

Session Descriptions

(updated June 23)



BC Association of Mathematics Teachers Fall Conference
October 25, 2019, Guildford Park Secondary School, Surrey

Sessions are listed with applicability to all grades first, and then in grade-level order from Primary to Senior High.

Sessions applicable to all grade bands

Cryptography: Code Cracking Through The Ages

Anu Bal, Tamanawis Secondary School

Grade Band(s): All Grades

Secrets and coded messages, wars and cyber security. For centuries, the human race has relied on mathematics to help secure its most valuable information and assets. In this session, we will investigate the connection between mathematics and coded messages that has fascinated civilizations for centuries.

Exploring Similarities and Differences: Teaching and Learning Elementary Mathematics in China

Leslee Francis Pelton, University of Victoria

Grade Band(s): All Grades

What can we learn from examining the teaching and learning processes in typical Chinese (Shanghai) mathematics classes? We will share our experiences working with students and teachers in China, present examples of authentic classroom instruction in Shanghai, engage participants in a discussion on the apparent similarities and differences, and identify areas where further exploration and collaboration may be helpful.

All for One, and One for All?

Pamela Hagen

Grade Band(s): All Grades

Curriculum change can be disruptive and disconcerting for teachers and students alike. New and reoriented ideas and practices can lead to both further enjoyment and engagement for teachers and students. Ideas for planning, lessons and assessment that embraces an outlook for ALL will be suggested. Bring your questions!

What is a "Sandwich Unit"?

Kathleen Jalalpour, Keys School

Grade Band(s): All Grades

What if we designated one skill a year as “indispensable?” How would we guarantee that all our students move on to the next grade with good mastery of at least that skill? Our answer is what we call “sandwich units.” Start the most important concept early in the school year. Use concrete investigations and games, withholding the algorithm. Go on to other units as usual, but keep touching on that vital concept for weeks or months, using puzzles, investigations and challenges. Finally, in the spring, offer the algorithm as an alternative, and finish the year with practice at the abstract level. Come with questions!

Introduction to a Thinking Classroom

Peter Liljedahl, Simon Fraser University

Grade Band(s): All Grades

We know that problem solving is an effective way for students to learn to think mathematically and to develop understanding of the mathematics they are learning. However, the infusion of problem-based learning into the mathematics curriculum does not help with the transformations we want to see in our classrooms. What we need are a set of practices that, along with good problems, can build a thinking classroom. Through modelling and deep engagement, we will unpack the basics of the Building Thinking Classrooms framework. This session is for teachers new to the Thinking Classroom framework.

Thinking Deeper about the Thinking Classroom

Peter Liljedahl, Simon Fraser University

Grade Band(s): All Grades

In this session teachers will explore the deeper dimensions, implications, and innovations of the Building Thinking Classrooms framework. This session is for teachers who are already implementing the Building Thinking Classrooms framework as their primary mode of teaching.

Integrating Ethnomathematics in Your Math Class

Nikki Lineham, Educating Now

Grade Band(s): All Grades

This session will provide a short overview of ethnomathematics and where it is found in our BC math curriculum. We will explore hands-on activities and strategies that will better allow us to teach the culturally diverse students in our classrooms. We will also explore different world-views, including indigenous world-views as a way of better understanding the First Peoples Principles of Learning in math education.

Exploring Tessellations and Discovering Them in Coast Salish Art

Petra Menz, Simon Fraser University

Grade Band(s): All Grades

We introduce tessellations by first taking a historical view of how humankind became attracted to this form of dividing a plane. In groups, we will explore how triangles, quadrilaterals, and other polygons can tessellate the plane and what symmetries (translation, rotation, reflection, glide-reflection) some tessellations exhibit. Through these activities pertinent terminology and mathematical notations are introduced. We will then have a look at the work of Coast Salish artist Qwul'thylum (Dylan Thomas).

Students Can Consolidate and Demonstrate Their Understandings by Creating a Simple App-Based Game

Tim Pelton, University of Victoria

Grade Band(s): All Grades

We have created an app that supports the development of conceptual mastery and fluency through creating and playing matching games. The greatest potential for this tool is realized when a teacher can engage students in creating their own matching games to consolidate, represent and demonstrate their conceptual understandings. In this presentation we will demonstrate the process of designing and creating cards, card sets, and game decks. Once the game deck is completed it can be shared (email, website, or direct) to support others in their ongoing efforts to build mastery, accuracy and fluency using MathTappers: MultiMatch (a free iPad app).

Games and Puzzles K-12

Leanne Pruner, Ridgeview Elementary School

Grade Band(s): All Grades

Playing games and solving puzzles are a great way to improve engagement, develop positive classroom culture and develop mathematical thinking in your students. We have found that when the same games and puzzles are given to elementary level through to senior secondary mathematics, the complexity of the mathematics discovered may be different, but the energy and positive affect that students demonstrate is the same. In this workshop we will share our experiences with a number of these puzzles and games and the mathematics that students have developed through them.

EXHIBITOR SESSION: Using Simulations to Support Computational Thinking in Your Classroom

Holly Ralph, ExploreLearning

Grade Band(s): All Grades

In the digital age, computational thinking is an essential skill for students and educators alike. This systematic approach to solving problems is at the foundation of math and science, not just computer science. Join us for this session where we'll discuss how computational thinking can support student success in math and science through the use of online interactive simulations like Gizmos.

Math Pop-ups: Bringing Math into Communities

Lindsay Reynolds, UBC

Grade Band(s): All Grades

When you hear about a “pop-up” you probably think of a sneaker line offering a limited-time pop-up shop or a temporary art exhibit. But what if mathematics could be offered as a pop-up experience? In this presentation, we will share our experiences creating “Math Pop-ups” in community spaces, such as the library, school, or the mall! “Math Pop-ups” offer hands-on mathematics to community members of all ages and make math accessible to everyone. We will share some feedback we have received in our efforts to bring math into communities and offer suggestions for how to get started hosting your own “Math Pop-up” in your school or community.

Mathematics of All

Nathalie Sinclair, Simon Fraser University

Grade Band(s): All Grades

The vision of “math for all” challenges an elitist view of mathematics as only for the deserving few. But in pursuing a more humanistic, universally accessible approach to mathematics education, “math for all” stands on as strident a counter-claim—that we “all” really need mathematics to live/succeed/survive in this world. What if this was not the case? How would that affect the way we teach mathematics? In this talk, I will describe some of the pressure points that prop up both sides of these positions. I will also propose some ideas for a “mathematics of all” that both acknowledge and avoid the problematic nature of each extreme, and that strive towards a less western, ableist and utilitarian conception of mathematics.

Assessment in a Thinking Classroom

Rebekaah Stenner, Mission School District

Grade Band(s): All Grades

Thinking Classrooms is a framework for teaching developed by Dr. Peter Liljedahl, that has been implemented in classrooms across the country and internationally. I have been learning about and implementing this framework both in my own classroom and in my district. With BC's new curriculum being enacted in a thinking classroom, traditional assessment practices don't seem to align. In this workshop I will share some strategies for assessing both the curricular competencies and content.

Place, Story, Culture

Max Sterelyukhin, Southridge School / SFU

Grade Band(s): All Grades

While working on the Ministry of Education Video Project trying to highlight the new mathematics curriculum and its potential ways of implementation, we decided to work on the First Peoples curricular competencies. We were inspired by the idea of bentwood boxes and how they are constructed. This gave us an opportunity create two threads of learning: one for the teacher as learner and one for the students as learner. We will discuss and share our ideas, stages of implementation, and what we learned from this wonderful experience!

"You Expect Me to Remember THAT?"

Phil Stringer, Crofton House School

Grade Band(s): All Grades

As a math teacher, I often hear students complain that I expect them to remember something from a past class (or unit! or year!). This session is intended to help teachers (and students) understand how we learn, specifically how memory and learning are interconnected. We will connect a summary of the latest research in cognitive psychology as it relates to memory and learning with some practical take-aways that you can use next class. Learn how retrieving, predicting, interleaving, mixed practice, and the testing effect can help students remember concepts and improve understanding in your class.

Arguing Constructively in Math Class

David Wees, Paperless Math

Grade Band(s): All Grades

Have you ever wanted your students to argue in math class? Do you wish your students were better at constructing and critiquing mathematical arguments? In this interactive workshop, you will experience a new instructional routine called Sharing Skepticism which is designed to inclusively develop ALL students' ability to argue. Participants will unpack and critique the routine collaboratively and then prepare to enact the routine themselves.

Addressing Diversity Through a Framework for Balanced Numeracy

Debbie Nelson, Comox School District

Grade Band(s): All Grades

How might a framework of balanced numeracy help teachers to address and respond to diversity in learning, instruction, and assessment? Members from the BC Numeracy Network will share their teacher resource for creating a balanced numeracy program and address opportunities and challenges related to diversity in learning through the lenses of the six components: foundations, assessment, connections, environment, instruction, and engagement.

Sessions organized by applicable grade band

Differentiating So that All Your Class Learns and Has Fun in Math

Stella Fleming, Lighthouse Christian Academy

Grade Band(s): Primary

Come and discover a myriad of ideas that can be used to differentiate in math so that all your students are learning while having fun, meeting the learning standards, and being engaged. This workshop will be hands-on. Activities are based on ideas that my own students have devised.

EXHIBITOR SESSION: Setting Your Kindergarten Students Up for Math Success

Leanne Pruner, Nelson Education Ltd.

Grade Band(s): Primary

It is said that “all you really need to know you learn in Kindergarten.” With this in mind, explore how to set your kindergarten students and classroom up for math success! This workshop will cover best practices for setting up your play-based classroom, provocations in learning spaces, math talks, differentiated instruction, developmental learning, assessment and teaching strategies, ready to use provocation samples and activities will be provided to try in your classroom.

EXHIBITOR SESSION: Spatial Reasoning in the New Math Curriculum

Diane Stang, Scholastic Education

Grade Band(s): Primary

Research shows that spatial reasoning is critical to mathematical thinking, and better predicts future math success than verbal and math skills. It also plays an integral role in the new math curriculum. It is therefore crucial to emphasize spatial reasoning and visualization in the primary grades. This practical, hands-on workshop offers a fascinating overview of spatial reasoning, with simulations to explore your own spatial reasoning abilities. It also offers a wide variety of spatial reasoning and visualization activities that support the curriculum and can immediately be integrated into existing math programs.

EXHIBITOR SESSION: Balanced Instruction

Diane Stang, Scholastic Education

Grade Band(s): Primary

This workshop for primary teachers focuses on practical ways to deliver balanced instruction, which includes problem solving, math talk, strategies for achieving computational fluency, and meaningful practice. It also includes specific examples on making math relevant to students' lives by connecting across the different areas of math like number, spatial sense, and patterns and to other subject areas, such as literacy and science.

Building Resiliency and Engagement Through the Use of Daily Math Number Routines Using 10 Frames and Quick Images

Neva Whintors, Fraser Wood Elementary School

Grade Band(s): Primary

Using 10 Frames and Quick Images as part of our weekly math warm up routine we can support primary students in thinking flexibly about numbers, develop and use multiple strategies in problem solving, and communicate and reflect on mathematical thinking in many ways. There are multiple ways of approaching a mathematical problem and through daily number routines, students build confidence to find relationships, explore their sense of mathematical reasoning and problem solving. Daily number routines provide students with consistent opportunity to 'bump' into numbers while they are being scaffolded through facilitated discussions.

Reggio Mini-Conference

Note: Separate registration required to attend sessions

The Math Studio

As part of the Reggio-Inspired Mathematics Mini-Conference, one room will be set up for conference attendees to pop by and visit to engage with materials and ideas, have a look at resources and books and chat with teachers involved in our project.

Reggio-inspired Mathematics: Spatial Thinking in the Early Years

Laura Fee, West Vancouver School District

Grade Band(s): Primary

Join Laura, Sonia and Megan and explore the importance of embedding spatial and geometric thinking in the early years (and beyond). Together, we will review some of the activities and concepts from the resource, *Taking Shape* (Moss et al. 2016), including topics like symmetry, composing and decomposing 2D and 3D objects, and perspective-taking. We will also explore hands-on, practical ways to embed spatial thinking into outdoor, place-based learning.

Reggio-inspired Mathematics: Math Explorations in Kindergarten

Alana Tesan, Delta School District

Grade Band(s): Primary

Join Alana and Vanessa in exploring and provoking the possibilities that exist for kindergarten students to play with, explore, and demonstrate their understanding and thinking about mathematical ideas through the use of loose parts, nature, art, and manipulatives.

Reggio-inspired Mathematics: Using Math Materials to Play with Mathematical Ideas

Sandra Ball, Surrey School District

Grade Band(s): Primary, Intermediate

What math materials do you already have in your classroom? How can you use them to engage students in mathematical thinking through provocations? Materials like pattern blocks and Cuisenaire rods support students' understanding of mathematical concepts, as they uncover the mathematics embedded in the materials during playful investigations. Practical ideas about how to use math materials in inspiring ways will be provided. Come and explore the possibilities.

Reggio-inspired Mathematics: Pedagogical Practices

Michelle Hikida, Diefenbaker Elementary School

Grade Band(s): Primary, Intermediate

What is the role of the teacher when considering Reggio-inspired pedagogy? In this session, Michelle will share ideas for planning for, enacting opportunities for learning and assessing mathematical thinking through a responsive approach to the teaching and learning relationship. Ways of developing a study of a concept, thinking about the importance of the classroom environment and building a mathematical community will be shared based on stories from Michelle's classroom experiences.

Reggio-inspired Mathematics: Principles, Practices, Provocations and Projects

Janice Novakowski, Richmond School District

Grade Band(s): Primary, Intermediate

The Reggio-Inspired Mathematics collaborative professional inquiry project brings educators from many BC districts together to examine the principles and practices of a Reggio-inspired approach to the teaching and learning of mathematics. In this welcome and overview session for our mini-conference, stories from classrooms and our district projects will be shared with a focus on the principles and practices we are using to create opportunities for joyful learning of mathematics in our K-5 classrooms.

Reggio-inspired Mathematics: Mathematical Thinking Through Outdoor Experiences

Sarah Schnare, Surrey School District

Grade Band(s): Primary, Intermediate

How can outdoor experiences inspire mathematical thinking in our learners? Come and explore how place-based possibilities in the school garden, grounds, and community can uncover mathematical concepts and nurture competencies for all! Sarah, Lauren and Sharon will share stories from their classroom experiences and look closer at materials and documentation, and consider the role of questions in nurturing mathematical learning in our own contexts.

Reggio-inspired Mathematics: Storytelling and Math

Janice Novakowski, Richmond School District

Grade Band(s): Primary, Intermediate

How do storytelling and mathematics intersect? How is both language development and mathematical understanding enhanced through storytelling? Janice will share examples from classrooms that have been using storytelling as a way to develop mathematical discourse and develop understanding of the mathematics of counting, decomposing and number operations and other mathematical concepts.

Supporting ELLs Problem Solving: What's a Picture Worth?

Ann Anderson, University of British Columbia

Grade Band(s): Primary, Intermediate

Picture (wordless or minimally worded) problems offer a format wherein children (ELLs and non-ELLs) need to interpret the context and make sense of, and decisions about, the related mathematics in order to solve them, just as they would when solving word problems, where language carries the meaning. After solving and discussing a sampling of picture problems, we will explore ways in which we might use these, or generate others, in order to “translate” English word problems into more equitable learning opportunities for our culturally and linguistically diverse learners. After all, what is it they say a picture is worth?

Exploring Multiplication with TouchTimes

Sandy Bakos, Simon Fraser University

Grade Band(s): Primary, Intermediate

Do your students struggle with multiplication? In this session we will share an innovative iPad app, TouchTimes, that has been designed to provoke student thinking about multiplication in alternative ways to repeated addition. Our session looks to balance best practices that have emerged from research with practical results that work in the classroom. We will share the app and how it effectively addresses areas of the new curriculum and describe how we have used it with elementary students.

Mathematizing Spaces: Making our Schools Math Curious Places

Molly Daley, Educational Service District 112 (Washington)

Grade Band(s): Primary, Intermediate

Math is all around us, but often goes unnoticed. How can we use playful provocations in and around our schools to fuel math thinking and talk among students and adults? This session will demonstrate simple strategies teachers and parents can use to invite more learners to do more math in more places. We will explore how to notice, engage, and prompt mathematical moments. Participants will access freely available resources designed to encourage children to notice and talk about math in their environment.

Solving Challenging Word Problems Using the Bar Model

Andy Psarianos, Maths—No Problem!

Grade Band(s): Primary, Intermediate, Middle School

Problem solving is at the heart of mathematics education, but it remains a difficult area for both students and teachers alike. Often the Bar Model Method is the catalyst that allows students to improve their problem solving skills significantly. This session will examine how teachers can use the limited time they have to ensure students become confident and successful at solving complex word problems.

Clothesline Math: The Master Number Sense Maker

Alex Sabell, Berkshire Park Elementary School

Grade Band(s): Primary, Intermediate, Middle School

Come learn how an open number line can help build the number sense of your students! In this session, you'll first experience Clothesline Math just as your students would. You'll engage in discourse about the relative placement of numbers—whole numbers, fractions, decimals, integers—on a dynamic number line. Together, we'll discuss the purposeful planning, questioning strategies, and “teacher moves” that drive this transformative instructional routine. We'll talk about ways to engage and support all learners in your classroom. Resources to successfully facilitate Clothesline Math will be shared.

Mathematical Problem Solving in Your Class: An Engaging Visual and Interactive Approach

Frédéric Gourdeau, Laval University

Grade Band(s): Intermediate

We will experiment and discuss the potential of mathematical magic tricks and problem solving videos - available online, classroom ready, and free. We will discover the secrets of some magical tricks and explore multiple aspects of problem solving, including creativity and extensions. Active participation required!

EXHIBITOR SESSION: Let's Talk Intermediate Math!

Laurie Beesting, Bridge the Gap Math

Grade Band(s): Intermediate, Middle School, Senior High

How can we ensure students reach the end of G7 feeling secure, to make a positive start on G8 onwards? This presentation explores key issues we need to consider to help students be secure in skills. There will be a particular focus on how Times Tables knowledge (or lack of) has HUGE implications on the success of students. Come and check out the innovative math program/book *Bridge the Gap Math*[™] (www.bridgethegapmath.ca).

From Patterns to Linear Expressions in Storied Indigenous Context

Tannis Calder, Aboriginal Education, Prince Rupert School District

Grade Band(s): Intermediate, Middle School

In this hands-on workshop we will share a cross-curricular, cross-grade unit that takes learners from simple patterning in late primary and moves them forward on a mathematical journey where they will encounter stories and songs that incorporate Indigenous languages, oral histories, supernatural creatures, cedar weaving and, eventually, a concrete comprehension of linear expressions and algebraic understanding at the early secondary level. This unit was developed in collaboration with local Indigenous knowledge holders, literature, oral histories, art and design. Take home lesson plans, weave a with faux cedar, and gather great new ideas!

Exploring Student Understanding of Fractions through Unit Fractions

Tara Flynn, Trent University

Grade Band(s): Intermediate, Middle School

Educators and researchers agree that fractions are exceedingly difficult to learn and to teach. Fractions knowledge is a predictor of success in algebra, and involves high levels of spatial and proportional reasoning. Join us and explore how building on the foundation of unit fractions can support enhanced student understanding through a trajectory based on eight years of research in Ontario classrooms. With a focus on building strong foundations early and strategically closing gaps for older students, learning will highlight the important role that unit fractions understanding plays in subsequent concepts, such as equivalence and operations.

The Wurzelschnecke: Delightful Designs, Surprising Spirals and Hands-On Geometry

Susan Gerofsky, University of British Columbia

Grade Band(s): Intermediate, Middle School, Senior High

The beautiful Pythagorean Spiral (aka “Wurzelschnecke”) offers a delightful hands-on inquiry exploration of right angle triangles and design for Gr. 7-12 classes. In this session, we will work on embodied, multisensory mathematics learning with the Wurzelschnecke and find inspiration for some fascinating lessons and projects. This spiral, made of 17 right-angle triangles easily drawn with ruler and pencil, lends itself to many beautiful and surprising design patterns (from jewellery to architecture), and gives life to the idea that mathematics and geometry have real-life meaning as the inspiration for many delightful designs.

Continuums in Mathematics from Elementary to Post - Secondary

Sean Hall, Sands Secondary School

Grade Band(s): Intermediate, Middle School

As instructors of a technical discipline, our job is to move our knowledge, techniques, and wisdom on to the next group. Mathematics can be taught in a continuum. Instructors must know the beginning and end of each continuum and know which threads of technique aid in developing the idea and teach from that perspective. Every instructor in elementary & middle school is teaching grade twelves! We will discuss three continuums that thread from elementary through to post-secondary: Grouping / Multiplying Continuum - Binomial Theorem; Discrete Mathematics Continuum—Linear Systems & Calculus; and Exponents Continuum - Logarithms & Exponential Relations.

Curricular Competencies: Engage the Learner

Gord Henry, Cowichan Secondary School

Grade Band(s): Intermediate, Middle School, Senior High

With all the new language in the updated curriculum it is important to remember to engage the learner with meaningful content. In this session we will use multimedia to create interesting problems that connect to our curricular competencies. Come prepared to watch and discuss.

Visualization Tasks in Math Class

Melissa Herman, Urban Academy

Grade Band(s): Intermediate, Middle School, Senior High

Visualization tasks allow students to imagine, draw and talk about a geometric or spatial situation. Participants will have the opportunity to engage in several visualization tasks. They will also learn about student work generated by students in grades 8 through 10 who engaged with visualization tasks and what the presenter has learned about visualization through this exploration with her students.

Strategy Math Games

Erin Houston, Horizon School Division (Alberta)

Grade Band(s): Intermediate, Middle School

Strategy math games allow students to use logic, problem solving, and deductive reasoning, as well as engaging students in their mathematics. Whether games are used as a brain break, or as a conceptual lesson, you will be sure to reach each student in the classroom. Come join us for simple ready to use games that you can incorporate into your classroom.

Active Problem Solving—Get Students Up and Moving with Math

Erin Houston, DA Ferguson Middle School

Grade Band(s): Intermediate, Middle School

Get your students up and moving while engaging their brains in problem solving. Involve students in creative ways to problem solve that don't just rely on pen and paper. When students are up and moving, they have the ability to think creatively, critically, and logically, the ability to structure, organize, and process information and engage in the enjoyment of an intellectual challenge. You will come away with ideas and projects that you can use in your classroom.

Linear Relations Across the Grades

Chris Hunter, Surrey School District

Grade Band(s): Intermediate, Middle School, Senior High

We'll explore the big ideas in BC's revised curriculum related to patterns and relations—specifically linear relations—in Math 6 through Pre-Calculus and Foundations of Math 10. Participants will actively engage in and discuss several rich tasks drawing from both “real-world” and “naked number” contexts. Instructional strategies that invite students to visualize, represent, connect, discuss, and make sense of these ideas will be shared. Further, we'll discuss what to look for with respect to classroom assessment.

Know Where to Start: How Students Learn Math

Jacob Martens, Delta School District

Grade Band(s): Intermediate, Middle School

Critical concepts and skills learned in the early grades lay a foundation for deeper mathematics learning in the older grades. We know this foundation is not evenly distributed amongst the learners in our classrooms. So how do we support and stretch ALL our learners? We need to be familiar with the developmental progressions of critical skills and concepts and then use them to determine where to start with our students and where we are taking them. Participants will leave this session with a better understanding of the developmental progressions, how students learn them and how that can inform teachers' daily, weekly, and year plans.

Teaching Students to be Thinkers and Doers

Jeff Mikulin, Nanaimo-Ladysmith School District

Grade Band(s): Intermediate, Middle School, Senior High

How do we help students who struggle when overwhelmed with complex science and math tasks? Numeracy requires students to develop the ability, confidence and willingness to make meaning of a variety of text forms. In this session, we will share teaching tools that develop literacy, teach self-monitoring skills and promote higher-level thinking so that all our students can experience success. "It's not what you teach us, but how you make us think!"

Building Thinking Classrooms—Elementary

Annette Rouleau, Simon Fraser University

Grade Band(s): Intermediate, Middle School

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.

Cognitive Science and Learning

Doug Smith, Kitsilano Secondary School

Grade Band(s): Intermediate, Middle School, Senior High

What is Cognitive Load Theory, and how does cognitive science and research inform our teaching practices? Dylan Wiliam, one of the leading thinkers in formative assessment and a proponent of helping teachers with useable and effective teaching methods, was recently quoted as saying "I've come to the conclusion that Sweller's Cognitive Load Theory is the single most important thing for teachers to know." During this workshop we will look at the roles that memory systems play in learning, the research behind Cognitive Load Theory (CLT) and practical teaching methods based on CLT that teachers can use in the classroom to help maximize learning.

Differentiated Learning and Assessment

Kristina Stefanek, George Elliot Secondary School

Grade Band(s): Intermediate, Middle School, Senior High

How do you engage, teach, and assess all students in a diverse-ability math class? This session will discuss my journey through differentiated learning and standards based assessment: where I started, where I'm at now, and where I'd like to get to. I will share resources to help participants get started on their own journeys, and will provide time for questions and discussions.

Supporting Math Inquiry in Middle School

Joshua Angiola, New Westminster School District

Grade Band(s): Middle School

In this practical and hands-on session, we will explore a variety of rich tasks and strategies to get your students doing math inquiry that goes beyond problem-solving. You will leave with tools to help you plan and assess inquiry tasks as well.

Challenges and Solutions in Teaching Online Math

David Burnham, South Island Distance Education School

Grade Band(s): Middle School, Senior High

SIDES is a public distance education school in Saanich, BC. Over the last few years we have been updating and rewriting our middle and secondary math courses. We have encountered unique challenges in our online space, but we have also come up with creative solutions. In this presentation we will share our approach to online course development, formative assessment, summative assessment, projects, and student choice in Math 6-8, and our secondary courses (Workplace 10 through Pre-Calculus 12). While we are an online school, we think our discussion will be applicable to middle and secondary classroom teachers who are interested in these topics.

Managing money as your future-self: Role play for grades 7-9

Mary Connolly, University of British Columbia

Grade Band(s): Middle School, Senior High

Introduction to an engaging student money-management skill-development activity (grades 7-9). Role playing their 25-year-old future-selves, students are tasked with developing life goals and allocating income in a personal monthly budget. Requires planning, and balancing savings and spending to attain personal goals. Students focus on the value of setting financial goals and developing planning skills to reach them through budgeting, or conscious saving and spending. Attendees will engage with a hands-on experience of the activity and communicating examples of the students' experiences.

Assessing Curricular Competencies in Math 8 and 9

Elysia Dubland, Enver Creek Secondary School

Grade Band(s): Middle School, Senior High

BC's new math curriculum brings a welcome shift from focusing solely on content to a curriculum that also incorporates important mathematical skills, the curricular competencies (CC). Yet, determining how to assess CC can be tricky. I will share math 8/9 CC rubrics that I adapted from Marc Garneau's work and will explain how my students use them to self-assess and track their own progress, and also how I use them for summative assessment. They are not perfect however, and so the session will incorporate a time for participant input for improving them. Participants will be provided with the revised rubrics.

Concepts and Routines for Secondary Classrooms: What We Can Learn from Elementary

Marc Garneau, Surrey School District

Grade Band(s): Middle School, Senior High

Having transitioned from a high school math teacher into a role supporting K-12, I have learned so much from elementary classrooms about how concepts in number and patterning develop across the years. Come explore how these powerful foundations, and classroom routines, can extend into high school level concepts of number, algebra, and functions.

Computer Science: Creativity, Data, and Analysis

Josh Giesbrecht, Abbotsford School of Integrated Arts

Grade Band(s): Middle School, Senior High

Computer Science is now officially a mathematics course in BC. What does that mean for those who've already been teaching programming in an IT context? What does it mean for math teachers who want to teach the new course? This session will give an overview of the key differences between the old (but still alive) Computer Programming courses and the new Computer Science 11/12, a bit of background on why those differences exist, and an introduction to new-to-secondary ideas such as Big O notation. Come ready to discuss, share, and connect!

Panel Discussion: Competencies and Content in Secondary Assessment

Josh Giesbrecht, Abbotsford School of Integrated Arts

Grade Band(s): Middle School, Senior High

With the changing curriculum, secondary teachers are facing a tough question: How do I incorporate these competencies into my gradebook in a way that's meaningful, practical, and leading students to excellence? In this panel discussion, we'll hear from secondary classroom teachers who have been working on these problems for the last few years what's worked for them, what hasn't and how they bring it all together when report card time comes. Bring your questions!

The Power In Being Able to Read Mathematics

Sandra Hughes, Moscrop Secondary School

Grade Band(s): Middle School, Senior High

What does it mean to read mathematics? Do your students read mathematics? Do your students read to learn mathematics? During this session I will share my ideas and exploration into reading to learn mathematics. Be prepared to interact and consider learning mathematics from a student's perspective of what it is and means to read mathematics. You will take away relevant ideas that can be immediately applied to your mathematics classroom.

EXHIBITOR SESSION: Standards-Based Assessment in the New BC Curriculum

Bruce McAskill, St. Michaels University School

Grade Band(s): Middle School, Senior High

Are you currently using or interested in implementing a standards-based approach to assessment in your classroom? Assessing achievement related to the new curricular competencies provides valuable information about what students can do, know and understand. This workshop will provide participants with an opportunity to try a made-in-BC online tool that makes it easier for teachers to collect a variety of assessment data types. Our application generates accurate student reports that track their progress and can be shared with parents and colleagues. This is a "bring-your-own-device" workshop.

I Do So Like Them...STATS I Am

Maggie Przyborowska, Windermere Secondary School

Grade Band(s): Middle School, Senior High

Statistics in secondary school from Math 8/9 to Foundations 11 to AP Stats. How can we motivate students to learn about statistics?

EXHIBITOR SESSION: Math For All and Assessment Strategies For Teachers

Greg Ranieri, Absolute Value Publishing

Grade Band(s): Middle School, Senior High

This session will explore: 1) Advocacy for students and inclusive high school mathematics, 2) Methods to balance route vs inquiry based learning with shifts in the provincial curriculum, 3) Methods to encourage learning styles for equity in the classroom and 4) Assessment strategies for a diverse student population. Please join us for an engaging discussion!

Criteria Based Assessment in Math

Doug Smith, Kitsilano Secondary School

Grade Band(s): Middle School, Senior High

Criteria based assessment guides us in assessing our students against specific outcomes and specific levels of achievement which is the cornerstone for informing students where they're at and how they can improve (formative assessment). Standards based grading is a type of criteria assessment used in day to day practice. This workshop will give an overview of criteria based assessment and details on the why and how of implementing standards based grading in your classroom.

Inquiry in Pre-calculus 12

Elysia Dubland, Enver Creek Secondary School

Grade Band(s): Senior High

BC's new curriculum requires that Pre-calculus 12 students learn through inquiry, identify and solve problems, model situational contexts with mathematics, and think creatively with curiosity and wonder, to name just a few of the curricular competencies (CC's). I will share three projects that I created for Pre-calculus 12 that incorporate these and many of the other CC's, especially inquiry. The workshop will also include a time for feedback on how to improve the projects. Participants will be provided with the revised project resources.

Statistics 12: The New Beginning for Statistical Education in BC

Bruce Dunham, University of British Columbia

Grade Band(s): Senior High

This year sees the introduction of the new Statistics 12 elective course in BC. It is expected that Statistics 12 will attract a diverse group of students, including some who would not otherwise have opted for a mathematical elective at grade 12. This workshop will highlight key aspects in statistical thinking that are core to Statistics 12 and propose ways in which statistics educators in the province may help support teachers offering the new course. It is also hoped to share experiences from colleagues who are teaching Statistics 12.

Cumulative and Proportional Assessment

Lee Fisher, Royal Bay Secondary School

Grade Band(s): Senior High

Like many I'm working to shift assessment from a personality evaluation ("I'm a 'B' student") to a statement of accomplishment ("these are the things I can do and these are the things I'm still to learn"). I'm employing a mixture of cumulative, classroom, formative self-assessment and proportional assessment. On the one hand, it is important to respect the starting point of learners in the class, and on the other, it is important to challenge ambitions, to accommodate, and to stretch. At this time of changing curriculum, it seems that there are many innovations being explored. I'd like to open the floor to listen and discuss.

Math Creativity with Geogebra

Lee Fisher, Royal Bay Secondary School

Grade Band(s): Senior High

Get started with GeoGebra—draw the graph of a function, draw a quadrilateral with area & perimeter, create a net that folds and unfolds. Follow a choice of activities designed for grades 10, 11, 12. Possibly create your own activity relevant to your class. Laptop required.

Logarithms, Fraud and Randomness

Stephan Hautz, Collingwood School

Grade Band(s): Senior High

Come participate in a classroom lesson that has been developed to investigate the link between logarithms, fraud detection, and what it means to be random. Participants will experience the lesson as a student and will hopefully leave with more questions than answers (and something you could use as a cool activity the next time you teach logarithms). Bring a pencil, a calculator and a laptop for the best experience, but they aren't required.