus through Robotics & Logo with Follow Up Activities	Rudy Neufeld, Michael Daumling	<p>Coding through robotics models teaching through understanding and learning from mistakes. Coding has become a vital skill for the 21st century and hence offered within many curricula. It gives learners direct participation in and responsibility for their own learning.</p> <p>Logo is an intuitive, powerful visual coding language, designed especially for young learners. It models a learning environment which encourages one to teach rather than to tell. The robot speaks mathematics, and through challenges, participants will discover how mathematics can build structure and design.</p> <p>This live interactive virtual Zoom session will capture the interest of participants by using video and exploring further, hands on activities.</p> <p>Participants are given free access to a robot on their own computer screen and guided using Ontario Curriculum activities after the Zoom session.</p> <p>This session is presented by Understanding Mathematics by Neufeld and will be pedagogical in nature, not a sales promotion.</p>	Jun Int

F8.11	Using Portfolios to Develop Resilient Mathematicians in Grade 9	Carolyn Gingerich, Aleda Klassen	We are trying "growth portfolios" throughout our Grade 9 courses as tools for students to reflect on their development as mathematicians. By prioritizing the mathematical processes and social and emotional learning, we hope to empower more resilient learners. We'll share how we are taking our gradeless classrooms to a different level by developing in our students the skills to monitor their own progress and reflect on their own growth.	Int Sen
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### **Pre-Recorded Sessions**

#### **1:00 pm Release Each Day for On-Demand Viewing**

***These sessions will be archived and available for on-demand viewing until June 11, 1021***

#### **Monday, May 17**

<b>Session ID</b>	<b>Session Title</b>	<b>Presenter(s)</b>	<b>Session Description</b>	<b>Levels</b>
M1.01	Teaching Through Problems Worth Solving	Jordan Rappaport	<p>Nurturing an environment where learners actively look for, and engage in finding multiple strategies for solving meaningful empowers students to explore alternatives and develops confident, cognitive mathematical risk takers.</p> <p>Teaching through problems worth solving is about inviting students to think about mathematics, to take risks, and to persevere. Collaboration is the key! Students need to be working together, sharing strategies, and learning from one another. As educators, our role is to inspire, facilitate, and regulate.</p> <p>A problem worth solving is accessible to all students. It has multiple entry points, has a low floor, wide walls, and a high ceiling. These problems lend themselves to natural differentiation where all students are able to address the problem at their level and experience success. A problem worth solving allows the use of multiple strategies and varying facets of mathematics.</p>	Pri Jun Int
M1.02	Introduction to Desmos Challenge Creator	David Petro	Bring a device to experience how the Desmos Challenge Creator has the power to make all students mathematicians as they create original challenges for each other to play. Participants will create and complete challenges from the student perspective while the presenters facilitate conversations around those creations with the teacher dashboard.	Int Sen

M1.03	Universal Design for Learning in Mathematics	Shelly Vohra	In this session, we will deepen our understanding of UDL in order to create an equitable mathematics classroom. We will explore how these principles can be used to ensure all learners can access and participate in challenging and meaningful mathematical learning experiences. In particular, we will examine how flexibility in how students access materials, engage with that material, and demonstrate their understanding supports the different ways in which they think and learn. We will compare and contrast sample lesson plans to highlight the importance of UDL in mathematics. Bring your own lesson plan to adapt in order to meet the principles of UDL.	Jun Int
M1.04	It's helping me to move forward: the technological experiences of students with math learning disabilities	Alayne Armstrong	This session will describe recent research about how students with math learning disabilities at the middle years level and the post-secondary level report using technology to support their math studies and how teachers can use these ideas to better support all of their learners.	Int Sen PostSec
M1.05	The Canadian Mathematical Society and You	Shawn Godin	<p>The Canadian Mathematical Society (CMS) was founded to be dedicated to the mathematical development in Canada. Currently running mathematics contests, math camps, publishing math books and journals. Come see what the CMS has for you and your students.</p> <p>This session is presented by the Canadian Mathematical Society and will be pedagogical in nature, not a sales promotion.</p>	Int Sen
M1.06	TEACH, Don't TELL - Hybrid Strategies from SURVIVE to THRIVE in 2021 Mathematics	Rudy Neufeld, Andrew Allen, Jamie Pyper	<p>In this pre-recorded session, we will explore examples and options that capture a combination of online and in class learning (hybrid model) to assist students in understanding through interacting with mathematical concepts.</p> <p>Examples include addition and subtraction with regrouping, partial products to understand why we multiply the way we do, understanding multiplication and division of fractions, recognizing and extending patterns as well as a series of STEM activities in scaffolding and understanding area and interpreting graphs. We will conclude with humorous videos .. "Show and Tell by Ma and Pa" and "The Learning Pit", an environment where multidimensional approaches are addressed.</p> <p>This session would be helpful for both parents and teachers as they weave the partnership that will help both.</p> <p>This session is presented by Understanding Mathematics by Neufeld and will be pedagogical in nature, not a sales promotion.</p>	Jun



M1.07	Yet Another Gradeless Progress Tracker	Aleda Klassen, Carolyn Gingerich	<p>We wanted a tool that allowed us and our students to (1) track their own progress with respect to essential learnings; (2) provide them with a visual way to monitor their personal understanding; (3) include students' self-evaluation in the process.</p> <p>In this session, we'll share how we use, and continue to (endlessly) modify our current tool. (Some comfort with Google Sheets will be helpful.)</p>	Int Sen
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## Tuesday, May 18

T1.01	Spiraling 2.0	Chiara Tan	If you're interested in spiraling, you've probably been introduced to it at the grade 9 or 10 level, but spiraling curriculum has also proved to be successful in senior level courses. Learn what a Functions and Advanced Functions program could look like. Course resources will be shared.	Int Sen
T1.02	(Math)ing for the Love Of It!	Ken Pettigrew	<p>Just as we want our students to be reading, for the love of it, we want them to be mathing for the love of it, too. Yes, that's right. You heard us correctly - mathing! Just like reading, math is an active and lively practice - it is not an event. Similar to reading, math is a dynamic and engaging process of meaning-making. So, mathing just seems to be the best way to describe what is going on in the mind of the learner. As teachers and leaders, we can draw upon all that we know about effective reading instruction, and bring that into the mathing classroom.</p> <p>In this session, participants will go on a journey through the pages of some of their favourite picture books to uncover ways in which to bring mathematical ideas alive for their students. We will engage participants in rich and meaningful mathing conversations and highly interactive tasks that will explicitly link the concepts on the page to the relevance and beauty of mathematics in students' lives. We will explore opportunities for asking deep and meaningful questions that inspire, build, and extend mathematical learning for teachers and students alike.</p> <p>Picture books serve as an anchor for learners and provide a pathway for exploration and discovery. The story may be the hook, but the mathematics will be the payoff. Join us on this journey, for the love of mathing!</p>	K Pri Jun

T1.03	Equity Issues in Financial Literacy	Shelly Vohra	Financial wellness is generally defined as having habits and knowledge about money that lead to financial security and the ability to weather emergency situations. In this session, we will examine the growing income and wealth inequality and the importance of ensuring that socioeconomically disadvantaged groups will acquire the strong levels of financial literacy skills to avoid being left further behind. Financial literacy can play a role in helping students build positive habits, find funding for college, save for emergencies, and make fewer financial mistakes that could set them back in the future. Providing equitable access to personal finance education is perhaps more important now than ever. We will explore the basics of financial literacy such as budgeting, investing, and healthy habits as well as the basics of the economy and effective strategies, tools and resources to deepen students' understanding of these vital concepts.	Jun Int Sen
T1.04	Financial literacy and numeracy in elementary school – theory and practice	Alexandre Cavalcante	It has been less than a year since financial literacy has been incorporated to the elementary mathematics curriculum in Ontario. This incorporation follows international trends that recognize the importance of developing financial knowledge and skills from a young age. Yet, teachers still lack appropriate resources and support to integrate financial literacy and numeracy in their mathematics classrooms. Specifically, existing resources tend to promote biased understandings of finance and often create judgements about financial behaviour. In order to teach financial literacy and numeracy equitably, teachers must account for the diversity of ways people understand and perceive money and personal finance. In this presentation, we provide a framework of three distinct approaches to teaching this topic in mathematics. These approaches meet different needs and can help teachers make appropriate pedagogical choices related to financial matters. Within this framework, we have built several learning situations that go beyond mere word problems to incorporate financial literacy and numeracy. We will provide teachers with these situations for them to experiment in their classrooms. Our research group is open to collaborations with teachers and schools to transform financial literacy and numeracy education.	Jun Int
T1.05	Using Problem Solving in your Classroom	Shawn Godin	Problem solving is at the very heart of mathematics. Problem solving, and many of its components, appear in the mathematics curricula of all grades as the mathematical process expectations. We will discuss how to use problem solving in your lessons, activities and assessments as well as places to find new problems.	Int Sen

T1.06	The Importance of Social Emotional Learning in Mathematics	Laura Gini-Newman	<p>Although we've yet to fully understand the impacts of COVID19, strategies that support SEL in the classroom, especially through Mathematics, have never been more important, and cannot be overlooked. In this session, join the Nelson Math team to unpack strategies and tools featured in our resources that promote healthy social-emotional learning through mathematics.</p> <p>This workshop will cover:</p> <ul style="list-style-type: none"> <li>-The role that social-emotional learning plays in student confidence and self-image.</li> <li>-What SEL strategies and tools look like, and how they can empower students to perform at their potential</li> <li>-Opportunities to integrate SEL skills into your day-to-day teaching practice</li> </ul> <p>You'll leave equipped with simple but effective strategies and tools to introduce these approaches in your school right away. Ready-to-use samples and activities will be provided to try in your classroom.</p> <p>This session is presented by Nelson Publishing and will be pedagogical in nature, not a sales promotion.</p>	Pri Jun Int
T1.07	Build Equity in High School Mathematics Through Real-World Examples and Coding	Elena Corina Georgescu	Build equity in high school mathematics with lessons that interconnect abstract math concepts, coding and relevant real-world example. The aim of this session is to discuss a collection of interactive math activities that use coding with Wolfram language to visualize abstract high school math concepts from number sense and algebra, measurement and geometry, analytic geometry, relations and functions, trigonometric functions, statistics and personal finance. These interactive learning experiences provide students with opportunities to develop a structured and organized logical thinking, required in solving math problems, while critically analyzing real-world examples relevant to their everyday life.	Int Sen

### Wednesday, May 19

W1.01	Math is Everywhere!	Cathy Chaput, Beth Smith	In this hands-on and interactive session, we will share practical ways to show your students that math really is everywhere! From easy routines, engaging practices, exciting activities and fantastic on-line resources, this session will support you in finding ways to easily inject numeracy in many different parts of your day! These ideas are tried-and-true, easy to implement, provide fundamental practice, and will help your students find the fun in math every single day!	Pri Jun Int
W1.02	Creating a Balance Math Program	Jonathan So	Balance is something we always continue to seek. With the current Ministry of Educations emphasis on basics and current research suggesting collaboration and inquiry, where do teachers turn to? This presentation will discuss a five-day plan to help balance your math classroom	K Pri Jun Int

W1.03	Differentiated Instruction and Spatial Reasoning	Diane Stang	<p>A picture is worth one thousand words . . . and a multitude of ways to differentiate math instruction! This workshop focuses on how spatial reasoning and visualization can be used to offer differentiated instruction in terms of process (how students take in information), product, (how students show what they understand), and affect (how students feel about math and themselves as mathematicians). There are many practical activities that are easy to implement and assess, and are motivating for both educators and students. There is also a focus on innovative ways to differentiate your math program in a virtual learning environment. These instructional strategies can energize your math program and offer ALL students the opportunity to succeed and see themselves as capable mathematicians.</p> <p>This session is presented by Scholastic and will be pedagogical in nature, not a sales promotion.</p>	Pri
W1.04	Tesselation with Artistic Flair	Miranda Wheatstone, Tim Sibbald	<p>Only some shapes tile the plane, but all shapes can challenge students to combine mathematical investigation with artistic opportunity. This workshop will take an interdisciplinary look at different approaches to encourage your students to investigate unusual patterns obtained with various shapes. Those patterns will also serve as the canvas for drawing out creative thinking with artistic goals.</p>	Jun Int
W1.05	Getting Started with Number Sense Routines in the Junior and Intermediate Grades.	Ann Chevrier, Stephanie Bishop	<p>This Junior / Intermediate session will focus on developing and incorporating equitable number sense routines as part of your daily math instruction, whether in class or virtually. Daily number sense routines can promote purposeful inclusive practice with number and help build mathematical discourse.</p> <p>In this session, we will discuss the importance of creating an environment where practices are inclusive and students are empowered to routinely reason and question a variety of number concepts. We will highlight some key expectations within Strand A (SEL) of the 2020 Ontario Math Curriculum in order to support students thinking and communicating. We will provide educators with a vast repertoire of routines that promote inclusivity, equity, and engagement. We will provide recommendations and ideas on how to best structure a math block (virtually or in person) in order to make them part of a daily math program.</p>	Jun Int
W1.06	Exploring the Beauty of Mathematics Outdoors	Kelly Cullen	<p>Come on a math trail with me as we tour the grounds of my school, Fieldcrest Elementary School (SCDSB) in Bradford. Together, we'll investigate the mathematics we see around us. During our walk, we'll delve deeper into the connections between the new Ontario Mathematics Curriculum K-3 and studying math outdoors. No matter what your playground looks like, the schoolyard, your school neighbourhood, we will discuss the benefits of doing a math lesson in any environment. Educators will have access to resources and hands-on activities.</p>	Pri

W1.07	Rope-a-Slope: Inquiry in Grade 9	Andrea McPhee	Participants will engage in two simple hands-on inquiry activities designed to introduce linear relationships and slope with nothing more than a length of rope and measuring tape. The results can be reused later when discussing lines of best fit, y-intercepts, partial variation, and the equation of a line. We will also explore how to do this in a socially distant or virtual classroom. It's a knotty problem!	Int Sen
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### Thursday, May 20

R1. 01	Empowering English Learners in Math	Amel Belmahdi	Many English Language Learner (ELL) students in Canada enter primary, secondary, or post-secondary educational systems to pursue their goals. Part of their journey may include completing at least one mathematics course. Math is not just about numbers; words play a significant role and when combined, these pose challenges for students with language barriers. Although many of these students are well-equipped with the knowledge to crunch numbers, they may have trouble problem-solving due to a lack of understanding the questions' terminology. In this interactive session, we will explore how pedagogy and mobile applications aimed at language development for ELLs can be used in supporting students' mathematical growth and success. Through engaging discussions and activities, teachers will learn how to enhance students' proficiency in math by using various teaching and learning strategies, such as inclusive language, technology, and collaboration. Why not create an incredible and equitable math experience for ELL and native students?	All
R1.02	Changing Assessment in Mathematics	Caitlin Twitchin	We are all very aware of the Mathematical Processes, but many fail to assess and give feedback on this part of the curriculum. Now with the addition of Strand A - Social-Emotional Learning and Mathematical Processes it's even more important to assess this content. Join a conversation of how two high school teachers created an assessment tool for tracking, assessing and providing feedback in the often invisible parts of mathematics through modelling, conversations and observations. Join in a workshop where after learning about the process, you can create a tool to be used in your classroom.	All



R1.03	Hello World...Hello Math	Adam Bishop	Mathematics and computer programming should be used together to foster learning of essential skills for students as well as to increase the depth of their mathematical understanding. This session provides an introduction on how teachers can begin to incorporate programming into their math lessons. The focus of the session is on presenting how computational thinking can be achieved with or without technology in the classroom. Engaging students in offline computational thinking activities allows all types of learners to benefit from the same task and promotes the concepts of problem solving, flexible thinking and a growth mindset. Equity is discussed in terms of differentiated instruction as well as exposing students of all demographics to the field of computer science. By introducing programming in the context of mathematics more students in all demographics can take part in enriched math classes as well as see themselves having a future in an industry that they may not have previously considered.	K Pri Jun
R1.04	Mathematical Modelling in Elementary Math: Lessons from the OAME/AFEMO project	Domenic Tremblay, Mark Chubb	OAME and AFEMO have had teams of classroom teachers writing new lesson and assessment plans for Ontario teachers since the revised elementary curriculum was released in 2020. In this session, your hosts will provide an overview of how to support your students to meet the new Mathematical Modelling expectations, and we will walk you through some of the highlights of the resources that have been produced for these expectations. Since all resources are available in English and in French, presenters will attempt to answer your questions in either language.	Pri Jun Int
R1.05	Tweaking Number Talks	Chad Williams	Participants will explore the small tweak that makes a big difference through differentiating Number Talks. This tweak allows all students to engage in Number Talks, share their thinking daily, and show the growth of students throughout the school year. The slight change provides pivotal information for teachers to better plan their lessons, provides teachers with a product for better assessing and reporting and allows teachers to nudge students to deeper number sense and understanding. Come find out the small tweak that makes a big impact!	K Pri Jun

R1.06	Making Squares with Sphero	Cristina De Simone, Heather Bourrie	<p>Robots engage students because they bring to life the concepts explored in math class. Codable technology is responsive to user action which means that students get immediate feedback that is visual and non-evaluative. Sphero is a spherical-shaped robot programmed by block code and develops students' computational thinking and spatial reasoning simultaneously.</p> <p>Participants explore:</p> <ul style="list-style-type: none"> <li>· How to make a square with a Sphero; discuss benefits</li> <li>· Brief overview of the literature that discusses the benefits</li> <li>· Lesson that focuses on the four phases of computational thinking:               <ol style="list-style-type: none"> <li>(1) unplugged; discuss what are the properties of a square</li> <li>(2) tinkering; learning basics of Sphero (e.g., where can the variables be found, what do different things do)</li> <li>(3) making; write code to make a square with Sphero</li> <li>(4) remixing; after coding a Square, how could we adapt this to be something different (e.g., a triangle, pentagon)</li> </ol> </li> <li>· Issues of equity and accessibility relating to robots and computational thinking</li> </ul> <p>The digital divide has been long understood as a problem in math education. Students who have access to technology at home tend to have higher scores in math, reading, and science. We will extend this discussion to how teacher development can enhance equitable access to technology. We propose that when students use robots like Sphero in math, the digital divide is diminished and math learning is more equitably enhanced.</p>	Jun Int
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### Friday, May 21

F1.01	Screen Free Coding for Early Years	Bogdan Pospelovsky, Iain Wallace	<p>You don't need a screen to teach coding. Sequencing, pattern rules, abstracting directions, illustrating relationships -- this session will demonstrate tools, robots, games and resources to aid instruction of key coding expectations without screens for K-2 learners. We'll look at Coding Buddies and other physical activity games; DUPLO/LEGO coding sets, marble runs and other builders; Sudoku, Pantomino and other patterning games; plus screen free robots like Bee Bot, Cubetto, Botley and the LKG Early Coding Kit.</p> <p>This session is presented by Louise Kool and Galt and will be pedagogical in nature, not a sales promotion.</p>	K Pri
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F1.02	Inspiring Mathematical Thinkers	Kit Luce	We know that students often experience difficulty solving multi-step and complex word problems. This session will explore ways that educators can help students develop the ability to think flexibly and critically in math. Come learn instructional strategies that will help students become critical mathematical thinkers who make sense of problems & make decisions based on that understanding. Participants in this workshop will learn and practice instructional methods that will help students make sense of a problem, make decisions about what to do with the numbers in the problem, and follow through with a plan that leads to a reasonable solution. We will explore how to adapt existing problems, and how to create new problems that can be used immediately in the classroom.	Pri Jun Int
F1.03	Developing Curious Math Learners in Kindergarten and Grade 1	Wilma Sonneveld-Wright	<p>The use of Provocations in mathematics can spark interest, create wonder and inspire deeper thinking about important math concepts. Whether play or activity-based, Provocations encourage children to build understanding and share their learning with others.</p> <p>In this session:</p> <ul style="list-style-type: none"> <li>- Learn how to structure the learning environment to support effective Provocations</li> <li>- Unpack misconceptions about play-based learning</li> <li>- Explore the role of a Math Talk in developing problem-solving strategies</li> </ul> <p>This session is presented by Nelson Publishing and will be pedagogical in nature, not a sales promotion.</p>	K Pri
F1.04	La corde à linge mathématique or clotheslinemath	Frédéric Ouellet	Introduite par Chris Shore, reprise par Andrew Stadel et Daniel Luevanos, la corde à linge fait un malheur partout où elle passe! Vous verrez comment exploiter la corde à linge dans une classe de mathématique. Tout y passera! Les nombres, fractions et pourcentages, mais aussi l'algèbre et la résolution d'équations algébriques. La corde à linge est utilisée dans plusieurs classes du Québec afin de permettre aux élèves de développer leur sens du nombre à travers les concepts mathématiques. Vous verrez qu'étendre n'aura jamais été aussi amusant!	Pri Jun Int
F1.05	Equity through Structured Inquiry	Caroline Kim	<p>Approaching math instruction through Structured Inquiry ensures that every student has a chance to succeed and access math concepts, and that every child's active engagement with the math provides immediate feedback to teachers who make powerful decisions for deeper student understanding.</p> <p>This session is presented by JUMP Math and will be pedagogical in nature, not a sales promotion.</p>	K Pri Jun Int

F1.06	Fractions in Elementary Math: Lessons from the OAME/AFEMO project	Ross Isenegger, Kit Luce	OAME and AFEMO have had teams of classroom teachers writing new lesson and assessment plans for Ontario teachers since the revised elementary curriculum was released in 2020. In this session, your hosts will provide an overview of how to support your students to meet the new Fractions expectations found in the Number strand, and we will walk you through some of the highlights of the resources that have been produced for these expectations. Since all resources are available in English and in French, presenters will attempt to answer your questions in either language.	Pri Jun Int
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