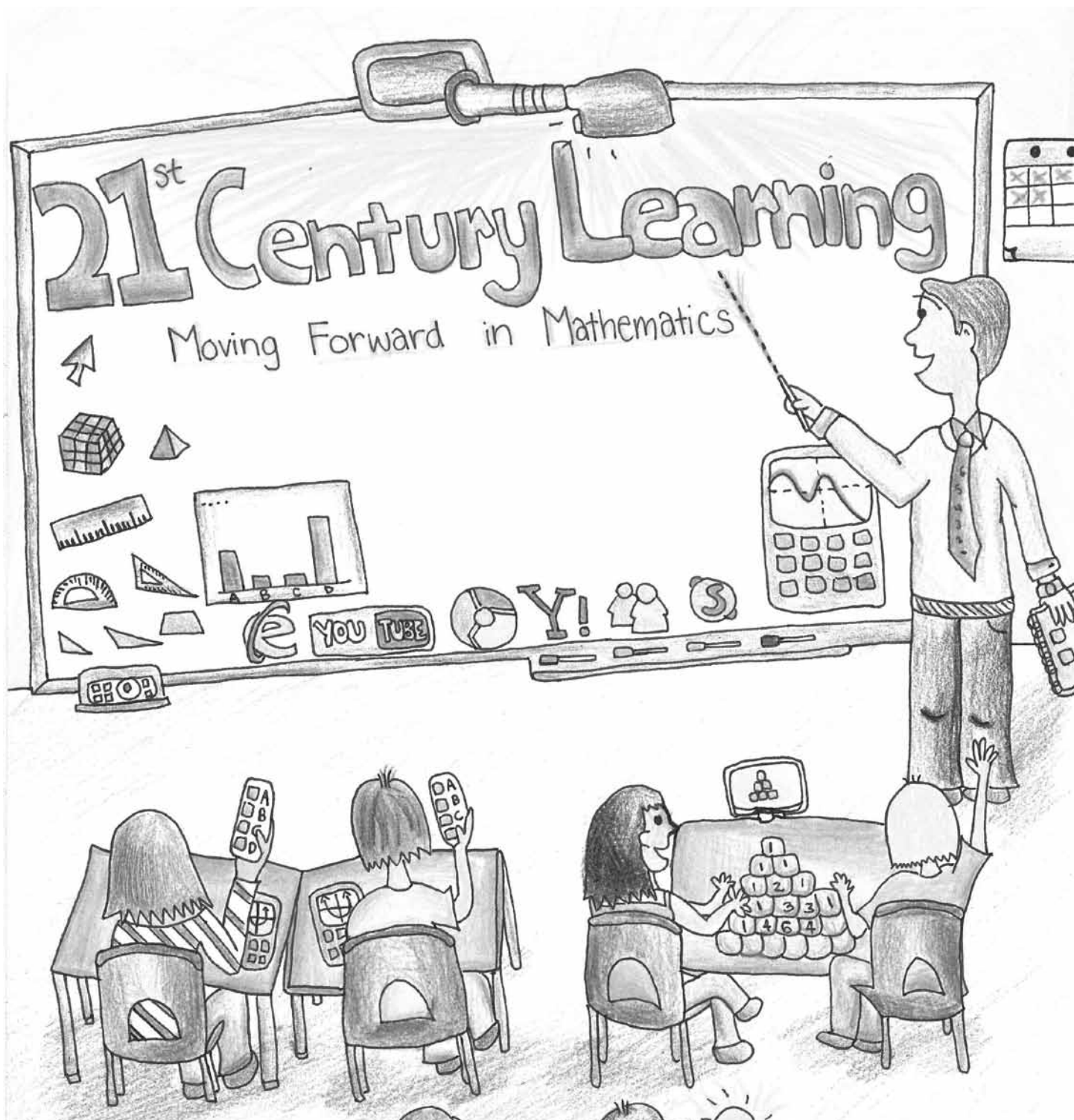


# Conference Program



Cariboo Hill Secondary School  
Burnaby, BC  
October 21, 2011

Presented by the BC Association of Math Teachers—A Provincial Specialist Association of the BC Teachers' Federation



# Welcome to the BCAMT Fall Conference!

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## Welcome from Conference Chair

On behalf of the BCAMT, the Burnaby School District's mathematics teachers and the conference committee, I would like to welcome you to Cariboo Hill Secondary School for "21st Century Learning: Moving Forward in Mathematics". Our committee has been working very hard to provide some amazing presentations, exhibits and, of course, food so that your conference experience is the very best that it can be. We are very proud that the sessions are local and international, practical and theoretical, technology-based and pencil-and-paper-based, and kindergarten through to college-level. Hopefully, everyone will find something that will interest them, cause them to wonder, and delve deeper.



By focussing on what good teaching of mathematics was, is and will be, we have put together an outstanding day for educators from around the province to talk, explore, debate and create mathematics. We are also hoping that those on twitter will tweet the conference through #BCAMT11 and #psaday11, so that those that could not attend can still participate.

I would like to particularly thank the conference committee: Lori Bernard, Dawn Driver, Debbie Loo, Colin McLellan, Kory O'Hare, and Danny Young; without them, there would not be a conference. I would also like to thank the students of Cariboo Hill for helping out today and the staff, who have graciously allowed us to enter their spaces so that we can learn.

–Bryn Williams



## Welcome from BCAMT President

Welcome to the 2011 BCAMT Fall Conference! This year's theme, 21st Century Learning: Moving Forward in Mathematics, is certainly timely with the Ministry of Education having announced new direction aimed towards "21st century learning". At the conference we'll get a chance to see a great keynote speaker, who will have you reflecting on your practice, attend some sessions to see some great ideas in practice, see some interesting technology being applied appropriately in classrooms, as well as a chance to connect with old and new friends.

On behalf of the BCAMT executive, I would like to thank Bryn Williams for his excellent work coordinating this conference. Thank you also to the conference committee members, who have put in many hours organizing this conference. It is because of these volunteers, that we can all enjoy this great opportunity to grow as teachers and to improve our practice.

I look forward to seeing many of you at the conference and please stop by the BCAMT booth for a chat with your executive and pick up your free copy of our new book, "Questions Worth Asking".

–Chris Becker

# General Information

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- Wireless Internet: caribooguest            password: sd41cariboo
- Lunch served between 12:20 and 1:30 in the small gym
- Coffee available all morning

## Acknowledging Traditional Territory

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Before beginning any gathering it is customary to acknowledge the traditional territory of the Coast Salish people. We would like to particularly acknowledge the Musqueam, the Tsleil-waututh and the Squamish people who traditionally lived here and used this area we now call Burnaby. The Coast Salish have been here for thousands of years, the language they speak is the Halkomelem language which is spoken on Vancouver Island up the Fraser River – all the way to Mission. We would like to thank the Coast Salish people for allowing us to be here and have this gathering in their traditional territory. Thank you in the halkomelem language is Hay chxw q'a (pronounced Hy ch ka) and as you say this, raise your hands to acknowledge and thank the people.



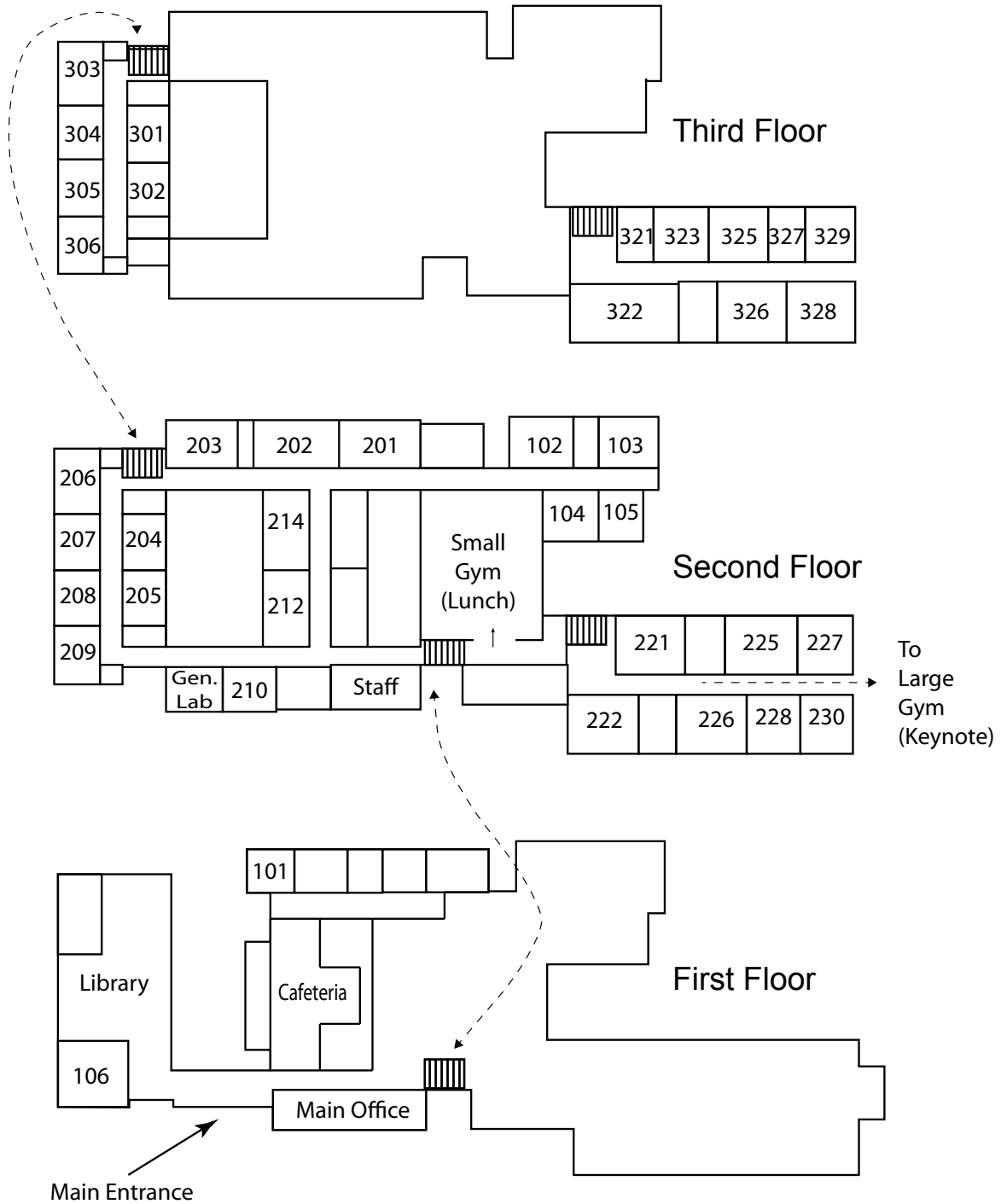
Aboriginal Education Support Team – Burnaby School District # 41

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# School Map



# Sponsors and Exhibitors

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**McGraw-Hill  
Ryerson**



**G A P C**  
ENTERTAINMENT  
gapcenterertainment.com



## Exhibitors

McGraw-Hill Ryerson	Pearson Education
Nelson Education	Texas Instruments
Crescent Beach Publishing	MIND Research Institute
BC Exam Bank	Spectrum
Origo Education	Scholastic Education
Bound 2 Learn	Open School BC
Pacific Educational Press	

# Session / Grade Level Overview

Title	K	1	2	3	4	5	6	7	8	9	10	11	12	PS
Online Learning and Assessment with LON-CAPA														
Creating Math Movies														
Small Number's Big Adventure														
Questions Worth Asking														
Social Media in Education														
How Do You Meet the Needs of Every Learner in a Full Day "K"?														
Building A Foundation														
Planning to Successfully Achieve Understanding and Mastery of Addition (and Subtraction)														
Vygotsky in the Primary Math Classroom: An Algebraic Approach to Math														
Practical Applications in a Problem-Based Classroom														
Providing Math Intervention an Elementary Model														
Differentiation in the Elementary Math Classroom														
Planning to Successfully Achieve Understanding and Mastery of Multiplication (and Division)														
Engage All Your Students in Mathematics														
"Without Mathematics there is no Art"...														
Intermediate Performance Tasks														
Math-Whizz - The leading Online Math Tutor														
iPod/iPad Apps for Learning Mathematics														
Thinking and Learning with Pattern Blocks														
Follow Through: Four Important Levels when using Manipulatives														
Math Fairs are Fun														
Math with Local Aboriginal Content														
Using Games as Assessment in Math														
How Come We're Playing Games Today? I Thought This Was Math Class.														
Introducing the New FNEC Math 8/9 Teacher Guide														
Fostering Mathematical communication through Card Tricks														
Building Mathematical Minds - The HYBRID Way														
Interactivity														
"You can lead a horse to water but you can't make them drink."														
Formative Assessment is Great in Theory, but it Takes Too Much Time														
Online Interactive Math Homework														
Utilizing a Tablet PC in the Mathematics Classroom														
The Impossible Becomes Possible - Technology Tools for Learning Mathematics														
Active Engagement - What it looks like now														
It's Not Just the Numbers: How Teaching Psychology Changed the Way I Teach Math														
21st Century Learning with Technology														
eLearning for the High School Classroom Teacher: Part I														
eLearning for the High School Classroom Teacher: Part II														
Functions in High School—Are We Missing Something?														
Mathematical Connections and Educational Conversations: SFU Math Outreach Programs...														
FlexMath: A Model that Works														
Assessment for Learning in the 21st Century														
Building Better Math: Applied Math Problems for High School Students														
Making Workplace and Apprenticeship Math Relevant to Students														
Using Technology to Enhance your Grade 11 and 12 Pre-Calculus Classroom														
Foundations or Pre-Calculus? Let's Help Students (and Parents) Make the Right Choice!														
Math in the 21st century: Using Technology to Enhance Pre-calculus 11 and 12														
Hands on — Minds on: Great Activities from Pearson's New Pre-calculus 11 and 12 WorkTexts														
Pre-Calculus 12 and your Classroom!														

# Fifty Minute Sessions

	Room 205	Room 206	Room 207	Room 230	Room 301
8:30–9:20	<b>Keynote Address - Large Gym</b>				
9:40–10:30	iPod/iPad Apps for Learning Mathematics			Introducing the New FNEC Math 8/9 Teacher Guide	Planning to Successfully Achieve Understanding and Mastery of Multiplication (and Division)
10:40–11:30			Math-Whizz - The leading Online Math Tutor	Follow Through: Four Important Levels when using Manipulatives	It's Not Just the Numbers: How Teaching Psychology Changed the Way I Teach Math
11:40–12:30			Math Fairs are Fun	Follow Through: Four Important Levels when using Manipulatives	Planning to Successfully Achieve Understanding and Mastery of Addition (and Subtraction)
12:30–1:40	<b>Lunch - Small Gym</b>				
1:40–2:30		Formative Assessment is Great in Theory, but it Takes Too Much Time	Small Number's Big Adventure		It's Not Just the Numbers: How Teaching Psychology Changed the Way I Teach Math
3:00–4:00	<b>BCAMT AGM - Library</b>				

# Fifty Minute Sessions

Room 228	Room 227	Library	Room 222	Room 221	
<b>Keynote Address - Large Gym</b>					8:30–9:20
Utilizing a Tablet PC in the Mathematics Classroom	Assessment for Learning in the 21st Century	eLearning for the High School Classroom Teacher: Part I	Hands on — Minds on: Great Activities from Pearson's New Pre-calculus 11 and 12 WorkTexts	Math with Local Aboriginal Content	9:40–10:30
Thinking and Learning with Pattern Blocks	Small Number's Big Adventure	eLearning for the High School Classroom Teacher: Part II	Math in the 21st century: Using Technology to Enhance Pre-calculus 11 and 12	Functions in High School—Are We Missing Something?	10:40–11:30
Utilizing a Tablet PC in the Mathematics Classroom	21st Century Learning with Technology	Interactivity	Foundations or Pre-Calculus? Let's Help Students (and Parents) Make the Right Choice!		11:40–12:30
<b>Lunch - Small Gym</b>					12:30–1:40
	Assessment for Learning in the 21st Century	Social Media in Education		Functions in High School—Are We Missing Something?	1:40–2:30
<b>BCAMT AGM - Library</b>					3:00–4:00

# Ninety Minute and Half-Day Sessions

	Room 303	Room 204	Room 304	Room 302	Room 226	Room 206
8:30–9:20	<b>Keynote Address - Large Gym</b>					
9:30–11:00	FlexMath: A Model that Works	Providing Math Intervention an Elementary Model	"Without Mathematics there is no Art"...	Questions Worth Asking	Differentiation in the Elementary Math Classroom	Online Learning and Assessment with LON-CAPA
11:10–12:40	Building A Foundation	Vygotsky in the Primary Math Classroom: An Algebraic Approach to Math	Practical Applications in a Problem-Based Classroom	Mathematical Connections and Educational Conversations: SFU Math Outreach Programs...	The Impossible Becomes Possible - Technology Tools for Learning Mathematics	"You can lead a horse to water but you can't make them drink."
12:40–1:20	<b>Lunch - Small Gym</b>					
1:20–2:50	How Do You Meet the Needs of Every Learner in a Full Day "K"?	Creating Math Movies	"Without Mathematics there is no Art"...	Fostering Mathematical communication through Card Tricks	How Come We're Playing Games Today? I Thought This Was Math Class.	
3:00–4:00	<b>BCAMT AGM - Library</b>					

# Ninety Minute and Half-Day Sessions

Room 208	General Lab	Room 205	Room 329	Room 325	Room 225	
<b>Keynote Address - Large Gym</b>						8:30–9:20
Active Engagement - What it looks like now	Engage All Your Students in Mathematics			Online Interactive Math Homework	Using Games as Assessment in Math	9:30–11:00
	Using Technology to Enhance your Grade 11 and 12 Pre-Calculus Classroom	Intermediate Performance Tasks	Building Better Math: Applied Math Problems for High School Students			11:10–12:40
<b>Lunch - Small Gym</b>						12:40–1:20
Making Workplace and Apprenticeship Math Relevant to Students	Pre-Calculus 12 and your Classroom!	Building Mathematical Minds - The HYBRID Way	Building Better Math: Applied Math Problems for High School Students			1:20–2:50
<b>BCAMT AGM - Library</b>						3:00–4:00

## Keynote Address

### Lessons Learned from NOT Teaching

Dr. Peter Liljedahl, Simon Fraser University

8:30–9:20 in the Large Gym

Over the past many years I have had the benefit of observing teaching and learning from a number of perspectives not afforded me when I was a classroom teacher. I have learned a great deal from all of this. In this talk I will look more closely at the teaching and learning of mathematics as gleaned from these varied perspectives and how what I have learned has affected me in my teaching.

### How Do You Meet the Needs of Every Learner in a Full Day “K”?

Shelley Portas

Grades: K—1

1:20–2:50 in Room 303

Through this workshop we will explore how math is found everywhere and can be easily woven into various parts of a Full Day “K” day. An explanation of how to organize a K math program on a daily and weekly basis, through a play based learning philosophy. Participants will have the opportunity look at simple organizational tools, explore various manipulatives and materials, and learn how to organize student groups to meet their varied individual needs. Come with an open mind and prepared to share in the fun.

### Building A Foundation

Sandra Ball

Grades: K—2

11:10–12:40 in Room 303

The Early Years are exciting ones for mathematical thinking and learning. Young mathematicians are eager to learn and have many ways of representing their thinking. As teachers, we need to provide opportunities for our students to build a solid foundation of number sense. Through working with ten frames

students are able to see number relationships and learn strategies that will help them to visualize the ten frame to compute answers. Come and learn how to use ten frames in your primary classroom.

### Planning to Successfully Achieve Understanding and Mastery of Addition (and Subtraction)

Calvin Irons

Grades: K—3

11:40–12:30 in Room 301

Indepth understanding of addition and confidence with the related basic number facts is a necessary pre-requisite for many mathematical ideas. It is essential for success with all aspects of subtraction. This session will describe models and methods to help achieve success with both operations - addition and subtraction with a particular focus on mental methods.

### Vygotsky in the Primary Math Classroom: An algebraic approach to math

Yvette Dabbs

Grades: 1—3

11:10–12:40 in Room 204

How should mathematics education be approached in the primary years? Is memorization of facts or conceptual understanding more important? In this workshop an alternative approach to primary math education will be presented, the Davydov curriculum developed in Russia and derived from Vygotsky’s theories. This program has been shown to create students with improved mathematical literacy through the systematic usage of algebraic expressions to describe mathematical relationships between quantities.

The presenter will share her experience in implementing the program, and will provide activity examples. Handouts will be provided.

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## Practical Applications in a Problem-Based Classroom

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Sandra Cushway  
11:10–12:40 in Room 304

Grades: 1–6

This presentation will provide an opportunity to look at practical ways to start and implement a problem based approach to mathematics in an elementary classroom. We will look at how a math period is set up, the importance of student groups and practical strategies and problems to build a solid math understanding in the elementary grades. Time will be given for questions and answers.

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## Providing Math Intervention an Elementary Model

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Barb Wilson and Kim Jones  
9:30–11:00 in Room 204

Grades: K–7

This session will present a model of numeracy intervention for an elementary school setting through:

- creating a collaborative community
- identifying essential outcomes
- creating common assessments
- identifying student needs
- scheduling intervention times
- providing intervention for all students

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## Engage All Your Students in Mathematics

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Deanna Lightbody  
9:30–11:00 in the General Lab

Grades: 3–7

Explore the many ways you can engage and motivate all of your students in mathematics. Participants will learn how manipulatives, differentiated instruction, games and technology tools can support classroom instruction and meet the needs for diverse learners while providing a bit of fun along the way.

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## “Without Mathematics There is No Art” (Luca Pacioli a 15th Century Italian Mathematician) and “Without art there should be no Mathematics” (Carol Pettigrew a 21st Century Teacher)

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Carol Pettigrew  
9:30–11:00 and 1:20–2:50 in Room 304  
(Repeated Session)

Grades: 3–7

Many of our students struggle with mathematics and with art. During this workshop, participants will learn about ways that art and mathematics can be studied together to bring greater meaning and enjoyment to both disciplines. Art will be created and the mathematics of each project explored. Come prepared to find your inner artist/mathematician.

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## Planning to Successfully Achieve Understanding and Mastery of Multiplication (and Division)

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Calvin Irons  
9:40–10:30 in Room 301

Grades: 3–7

Indepth understanding of multiplication and confidence with the related basic number facts is a necessary prerequisite for many mathematical ideas taught in the middle and high school years. It is essential for success with all aspects of division. This session will describe models and methods to help achieve success with this important operation with a particular focus on mental methods.

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## Differentiation in the Elementary Math Classroom

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Donna Bletcher  
9:30–11:00 in Room 206

Grades: 3—7

How can we plan math lessons to meet the needs of ALL our students? Teaching to “big ideas” can help us differentiate our instruction. This session will focus on strategies that can be used with your whole class; strategies that encourage students at various developmental levels to participate. You’ll leave this session with ideas for your next math class.

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## iPod/iPad Apps for Learning Mathematics

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Tim Pelton and Leslee Francis Pelton  
9:40–10:30 in Room 205

Grades: K—8

We will share a collection of iOS apps that incorporate models or virtual manipulatives to build conceptual understanding as well as develop estimation skills and computational fluency and share our lessons learned from using these in elementary/middle school classrooms.

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## Math-Whizz - The leading Online Math Tutor

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Bess Ostrovsky  
10:40–11:30 in Room 207

Grades: K—8

Maths-Whizz caters to students’ individual needs in the same way as a tutor would — with the added positives of a collaborative online learning space that is underpinned by a wider framework of best practice and support. This engages parents, teachers and students in a triangle of success and doesn’t require extensive teacher input or administrator setup. This session will go over the features of this program.

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## Thinking and Learning with Pattern Blocks

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Jim Mennie  
10:40–11:30 in Room 228

Grades: 5—8

This session will look at ways in which pattern blocks can be used to develop and reinforce understanding in topics such as Geometry, Measurement, and Number

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## Intermediate Performance Tasks

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Julia Henrey  
11:10–12:40 in Room 205

Grades: 4—7

Assessment in math is changing. In order to compare students’ achievement in math to the performance standards, they need to be offered tasks that are open-ended yet still accessible to all. We will look at some performance tasks together, and discuss ways to find existing tasks and how to write your own.

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## Follow Through: Four Important Levels when using Manipulatives

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Alfred Ojelel  
10:40–11:30 and 11:40–12:30 in Room 230  
(Repeated Session)

Grades: 4—9

Jean Piaget has identified four primary stages of children’s cognitive development. Knowledge of Piaget’s stages helps the teacher understand the cognitive development of the child as the teacher plans age-appropriate activities to keep the students active. In this presentation, I demonstrate that when teaching mathematics concepts that involve manipulatives, the teacher needs to carefully construct four examples that progressively challenge the student to conceptually move from the concrete to the abstract level.

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## Math Fairs are Fun

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Linda Mack  
11:40–12:30 in Room 207

Grades: 4—10

Want to inject a whole lot of fun into math this year? Have a Math Fair! Get your students problem solving, teaching and learning all at once. Math Fair problems challenge all ages, so this activity is appropriate for Gr. 3-10 or more. Keep it simple, or go all out, the choice is yours. Take away ideas and resources to have your own fun math event!

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## Math with Local Aboriginal Content

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Paul Beland

Grades: 6—10

9:40–10:30 in Room 221

Here is an easy way to include local Aboriginal content and culture into your math lessons. This session starts with a demonstration and concludes with a practical component that participants will be able to apply Monday morning. As this is an interactive session, participants should bring laptops or notebooks to develop their own resources. We plan to do a show and tell near the end of the session.

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## Using Games as Assessment in Math

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Katharine Borgen

Grades: 7—10

9:30–12:30 in Room 225

Teachers will be presented with a number of different games that can be used to strengthen mathematical understanding and as a means of assessing for learning.

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## Introducing the New FNESC Math 8/9 Teacher Guide

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Desiree Marshall-Peer and Stacey Brown

Grades: 8—11

9:40–10:30 in Room 230

Come see Math 8/9 from a different perspective! Join two of the co-authors as we explore the features, activities, units and projects in this innovative Teacher Guide and Multi-Media set. Units are also applicable to A&W Math 10/11 as well.

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## How Come We're Playing Games Today? I Thought this was Math Class.

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Chris Hunter

Grades: 8—11

1:20–2:50 in Room 226

Games are now part of the AWM and Foundations curriculum. How else can we connect games and mathematics? Together, we will explore some free and commercial games and discuss how we might use them in our classrooms.

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## Online Learning and Assessment with LON-CAPA

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Justin Gray and Amos Lee

Grades: K—12

9:30–11:00 in Room 206

Interested in learning how to use technology to personalize your student's learning? Tired of seeing students just copy answers to homework assignment from each other? Do you believe that more of your time should be spent on teaching and guiding and less on marking? This workshop may be for you. We will introduce you to LON-CAPA, a free, open-source online learning content, course management, and assessment system. Some features include:

- computer-graded homework and quizzes that can be personalized using randomization
- online collaboration amongst your students
- immediate feedback for both students and teachers
- teachers can create their own problems or choose to use questions from a large shared repository
- adaptive hints can be used to help clear up misunderstood concepts
- an integrated computer algebra system that also allows for grading of open-ended problems.

This workshop will also include a demonstration of how LON-CAPA was used in a Math 10 classroom this past year. Teacher and student feedback from this experiment will also be provided.

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## Small Number's Big Adventure

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Mark Mac Lean and Veselin Jungic

Grades: K—12

10:40–11:30 in Room 227

1:40–2:30 in Room 207 (Repeated Session)

We have been creating children's books with Aboriginal themes that are designed to encourage interest in mathematics. We will show some animations made from these books. These are in English and several First Nations languages. We present these books and animations in schools and community centres. We will discuss the use of such stories in encouraging the growth of interest in mathematics.

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## Creating Math Movies

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Gord Henry

Grades: K—12

1:20–2:50 in Room 204

With the rise of smartboards, tablet computers and mobile devices the need for meaningful math movies is high. This session will look at different styles of movies and the programs used to create them. This session is intended to be more than a ‘show and tell’. Bring your laptop so you can create you own mathematical masterpiece.

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## Social Media in Education

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David Wees

Grades: K—12

1:40–2:30 in the Library

Educators are typically only able to interact on a daily basis with the teachers in their building, but through social media they can interact with other educators in their field whenever they want. Already tens of thousands of educators are using social media to engage with other educators and discuss what they do. You will find out more about how this trend has evolved and how social media, combined with blogging can be used to as a professional development tool for educators. You will also learn some of the ways social media

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## Questions Worth Asking

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Dave Van Bergeyk

Grades: K—12

9:30–11:00 in Room 302

The BCAMT is proud to announce the publication of a new book of stories written by BC classroom teachers about their innovative assessment practices. Past President Dave Van Bergeyk will introduce the resource and facilitate discussion.

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## Fostering Mathematical Communication through Card Tricks

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Steve LaPointe

Grades: 2—12

1:20–2:50 in Room 302

Ever wondered how to get your students comfortable sharing what they know in a risk-free and multi-ability Math classroom? Card tricks are guaranteed to get you moving in the right direction! Come join us for this hands and minds on interactive session.

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## Building Mathematical Minds - The HYBRID Way

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Rick Borowski

Grades: 5—Post-Secondary

1:20–2:50 in Room 205

As our global community becomes increasingly dependent on technology, we must provide our students with the necessary skills to use numbers, to think analytically and to solve mathematical problems. This highly informative workshop incorporates both the traditional and inquiry methods in a HYBRID approach to learning math. The works of L.Anderson, B.Bloom, J.Boaler, J.Mighton, and G. Polya will be visited. This successful approach to learning math has produced tremendous results in students of all age groups. Come and enjoy a fun and practical workshop. “Engineer by day and tutor by night”, Rick has taught in day schools and has tutored over 500 students in BC and Ontario.

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## Interactivity

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David Wees

Grades: 5—Post-Secondary

11:40–12:30 in the Library

I will examine the role of multimedia and interactivity in mathematics education, and will share examples of student work, projects, and share ideas that many mathematics teachers can implement.

While much of the focus of this presentation will be on using technology in mathematics education, low-tech ways to use many of these ideas will be included where possible.

For a preview, see

<http://www.youtube.com/watch?v=NE-NguxKEYs>

where I presented on a similar topic for the global Reform Symposium conference.

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## “You can lead a horse to water but you can’t make them drink.”

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Timothy Spray and Jason Johnson

Grades: 6—12

11:10–12:40 in Room 206

I have heard this so many times from math teachers. We say this in exasperation as we have given it our all and kids still are not successful. We have tried extra help, retests, encouragement....and they still don’t take advantage of our help. The answer must be that they

just don't want to learn. I disagree. There is a huge problem, they don't know that the water in the trough is good and that they can drink it. In this workshop I will share the journey of Oak Bay Highschool and how we have implemented a support strategy that has increased success at the grade 9 level in dramatic ways. This workshop will be energetic and meaningful.

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## Formative Assessment is Great in Theory, but it Takes Too Much Time

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Timothy Spray and Jason Johnson      Grades: 6—12  
1:40–2:30 in Room 206

In this workshop I will share practical ways of using formative assessment that does not break your back. These strategies have reduced my work load and increased student moral. I will look at the following:

- The importance of Day 1
- The power of email
- Seating plans to maximize learning
- Quizzes that encourage learning
- Tests that reward
- Communication that empowers

One of the struggles that I have had is that I have had to be willing to do less. The joy for me is to see my students become the leaders in their education.

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## Online Interactive Math Homework

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Djun Kim      Grades: 6—Post-Secondary  
9:30–12:30 in Room 325

Balancing students' need for frequent, timely, and meaningful assessment with limited time and resources is a challenge almost every teacher faces.

Help may be on the way with online tools such as WeBWorK, supported by the Mathematical Association of America and in use by hundreds of thousands of students worldwide.

WeBWorK lets students do non-trivial math homework online, and provides instant feedback. It accepts answers in the form of mathematical expressions, and can recognize essentially any equivalent answer.

It is easy to monitor student progress in “real time”, and identify potential problems early on.

WeBWorK supports the curriculum from middle school to advanced undergraduate classes with a library of over 23,000 problems.

Best of all, it is free, or nearly free.

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## Active Engagement - What it Looks Like Now

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Fred Harwood      Grades: 7—12  
9:30–11:00 in Room 208

Student engagement and active learning in both lesson execution and assessment aspects are key to 21st Century Learning. This session will focus on what I've been doing in my classes to build student achievement in these areas.

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## It's Not Just the Numbers: How Teaching Psychology Changed the Way I Teach Math

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Kathryn Holopainen      Grades: 7—12  
1:40–2:30 in Room 301

When I first started teaching math, 18 years ago, I honestly thought it was all about the content. This is how you calculate a percent, write the equation of a line, find the inverse of a function. But some things

didn't "compute." Why did some students freeze up or give up before they'd even tried? Why did students who'd "get it" so quickly forget it? And why did so many students dislike, even hate math?

The first part of the presentation is a light overview of motivation, etc from a psychology perspective. Although many teachers have an intuitive understanding of this, and a seemingly innate ability to motivate their students, teachers who are less experienced or naturally talented might benefit from an outline to help them think about their approaches.

The second part of the presentation looks at current brain research, and how we can apply this to teaching math. Eighty percent of what we know about the brain has been learned in the last 10-15 years, and this knowledge can help us help our students learn.

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## The Impossible Becomes Possible— Technology Tools for Learning Mathematics

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Marc Garneau Grades: 7—12  
11:10–12:40 in Room 226

Exploring inquiry-based problems can be a powerful way for students to develop understanding of mathematical concepts. Come engage in some inquiry tasks designed using TI-Nspire and other tools that would not be possible to do without technology: dynamic pattern blocks, flexible algebra tiles, and more!

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## Utilizing a Tablet PC in the Mathematics Classroom

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Kelvin Dueck Grades: 7—Post-Secondary  
9:40–10:30 and 11:40–12:30 in Room 228  
(Repeated Session)

For the past two years, I have been posting my lessons on Youtube as videos. This session will describe how a tablet PC can be used in the classroom to create online lessons and screencasts for students.

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## FlexMath: A Model that Works

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K.T. Pirquet and Bob Messer Grades: 8—12  
9:30–11:00 in Room 303

Self-paced, highly structured and empowering for students, flexMath is a model that allows more learning and more satisfaction for everybody. Teach one-on-one or small groups, remediate and challenge as you go, get students really ready for whatever comes next. The best part is: they attend!

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## Assessment for Learning in the 21st Century

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Christine Younghusband Grades: 8—12  
9:40–10:30 and 1:40–2:30 in Room 227  
(Repeated Session)

What does Assessment for Learning (AFL) have anything to do with 21st Century Learning? EVERYTHING. Aside from incorporating technology, one of the key ideas of 21st Century Learning is the self-directed learning of students. Not every student will engage in the same activities or at the same capacity to achieve the prescribed learning outcomes. What counts? AFL provides flexibility for the student and the teacher to provide authentic assessment of student learning in mathematics in addition to accommodating for differentiated instruction and self-directed learning. This workshop will address implementing AFL strategies, alternative grading practices to consider, and 21st Century Learning in the secondary math classroom.

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## Functions in High School- Are We Missing Something?

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Dan Kamin Grades: 8—12  
10:40–11:30 and 1:40–2:30 in Room 221  
(Repeated Session)

It is all over the curriculum in high school math, but are we making the important points and connections about graphing and functions?

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## Mathematical Connections and Educational Conversations: SFU Math Outreach Programs for Students and Teachers

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Petra Menz (Burnaby) and Natalia Kouzniak (Surrey)  
11:10–12:40 in Room 302      Grades: 8—Post-Secondary

The Department of Mathematics at Simon Fraser University offers a variety of outreach programs for students grades 8 — 12 and their math teachers. It is the goal of the presenters to raise awareness of these programs such as A Taste of Pi, SFU Math Camps for Teachers and Students, Changing the Culture, Meet'n Greet Math, SFU Math Volunteering Program at the Vancouver Native Education College, and Math Catcher: Mathematics Through Aboriginal Storytelling, which enrich mathematical experiences, aid transition from high school to university, and provide educational exchanges around issues of teaching mathematics at all levels. We also want to introduce teachers to our new endeavor — the Math Student Ambassadors. Moreover, this session is seen to offer teachers an opportunity to meet us and to have a meaningful conversation about their students' needs

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## eLearning for the High School Classroom Teacher: Part I

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Cameron Joyce                      Grades: 8—Post-Secondary  
9:40–10:30 in the Library

Since the spring semester of 2011 I have been teaching my classes backwards, where they get their lessons at home and do their homework at school. It's been an interesting journey and I've created a structure within the school that allows me to teach to classes of 20 at a time instead of 30. I'll spend two sessions detailing some of the ways eLearning is used in my classroom and the advantage it can provide to both teachers and students.

In this workshop teachers will learn how to create their own SmartBoard for under \$100, use simple screen capture software to record lessons and post them to YouTube or a personal site on the web. Even if you're not very tech savvy you can have this up and running in 30mins. I use this setup extensively and in one year have over 70,000 student views. I will also give an introduction to Adobe Captivate (Adobe's eLearning

software) to create lessons and assessments that can be reported back to the teacher and even guide the flow of the online lesson. If you have your own laptop please bring it to my second session we can work together to setup and use the software this session.

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## eLearning for the High School Classroom Teacher: Part II

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Cameron Joyce                      Grades: 8—Post-Secondary  
10:40–11:30 in the Library

Since the spring semester of 2011 I have been teaching my classes backwards, where they get their lessons at home and do their homework at school. It's been an interesting journey and I've created a structure within the school that allows me to teach to classes of 20 at a time instead of 30. I'll spend these sessions detailing some of the ways eLearning is used in my classroom and the advantage it can provide to both teachers and students.

This session will be a work and learn session for people able to bring their own laptops to work on. We will install the software together (free, full version but limited to 30days) and I will walk participants through a tutorial to create materials for your classes in the hope of getting you started with Adobe Captivate and screen recording. It's recommended you download the Adobe Captivate and Camtasia studio trials before coming to the workshop in case internet connections are slow or not available.

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## 21st Century Learning with Technology

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Len Catleugh                      Grades: 8—Post-Secondary  
11:40–12:30 in Room 227

Come and see an overview of what is available to help teachers with the new math curriculum from a new colour handheld, software, and free resources to make your math classroom engaging and interactive. Attendees will receive discount coupons.

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## Building Better Math: Applied Math Problems for High School Students

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Laura Billing and Elizabeth Gray      Grades: 10—12  
11:10–12:40 and 1:20–2:50 in Room 329  
(Repeated Session)

BCIT's Math Department is developing applied problems for students in grades 10 to 12. Our goal is to demonstrate to the students why math is critical in many technical fields. The problems we are creating will be available as online assignments, which are automatically graded as soon as they are submitted, thus giving instant feedback to students without increasing marking load.

Last year, we demonstrated a small selection of such problems, and learned that many teachers would be interested in Building Better Math in their classrooms. We have continued to develop more problems over the past year, and would now like further feedback on both the questions and the interface. This session gives attendees a hands-on opportunity to see the problems as a student would and to build an assignment as an instructor.

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## Making Workplace and Apprenticeship Math Relevant to Students

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Katharine Borgen      Grades: 10—12  
1:20–2:50 in Room 208

A speaker from Pacific Educational Press will explain how the methodology behind the MathWorks books addresses the changing needs of students in Workplace and Apprenticeship Mathematics. The different MathWorks resources will be explained and explored to give teachers a clear idea of how to engage the students, keep motivation levels high while ensuring that curriculum expectations are met.

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## Foundations or Pre-Calculus? Let's Help Students (and Parents) Make the Right Choice!

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Michael Pruner      Grades: 11—12  
11:40–12:30 in Room 222

In this session, we will examine the Foundations pathway and the BC post secondary institutions and specific programs that have accepted this stream as a math prerequisite for admission. We will examine topics from the grade 11 and 12 Foundations courses such as Logical Reasoning, Statistical Reasoning, and Mathematical Modelling in an effort to understand why the content and reasoning developed in the Foundations stream better prepares students for many post secondary programs than the Pre-Calculus stream.

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## Math in the 21st century: Using Technology to Enhance Pre-Calculus 11 and 12

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Sandra Rietchel      Grades: 11—12  
10:40–11:30 in Room 222

Our students live in a digital world. Discover how technology can not only engage these digital natives, but build learning in ways that were not possible a decade ago. By referencing Pearson's Pre-calculus 11 and 12 resources, discover how projectable SMART Lessons, animations and dynamic activities can illuminate concepts and build understanding. And see how personalized study programs, such as MathXL for School, can enhance study skills and increase student ownership of learning.

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## Hands on — Minds on: Great Activities from Pearson's New Pre-calculus 11 and 12 WorkTexts

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David Sufirin

Grades: 11—12

9:40–10:30 in Room 222

Come and experience a variety of dynamic explorations and Math Labs specifically designed to build understanding of critical concepts in Pre-calculus 11 and 12. By drawing on activities from Pearson's new Pre-calculus 11 and 12 resources, discover how students can develop a deep foundation of skills and concepts by working together to construct understanding.

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## Using Technology to Enhance your Grade 11 and 12 Pre-Calculus Classroom

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Bruce McAskill

Grades: 11—12

11:10–12:40 in the General Lab

Join Bruce McAskill as you explore how the variety of technology-based activities integrated throughout McGraw-Hill Ryerson's Pre-Calculus 11 and 12 mathematics program can help engage your students including McGraw-Hill Ryerson's new CONNECTschool for Teachers and Students. Whether you are a seasoned user of technologies such as GSP and interactive whiteboards, or are just getting started, you will leave this session with practical "tips" and new ideas.

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## Pre-Calculus 12 and your Classroom!

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Bruce McAskill

Grade: 12

1:20–2:50 in the General Lab

Join Bruce McAskill as he discusses the new Pre-Calculus 12 outcomes, curriculum changes and new resources. Learn how McGraw-Hill Ryerson's new WNCP selected engaging and interactive Pre-Calculus 12 resources (including textbook, workbook, online CONNECTschool, dynamic Examview testbank, and more!) allow teachers to customize content and students to personalize their learning!

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## New Teachers' Conference

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February 11

Queen Elizabeth Secondary School

Surrey BC

This conference is for anyone new to teaching math, whether a new teacher or a veteran taking on a new challenge.

If you are a new teacher, or know one, please let them know about this conference. More information will be available on [www.bcamt.ca](http://www.bcamt.ca) in November.

