



"2017: A Prime Year For Mathematics"

THE ANNUAL FALL MATHEMATICS CONFERENCE OCTOBER 20-21, 2017

EDMONTON MARRIOTT at RIVER CREE RESORT

300 East Lapotac Blvd

Edmonton, Alberta

Sessions at a Glance

FRIDAY SESSIONS

9:00 a.m. – 10:15 a.m.

Keynote: Michael Pruner

10:30 a.m. – 11:30 a.m.

Ed Camp Sessions (Various Facilitators)

1:00 p.m. – 3:15 p.m. [Double Length Sessions]

Building Thinking Classrooms - Elementary Level

Presenter: Annette Rouleau

Audience: K-3, 4-6

Designed as a complement to the keynote, this session delves into Building Thinking Classrooms at the elementary level. Participants will engage in problems worth solving - problems that encourage thinking, perseverance, collaboration, and risk-taking. We will have the experience of working at vertical, non-permanent surfaces, on rich tasks, and in collaboration with others - a few of the necessary elements for building a thinking classroom.

Experiencing a Thinking Classroom

Presenter: Michael Pruner (Keynote)

Audience: 4-6, 7-9, 10-12

In this session we will learn first hand what it is like to be a student in a Thinking classroom. Come prepared to think, collaborate and communicate as we work together through some of my favourite math tasks. I will share anecdotes and strategies that I have learned over the years that will help in managing and maintaining the Flow of a thinking classroom.

Renaissance Revival Connecting Math and Art

Presenters: Darin Trufyn & Patricia Krumins

Audience: 4-6, 7-9, 10-12

Are you looking to make connections in Math class? Are you looking to make connections in Art class? If the answer is Yes "squared" then this session has been designed for you! Participants will be taken on a "connected" journey of activities that will promote a united front for these different yet powerfully linked disciplines. Our goal is to provide a "new birth" or energized view of how we can activate and engage our students in learning these wonderful subjects.

1:00 p.m. – 2:00 p.m.

Can it be achieved differently?

Presenter: Renée Michaud

Audience: 7-9

This session aims to try different activities that engage students other than by paper and pencil.

Different ways of using these activities will be discussed. Bring your thinking hat!

Note: The activities will be made available electronically for all participants in this session.

Future Math Curriculum Development

Presenters: Jan Olson & Diane Stobbe

Audience: General

Are you curious about where Alberta is with the development of future curriculum? Are you interested in being involved in future curriculum development? We want the best curriculum to meet the needs of future Albertans. Presenters will summarize the curriculum development process and tell the story of all of the lessons that were learned along the way.

Mindful Work: Increase Focus and Manage Stress

Presenter: Trish Huston

Audience: General

This interactive presentation will teach participants about the powerful research behind mindful practices, the benefits they can receive, and tangible takeaways to practice better focus in your workspace. Participants will feel empowered to reduce workday stress, increase energy and positivity, and become more efficient with their time. Trish will share the transformative benefits of simple mindful practice: from being more focussed and efficient in our work, kinder in our relationships, to experiencing less stress and burnout on a daily basis.

Success with Subtraction: These ideas make the difference! K to 3

Presenter: Geri Lorway

Audience: K-3, Teacher Education

In this highly engaging, hands on session we will explore a series of tasks, problems and practice cards that focus on incorporating an understanding of subtraction into all the work we do with number in the early grades. The activities are differentiated to demonstrate how one concept can be "grown" across the primary grades. The focus is actively and deliberately integrating comprehension, critical thinking and imagery for number into everything we do in primary math. Ideas to try on Monday? You bet.

Teaching Mathematics with Open Tasks

Presenter: Nat Banting

Audience: 7-9, 10-12

One of the staples of reform in math instruction has become the mathematics task. Although it seems obvious that a good lesson begins with a good problem, less is said about how teachers can operate within the (seemingly) endless possibility of an open task. In this session, we will work with a number of open tasks, and, from the collective experience, discuss the attributes of an open task, affordances of using open tasks in math class, and ways in which the teacher can focus their action to get the most out of an open task.

2:15 p.m. – 3:15 p.m.

Comment y arriver autrement?

Presenter: Renée Michaud

Audience: 7-9

Cette session a pour but de vivre des activités qui engagent les élèves différemment que par le papier et crayon. Une discussion sur l'approche et la différenciation s'ensuivra. Les activités seront disponibles électroniquement pour tous les participants de cette session.

Formative Assessment Integration Made Easy

Presenter: Darryl Marchand

Audience: 7-9, 10-12

Using TI-Navigator Learning technology, teachers can integrate formative assessment tools to engage students and monitor learning. Teachers can create activities that let students explore, discover and investigate math in multiple ways. Participant prizes awarded.

Hands on Activities in High School Mathematics Classrooms

Presenter: Darcy Bundy

Audience: 10-12

Too often we get caught up in the algebra when it comes to higher level mathematics. We forget that even our most advanced learners need to explore patterns in interesting, hands-on ways. In this session, we will build recognizable graphs, make statistical inferences, and complete familiar calculations that result from active participation in measurement activities.

How Do You Teach Recall of Facts?

Presenter: Geri Lorway

Audience: General, Teacher Education

Techniques and tasks for teaching students how to remember and actively recall number facts that are differentiated to adapt to the skills and abilities of students across a span of developmental levels. Each grade, beginning from Kindergarten, plays a role in teaching students how to build visual spatial memory connections that support webs of interrelated number facts and how to retrieve and apply those facts during practice and problem solving events. This work is based on a research-based simple continuum that begins with teaching students how to practice to improve their thinking, then introducing the specifics that we want them to learn for recall. If we want students to recall and apply facts, we must teach them how to learn for recall first.

Twenty-Three Terrific Teaching Tips for Priming you and your Learners for Learning

Presenter: Roger Moore

Audience: General, Teacher Education

Three Cornered Cards, One Minute Feedback, Beach ball and Sharpie, One Not Like the Others and 18 other Terrific Tested Teaching Tips will be covered and practiced during this fast-paced intense colourful workshop. As well, your best Teaching Tip will be explored, coloured and shared. Be more ready for the classroom on Monday!

SATURDAY SESSIONS

9:00 a.m. – 10:15 a.m.

Keynote: Sunil Singh

10:15 a.m. – 12:30 p.m. [Double Length Sessions]

The Rabbit Hole of Mathematics

Presenter: Sunil Singh (Keynote)

Audience: General

Where do we find mathematical awe and wonder? Usually it comes when we are surprised or feel illuminated by deeper connections to numbers. This usually means falling down the rabbit holes of mathematics! In this presentation, I will share mathematical problems, ideas and thoughts that have had the strongest resonance in my teaching career, and have resided in these secret/mysterious "holes". Number puzzles and theory(which provide the best Number Talks), logic mazes and deeper look behind Exploding Dots(The Global Math Project) will be some of the activities that teachers will examine in this 2 hour session.

10:15 a.m. – 11:15 a.m.

Enhancing teaching practice through systematic variation

Presenter: Paulino Preciado

Audience: K-3, 4-6, Teacher Education

In the Math Minds Initiative we have observed how attention to critical features and continuous assessment during class, combined with teachers' immediate in-class responses, impact students' mathematics learning. This session will focus on the development and use of an observation protocol as a tool for teachers' professional learning.

I <3 Desmos!

Presenter: Stephanie Gower

Audience: 7-9, 10-12

Desmos is a web-based graphing program - and so much more! With it you can create graphs of almost anything, art that is dynamic, and activities that will engage your students in deep mathematical learning. Desmos is also a collection of activities created by a community of teachers just like you. I'll show you some of the common Desmos activity types, and talk about how I find, make, and use them in my classroom.

"Leveling Up" Your Lesson Plans for Effective Teaching

Presenter: Stephanie MacKay

Audience: 10-12, General, Teacher Education

Leveled lesson plans offer learners the ability to calibrate understanding with expectations and, at the same time, shows the path to the next level that may improve learning and teaching. Break the concepts up into 4 levels and then use assessment to inform learners where they are on the learning spectrum, where the targets are, and how to level up. Sample lesson plans and resources will be provided.

Math Games: The Good, The Bad and The Ugly

Presenter: Monica Williston

Audience: K-3, 4-6, 7-9, 10-12, General

Do you find that some games excite while others distract? Are some games effective at teaching while others miss the mark? Come to engage in a variety of math games. Discuss and learn how to adapt games to use on Monday.

Memory Through Meaning

Presenter: Jamie Fraser

Audience: K-3

Fluency grows from roots firmly embedded in number sense. We will take a walk through the landscape of early number (subitizing, hierarchical inclusion, compensation and equivalence, unitizing and more) stopping to watch videos, read books, play games and investigate visual tools to discover the foundational ideas learners need to be confident problem solvers, flexible in their use of mental computation.

Struggles in Math: Postcards from Students

Presenter: Stephanie Smith

Audience: 7-9, 10-12

Struggles in math can be thought of as either productive or destructive. I conducted a study in which Math 10 students from an Alberta High School were asked about their struggles to learn math. They had much to say about how it felt to struggle, why they thought they struggled, and what helped. The intention of this session is to share some of these students' experiences with others and discuss both what students are experiencing and how we might better help them learn math. I would like to hear from teachers what they have heard from students, so that together we may gain a better understanding of what it is like to struggle in math.

Viral Math: Treating the Infection

Presenter: Ilona Vashchyshyn

Audience: General

People love to argue on the Internet, including—somewhat surprisingly—about mathematics. In this session, we will tackle some “viral” math problems, then consider what messages about mathematics are perpetuated by viral math posts and how they are related to common beliefs and misunderstandings about the nature of mathematical knowing and learning. Participants will then be invited to work together on a (non-viral) mathematical task and, in reflecting on the experience, consider how negative beliefs about mathematics may be challenged in our own classrooms.

11:30 a.m. – 12:30 p.m.

Conceptual or Procedural: Which Comes First?

Presenter: Elaine Simmt

Audience: 7-9, 10-12

Using powers and radicals teachers will explore the question: Which comes first—teaching for conceptual understanding or procedural fluency? In this session we will consider this dilemma by reference to the research literature, reflecting on professional practice, and working on mathematics for teaching.

"Deep understanding" in school mathematics

Presenter: Richelle Marynowski

Audience: K-3, 4-6, 7-9, 10-12, General

One of our goals for mathematics education is the development of 'deep understanding' for our students. But what does that really mean? What does that look like in a classroom? How does one assess 'deep understanding'? These questions will be explored with participants in an interactive session.

Exploring Big Ideas in Math Through Stories (K-3)

Presenter: Ulana Soletsky

Audience: K-3, Teacher Education

Stories present a rich medium through which children can explore the Big Ideas of Math. They are particularly powerful when linked to a continuum of learning that reflects the way in which children develop mathematical concepts. This session will explore how primary educators can select stories and associated activities that engage children at just the right level, allowing them to consolidate mathematical concepts already learned and move forward with new understanding. It will present ideas on how stories can engage children in a wide range of mathematical ideas, thinking and activity, in a variety of real-world and imaginary contexts.

Note: The presentation will reference the math learning progression behind the development of Pearson Canada's Mathology Little Books.

Exploring the Connections between Math and Citizenship Education

Presenter: Michelle Hawks

Audience: General

When the question of talking or teaching about citizenship comes up in curriculum, there is never any doubt that the concept and perception can be explored in Social Studies and English/Language Arts classes in schools, but what about Math class? This interactive session provides a place for teachers to explore the connections between math and citizenship through activities designed to unravel what citizenship means and how math connects to these understandings.

The importance of this topic is derived from the Algebra Project's founder, Bob Moses (2001) who said that "in today's world, economic access and full citizenship depend crucially on math and science literacy" (p. 5, emphasis added). Yet we as teachers often assume a natural progression of topics and have a normal expectation that not all students can or will succeed in math in schools. In this workshop, we will explore the ways in which stereotypes around who is seen to do and achieve in math impact the teaching and learning of math and how we can move beyond these stereotypes in our classrooms.

It Is Math Time; Do You Know Where Your Children Are?

Presenter: Todd Webber

Audience: K-3, 4-6

Research has shown that teachers' knowledge of their learner's, and where they are on their learning journey, represents one of the greatest influences a teacher can have on student achievement. This session provides teachers with tools they can use to identify and understand where students are on their math journey. Based on research about how students learn mathematics, these tools will provide teachers with the ability to pinpoint where their learners are on their own developmental trajectory, identify gaps in student learning, plan for instruction, and explore strategies to meet and teach all students from the student's own appropriate starting point.

Supporting English Language Learners in the Math Class

Presenter: JJ Kennedy

Audience: 4-6, 7-9, 10-12

For many educators, bringing language and math instruction together can be a challenge. Many math teachers who don't see themselves as language instructors are now responsible for providing effective math instruction to ELLs. It is crucial for students to understand math vocabulary and have ample opportunities to use it. Solving word problems, following instructions, understanding and using mathematical vocabulary correctly — all of these skills require language proficiency and rely upon a firm understanding of basic math vocabulary. In this session, participants will gain tools and strategies regarding the importance of language acquisition, building background knowledge, increasing student language production, and explicitly teaching academic language.

What's in a Mathematics Lesson? Explore the "Essential 6"!

Presenter: Lorelei Boschman

Audience: K-3, 4-6

What are essential elements of a mathematics lesson? We've heard of the "Daily 5" in Language Arts but what are the "Essential 6" in Mathematics? In this session we will explore and experience the "Essential 6" through hands-on and interactive practical examples that you can implement in your classroom immediately. Some of the examples will be presented in an "open ended" question format to also explore using these types of questions in the elementary mathematics classroom.