



# Saskatchewan Mathematics Teachers' Society

## SUM Conference 2018 Session Descriptions

### Friday

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#### Keynotes

**Lisa Lunney-Borden - *The Role of Mathematics Education in Reconciliation***

**Mary Bourassa - *Planting the Seeds of Change***

#### Two hour featured sessions

***My Elders were Mathematicians Too: The Value of Culturally Based Inquiry***  
**Lisa Lunney-Borden (St. Francis-Xavier University)**

Lisa will share the story of Show Me Your Math, a program that invites Indigenous students in Atlantic Canada to explore the mathematics that is inherent in community ways of knowing, being, and doing. She will share the history of this program, how it has changed over time to focus more on inquiry, and how it might be developed in other regions. We will explore examples of projects that have been completed, examine the benefits of these projects and discuss how such projects help to restore, reclaim, and return community knowledge that has been eroded by colonialism.

***Getting the Most Out of Desmos***  
**Mary Bourassa (Ottawa-Carleton School District)**

Learn what principles are used to build great Desmos activities and what teacher moves can help you get the most out of your lesson. We will work through an activity together that will allow us to discuss pedagogy along with the “look-fors” of the lesson and you will see how to effectively use the teacher dashboard. We will then consider the tools available when creating your own Desmos activities including Marbleslides! \*\*\* Bring your own laptop/tablet \*\*\*

***Mathematical Awareness and Spatial Reasoning***  
**Alayne Armstrong (University of Regina)**

Ever think about what you're thinking about when you do mathematics? Ever wonder where diamond-shaped Shreddies came from? Or why your kindergarten students keep arguing with you that this shape 6 is not a triangle? In this session, we'll consider the nature of mathematical awareness and how you can work with tools and activities to help your students develop their spatial reasoning.

***Counting Circles - A Number Routine to Address Numeracy***  
**Sadie Estrella (Illustrative Mathematics)**

Students need daily practice playing with numbers in order to build number fluency. A number routine, like counting circles, provides a safe environment for students to engage in mathematical discussions and build numeracy strategies. Come learn about counting circles and get started planning how to sustain this daily routine in your classroom. Come learn and be prepared to start planning your first counting circle.

## **Presentations**

***Asking and Assessing Higher-level Thinking Questions in Gr. 6 - 12 Math***  
**Stephen Vincent, Jonathan McKee (Saskatoon Public School Division)**

Are your students able to solve questions but still don't understand what they are doing or why they are doing it? By asking higher-level thinking questions, we disrupt student's thinking in order for them to apply the mathematical processes, including problem solving in new situations and reasoning. Multiple examples of higher-level thinking questions from various grade levels will be presented and analyzed, as well as simple ways to create and implement them. Further, we will share models that attempt to assess students' level of thinking within the mathematical processes.

***From Creative Expressions to Algebraic Expressions***  
**Lana Steiner (Good Spirit School Division)**

A new twist on an old topic! Experience how one teacher introduces patterning and algebra by engaging students' creativity and imagination. See how students' creative expressions are then morphed into algebraic expressions. The activities presented in this session are 'low floor, high ceiling' and address the need for differentiated learning in the classroom. This is a hands-on, interactive session full of fun!

***Play to Learn! As Books are to Literacy, Play is to Mathematics***  
**Jennifer Brokofsky (Saskatoon Public Schools)**

Play may be the single most important element of mathematical learning for children. We will explore some of the reasons why play can be a powerful vehicle for learning and ways we can create opportunities for students to play with mathematical ideas, language and materials in the classroom. Come and play as we learn and think together.

***Truth and Reconciliation: Building Relationships in the Mathematics Classroom***  
**Claire McTavish, Kelley Cardinal (Greater Saskatoon Catholic Schools)**

The Truth and Reconciliation Calls to Action challenge us as educators to close the educational gap between Aboriginal and non-Aboriginal students. In this session we will explore how our social positioning affects the ways in which we view and interact with our students. We will share culturally responsive and relational teaching strategies that lend themselves to building relationships in your math classrooms.

***Creating Math Supports for Saskatchewan Teachers***

### **Lisa Eberharter (Saskatchewan Ministry of Education)**

A former division math coach and a classroom teacher will present how our school has sorted students into ability groups from grade three to eight, what it takes to get there and why we believe this is helpful. We will then take you through the daily rounds which will include how we use flexible grouping, interactive journaling, number talks and technology.

### ***The Benefits of Using an Instructional Guidance System in Mathematics Class (NELSON)***

**James Francis**

A new category in technology is emerging that combines formative assessment with real-time instructional supports. See how it is being used in the mathematics classroom and its implications for supporting math success at a system level.

## **Saturday**

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### **Two-hour featured sessions**

#### ***Our Ways of Knowing: Teaching Math with Verbs and Space***

**Lisa Lunney-Borden (St. Francis-Xavier University)**

Lisa will share a model for considering ways in which Indigenous languages, community values, ways of knowing, and cultural connections can impact mathematics learning for Indigenous learners. Participants will go more deeply into the pedagogical implications of this model that are linked to the ways of knowing that emerge from an understanding of the structure of Indigenous languages. We will engage in tasks that highlight the value of verbifying and spatializing mathematics teaching and learning. Examples will be drawn from Kindergarten to Grade 12 to highlight how these approaches span all levels.

#### ***Rethinking Math Class***

**Mary Bourassa (Ottawa-Carleton School District)**

How do you move toward a math class based on collaboration, taking risks and productive struggle? How do we foster student engagement? What warm up activities will improve number sense, develop a growth mindset and get students thinking about math? What are the advantages of spiralling a curriculum? What activities hook students and make them want to do the math? What tools help deepen student understanding? How do we ask better questions? In this session, strategies will be shared to help set up a culture in your classroom that allows students to engage in the mathematics in a meaningful way. You will also get to try out fun activities and see the power of Desmos.

## ***Are Two (or More) Heads Really Better than One? Learning in the Mathematics Classroom***

**Alayne Armstrong (University of Regina)**

What do performing mathematics and the t.v. show “Whose Line Is It Anyway” have in common? Should you be concerned that the group of kids in the back of room who are having a philosophical discussion about birthday presents? In this session, we will engage in tasks and discussion to explore consider group learning processes and the development of collective mathematical understanding.

## **Presentations**

### ***Mathematical Stories***

**Gale Russell (University of Regina), Webster Fox**

At the last meeting of the Reclaiming, Revisioning, and Reconciling of School Mathematics group, an exciting synergy of stories and ideas related to measuring flowed throughout our discussions of how to address our three Rs of School Mathematics. In response to that experience, a few of us took on the task of capturing those stories of measuring in writing, or other forms, in the hopes of providing a resource not only for teachers to use in their mathematics classrooms, but to expand upon based upon their own students' and communities' experiences, memories, and stories. During this session we would like to share the stories we have collected thus far, add to the collection as participants see fit, and discuss how this collection, and others like it, might be disseminated to and used by teachers, students, and communities.

### ***Bringing Live Data in to the Classroom: Increasing Interactivity and Promoting Computational Proficiency***

**Michael Lamoureux, Byron Chu (Callysto)**

In this session, we will show attendees how to enhance teachers' and students' data analytics and computational skills in the Grade 5-12 classroom using Jupyter notebooks ([www.jupyter.org](http://www.jupyter.org)). We will demonstrate Math, Science and Social Science learning modules developed in the Python programming language ([www.python.org](http://www.python.org)) as part of the Callysto project ([www.callysto.ca](http://www.callysto.ca)). A focus area of the session will be to showcase how connecting to live, open data sources can be done easily in Jupyter notebooks in order to create interactive and current classroom content. This presentation will be self-contained, and does not assume any programming experience.

### ***When you have 20 fun minutes: The Subtraction Game and Beyond***

**Gary Au (University of Saskatchewan)**

In this talk we will look into the subtraction game, which is a classroom activity that is versatile enough to be implemented in any classroom from grade 1 to 12, and touches on a wide range of mathematical ideas from simply practising subtraction and division to deductive reasoning and even binary numbers! We will discuss the ground rules of the game, various extensions suitable for different grade levels, and strategies of implementing this activity.

***Your Digital Curriculum Connection for Teaching Math (PEARSON)***  
**Gerry Varty**

Teaching Mathematics has never been so challenging yet so rewarding! More so now than ever it is critical to help teachers plan for success in early Mathematics, while engaging young students in seeing themselves as confident, capable Mathematicians. With the help of educators across Canada, Pearson is developing a Mathematics platform that will support teachers as they search for engaging, appropriate lessons, plan for success, assess and track student progress more easily and enjoy in the moment professional learning from respected Mathematics experts. Join National Mathematics Consultant Gerry Varty as he shares Mathology.ca, Pearson's new digital platform that supports and extends Pearson Mathology K-9.

**Panel – TBA**

As you come up with questions leading up to and during the conference, you can post them on Twitter using #SUM2018. You can also bring them to the Panel session and ask them in person.

Panel members include:

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Moderator: Michelle Naidu