

***MATHEMATICS PROFESSIONAL DEVELOPMENT
DAY
FRIDAY, FEBRUARY 12th, 2010
8:15 – 13:35***

*Hosted at
Sir Wilfrid Laurier Secondary School
1515 10th Line Road
Orleans, Ontario
K1E 3E8
(613) 834-4511*



**OTTAWA-CARLETON
DISTRICT SCHOOL BOARD**

Message from the Math Subject Council:

Happy New Year! As we move into the second decade of the 21st century there have been a lot of changes to the way we are teaching and assessing mathematics in high school. The offerings in this year's professional development day will address this direction in teaching.

This year the Math P.D. Day offers a wide variety of workshops to allow you to explore the areas of your practice you are most interested in. You could examine some neat stuff on You Tube, tinker with technology, learn about some interesting books or find ways to allow students to take ownership of their learning. Whatever you choose, the focus is definitely on making mathematics more relevant, meaningful and accessible for our students. Thanks very much to all of our presenters for allowing us to have such a range of offerings.

Math Subject Council hopes that you will find something that will help you continue to carry the spark of learning to you and your students. Enjoy your day connecting with and learning from your colleagues.

Agenda for February 12th, 2010

Time	Activity
8:15 - 9:00	Registration/Exhibitors/Networking
9:00 -10:00	Key Note Speaker
10:10 -11:05	Workshop #1
11:15 - 12:10	Workshop #2
12:10 - 12:40	Networking/Exhibitors/Light Snack
12:40 - 13:35	Workshop #3

Keynote Speaker:

Giancarlo Brotto is the SMART Technologies™ Education Consultant for Ontario. He works with educators to ensure that the adaption of SMART™ products leads to effective integration, sustained use, and maximum impact on teaching and learning. Before joining SMART™, Giancarlo taught mathematics for six years in a high school laptop program in Ontario.

Presentations:

Presentation 1

Topic : Career Connections
Presenter : Dana Rosenblatt
Organisation : Insurance Institute
Duration : 55 minutes

At the Insurance Institute, we understand that insurance is a complex topic and can be a slightly daunting one to teach. However, we have developed resources based on the Ontario curriculum that can aid you in meeting classroom expectations while introducing your students to the real world of insurance. In addition to these resources, we have created one specifically designed for use in math classes. This presentation will walk you through this resource to show you how it can be incorporated into your daily lessons using our teacher friendly plans. We will also look at our other resources to illustrate how they too can be used in the classroom to teach topics such as car insurance in an easy and interesting manner.

Presentation 2

Topic : Curriculum Connections through I/O Diagrams
Presenters : Marjorie Casey-Rivenell
Organisation : Sir Robert Borden Secondary School
Duration : 55 minutes

I/O diagrams are a low-tech tool with a high-end payoff! We have found that they are great for helping students understand and connect representations of functions in a way that allows them to build on their understanding as they progress through the curriculum. I will describe the concept through practical examples, and describe how they integrate with curriculum concepts from grade 10 to grade 12.

Presentation 3

Topic : **The Wiimote-Based Interactive Whiteboard**
Presenter : **Bruce McLaurin**
School : **Glebe Collegiate Institute**
Duration : **55 minutes**

Developed by Johnny Chung Lee, this interactive whiteboard system uses the sophisticated electronics of the Nintendo wiimote game-controller and an infrared pen to write directly to a projected computer image. My latest modifications remove the geek factor from this system. A few clicks on the computer, four clicks to calibrate the screen and the interactive whiteboard is up and running. We are using YoT classroom computers and data projectors to create twenty interactive whiteboards for the price of one SmartBoard. Whatever can be done with a mouse (and keyboard) at the computer, you and your students can do with a pen on a large screen. The operation of software such as Fathom and Geometer's Sketchpad is more transparent when students can take turns demonstrating concepts at the front of the classroom. I will discuss the advantages and disadvantages over SmartBoards and provide instructions for setting up this system in your own classroom or school.

Presentation 4

Topic : **Math, Movies, and YouTube**
Presenter : **Bruce McLaurin**
School : **Glebe Collegiate Institute**
Duration : **55 minutes**

Another round of math videos harvested from the web, TV and Hollywood. When I first began to show portions of DVD's in my classes, students were often annoyed when I stopped the video after a few minutes. Times have changed and the YouTube generation has little problem with a short clip of video. I use video to introduce topics and problems, promote general interest, entertain and reduce math anxiety. I will show you a couple of ways to grab videos from the web and offer you a CD with math videos that will run on your classroom computer.

Presentation 5

Topic : JING It! It will look better and it is for free.
Presenter : Nour Harriz
School : Lisgar Collegiate Institute
Duration : 55 minutes

Do you want to show your students a cool or an educational video from YouTube but you don't have access to it on schools' computers? Do you want to create assignments that have images downloaded in any format from any resource which you can annotate? Do you want to give your students the opportunity of submitting creative assignments to your email account that normally have huge sizes but you would receive them as a web link? Do you want to create interactive multiple choice lessons and survey questions using cell phones not clickers? In addition to all that, you will witness the use of the cheapest Wiimote-based interactive white board that has the same potential of a Smart Board but costs \$80. I will also share my Skype experience in teaching my MCV4U class.

Presentation 6

Topic : MPM2D Bridge Activities and Practice Summative
Presenter : Robert Tang
School : Lisgar Collegiate Institute
Duration : 55 minutes

This presentation will examine in class activities that would take place throughout the MPM2D course based on the theme of bridges from around the world. These activities would in turn lead to an open ended practice summative at the end of the semester where students would build and analyze mathematically their own bridge.

Presentation 7

Topic : **Using Samples of Students' Work to Improve Learning**
Presenter : **Ann Arden and Andrew Parent**
School : **Osgoode Township High School**
Duration : **55 minutes**

Peer and self-assessment are two important aspects of 'assessment for learning' but can be challenging for teachers to implement meaningfully in the classroom. During this session, we will discuss some of the research literature related to the use of peer and self-assessment to promote learning, and will share strategies and resources that we have used in our own classrooms. There also will be an opportunity for participants to share and discuss ideas.

Presentation 8

Topic : **Favourite Math Books**
Presenter : **Mike Campbell**
School : **Glebe Collegiate Institute**
Duration : **55 minutes**

Most of us do not want to read textbooks in our spare time. I buy math books that I think I will personally enjoy. Most of these books provide activities/ideas I could use in the classroom. I will present sample puzzles, problems and ideas from some of my favourite books on mathematics. Most can be appreciated by high school students. All have provided me enjoyment. My goal is that here will be at least one book that you will want to go and buy for yourself. Except for a very brief recapitulation of last year's presentation, the books are new and different.

Presentation 9

Topic : **Talking Less, Listening More**
Presenter : **Ron Watkins**
Organisation : **OCDSB**
Duration : **55 minutes**

Participants will explore strategies for engaging students in meaningful discussion and teaching through problem solving using open questioning and cooperative learning. I'll share some strategies that have come from the work done through the math GAINS initiative and show how they can be used as a starting point for addressing the mathematical process expectations. Bring some of your ideas and questions to share!

Presentation 10

Topic : Transitions to University Calculus
Presenters : Monica Nevins
School : University of Ottawa
Duration : 55 minutes

With the compression of the Ontario high school curriculum, students arriving in university have had less time to absorb advanced mathematical topics. This often expresses itself in difficulties with "basic" algebraic manipulations, even in students whose conceptual understanding of Calculus is strong. However, universities are not reducing their mathematical expectations of first year students.

We'd like to share results of diagnostic tests (on pre-Calculus material) as predictors of success in Calculus, and discuss the potential use of diagnostic tests as motivators for students to spend additional time practicing their Advanced Functions skills (or at least to attend tutorials!). Open discussion will include the content of the diagnostic tests, and of remedial workshops and tutorials.

Presentation 11

Topic : What can College Technology (MCT4C) do for your students?
Presenter : Barbara Canton of Loyalist CVI, Kingston (Limestone DSB).
Organisation : McGraw-Hill Ryerson
Duration : 55 minutes

This session will focus on how MCT4C prepares students for a variety of college level technology and business programs. Classroom-ready handouts will be provided.

Presentation 12

Topic : SMART Notebook and Notebook Math Tools
Presenter : Robert Tang
School : Lisgar Collegiate Institute
Duration : 55 minutes

This workshop is an exploration of what SMART Notebook software has to offer to a math classroom (with or without a SMART Board). This workshop will also explore the newest add on tool to SMART Notebook, Notebook Math Tools, which has many unique features that are made specifically for a math class. Come and see how SMART Notebook can offer an interactive environment for students and teachers to explore concepts in math.

Presentation 13

Topic : Technology in the Classroom
Presenter : Robert Tang
School : Lisgar Collegiate Institute
Duration : 55 minutes

This workshop will examine current technology (software and hardware) that can be found in a classroom and how it is integrated into the classroom environment. This workshop will also examine possible technology that may find a way into classrooms in the near future. Come and be inspired with the near endless possibilities that education technology can bring to your classroom.

Presentation 14

Topic : Creating Demonstrations Using Geometer's Sketchpad
Presenter : Andy Hughes
School : Colonel By Secondary School
Duration : 55 minutes

This workshop is intended for those interested in learning about Geometer's Sketchpad. The main discussion points will be with respect to creating demonstrations for all levels (1D, 2D, 3M/U, all 4Us).

Presentation 15

Topic : Introduction to Wiki
Presenter : Evelyn Benoit
School : Canterbury High School
Duration : 55 minutes

Create your own wikispace in this workshop. Offered free to educators. A great backup resource for your students and parents--especially helpful for the forgetful or absent student. From listing homework and important dates to uploading handouts and class notes, you customize content, access and interactivity settings. Participants are invited to bring a flash drive with a few files to upload (start with a course outline!) and with your favourite math links to share.

Presentation 16

Topic : A Graphic Organiser for Organised Graphing
Presenter : Michel Sauvé
School : Adult High School
Duration : 55 minutes

This session will provide participants with a powerful paper and pencil analysis tool to share with their students to assist in graphing several types of functions. This is useful for teachers of MCV4U and MHF4U, as the technique can be effectively applied to great advantage even without calculus. The basic approach is to provide students with method to organize the information needed to make a quick sketch of a curve taking into account zeros, missing points, asymptotes, end behaviour, approximate location of extrema and points of inflection.

Presentation 17

Topic : Problems? No Problem! A Grade 9 Academic Approach
Presenter : Anne Fitton and Jocelyn Brown
School : Sir Wilfrid Laurier Secondary School
Duration : 55 minutes

It's a common dilemma: We want to incorporate more problem-solving into our grade 9 classes, but we struggle to make it work with our students. What about their skills? They can't take a long lesson! They won't try anything hard for homework! Come and hear about our recent efforts to engage all students in higher-level thinking with cooperative problem-solving, while incorporating skill development. Participants will leave with sample activities, and some suggestions for how to develop their own problems.

Presentation 18

Topic : **YourMoney: Bringing Financial Literacy to the Classroom**
Presenter : **Melanie Minos, Manager**
Organisation : **Public Education Communication, Canadian Bankers Association**
Duration : **55 minutes**

Managing *YourMoney* is about more than just what you buy. It means making informed choices, and using money wisely to reach your goals. Learn about the free non-commercial seminar available to teachers to bring financial literacy to life in the classroom. With topics on budgeting, saving, investing and using credit wisely, *YourMoney* raises student awareness of money matters and sets the stage for future classroom discussion.

Presentation 19

Topic : **Data with a Purpose (MDM4U)**
Presenter : **Robin McAteer**
School : **Sir Robert Borden Secondary School**
Duration : **55 minutes**

As a Data Management teacher, I was growing very tired of biased, irrelevant data from student surveys, and was chronically frustrated by students' inability to connect with the data and draw insightful conclusions. I have seen a noticeable improvement in motivation and achievement in my Data Management classes since I started incorporating a School-wide survey project into my courses. Each year, students work as a class to create and analyze a school-wide survey on a topic of current interest to the school community: students, teachers, and parents. I will present a framework and tips for coordinating this project, give curriculum connections, assignments, and samples of student work.

Presentation 20

Topic : **Clickers: A teaching Gimmick that Works**
Presenter : **Caroline Orchard**
School : **Sir Robert Borden Secondary School**
Duration : **55 minutes**

In class, when the instructor poses a multiple choice question and asks the students to respond, each student clicks an answer, which is picked up by the receivers and stored with the student's records by the software. The software can instantly display a histogram of the students' answers, which can be displayed to the class with a data projector. The software also allows the instructor to later look up the responses of an individual student to each question. Most importantly, the students are actively engaged with the topic at hand and therefore, more likely to understand. Clickers are also very effective at determining what students know about a particular topic prior to teaching it.

Presentation 21

Topic : What is 9? Next years topic, what is 10...stay tuned
Presenter : David Chambers and Barry Needham
School : Ridgemont High School and Glebe Collegiate Institute
Duration : 55 minutes

How to survive teaching MPM2D. It may be outside of the box but we need to put it back in the box for the sake of consistency. The goal of this workshop is to help define the expectations from the questions at each level as well as help you in writing "the right type" of question. We will discuss examples of questions from all levels and strands. Whether you are new to the new math or just want some reassurance that you are on the right track, it is sure to be of benefit to us all.

Presentation 22

Topic : Controlling the Chaos of a 2P Class
Presenter : Denise White
School : Sir Wilfrid Laurier Secondary School
Duration : 55 minutes

Wondering what open ended questions may look like in a 2P class? Willing to share some ideas about what has worked in your class? Join us for a discussion group about how we can alter our day to day classroom practice in the 2P classroom in order to better prepare our student to make connections and develop a deeper understanding of mathematics.

Presentation 23

Topic : Help on Handouts
Presenter : Michael Czudner
School : Longfields-Davidson Heights Secondary School
Duration : 55 minutes

We will learn how to make professional and great looking handouts. We will learn how to make amazing looking graphs, charts, shapes, drawings and complicated mathematical equations.

We will look at shortcuts, hints and strategies as we explore Microsoft Word, Winplot, Excel, GSP and other programs. Many handouts, hints and instructions will be provided that you can take away with you.

This workshop is intended for beginners and novices on the computer and people who would like to learn a few tricks to make their handout preparation easier, faster and more rewarding.

Presentation 24

Topic : Real Data for Real Projects from Statistics Canada for MDM4U
Presenter : Angela McCanny
Organisation : Statistics Canada
Duration : 55 minutes

MDM4U teachers...are your students having trouble finding data? Help them access **E-STAT**, with secondary data from over 250 surveys (now with 41 million time series, covering many different topics). This section of the workshop would mainly cover **how to search for data**, as well as options for display on the screen (**graphs of all kinds, including scatter plots with regression**). We will show how to export to other software. The workshop will also introduce you to working with **microdata** sets from the **2001 Census of Canada** (1000 records, 40 attributes; file for each province) and international student data from the **Census at School project** (30 variables, half quantitative and half qualitative).

Presentation 25

Topic : Function Modelling with Real Data for Grades 9 to 12
Presenter : Angela McCanny
Organisation : Statistics Canada
Duration : 55 minutes

Among the resources available on the StatCan website for mathematics education, we have culled a collection of **real world data sets** that illustrate various functional forms: **linear, quadratic, cubic, exponential, and sinusoidal, and examples of combined functions**. Students with access to software can apply function-based mathematical models to diverse topics such as life expectancy, the number of births, the federal debt, production of beer, the employment rate of 15 to 24 year olds and many others. In this workshop you will see where to find this resource and how to estimate the parameters of a function that best estimates a chosen data set in Fathom or Excel.

Presentation 26

Topic : The Zen of Math 2D
Presenter : Donna Corning and Esmeralda Fernandes
School : Sir Wilfrid Laurier Secondary School
Duration : 55 minutes

How do we focus on daily activities (the process) so that the product (exam and summative) will take care of itself? We would like to discuss daily practices in the classroom to help students make connections and what we hope to do in semester 2 to obtain evidence of student learning. Audience participation is encouraged. Please be prepared to share some of your successful practices with the group.

Presentation 27

Topic : Investigating Social Justice Questions Using Mathematics for
Grades 9 to 12

Presenter : Angela McCanny

Organisation : Statistics Canada

Duration : 55 minutes

Are you looking to make math relevant to students? Show them how useful math can be to understand some social issues: income inequality, differences in access to health care, the relationship between income and literacy, the digital divide, survival of our forests... Statistics Canada has created a resource containing several **questions on social justice issues**, each with an associated data set to explore that question. Students must use the math tools at their disposal to shed some light on the issue. Mathematical techniques needed are many – **percentages, creation of an index, probability, function modeling**. Students at various high school grade levels will find something for them. The workshop will allow you time to examine this resource, suggest math methods for several of the questions and challenge you to find your own.

Presentation 28

Topic : Team Teaching MCT4C, Math for College Technology/MAT8100,
Essential Mathematics

Presenters : Nelly Fayçal, Mathematics Coordinator, School of Advanced
Technology, Keith Crichlow, Professor of Mathematics, School of Advanced
Technology, and Carolyn Connell

School : Algonquin College and South Carleton High School

Duration : 55 minutes

The MCT4C prerequisite course is necessary for some college technology programs. This pilot dual credit opportunity: increases the success rate of students entering specific college programs; promotes the offering of MCT4C at the secondary level; provides secondary school and college educators with an understanding of curriculum, assessment practices, learning styles and delivery techniques at both levels. The presentation will highlight mapping of the curriculum, planning and delivery, organization, student selection and testimonials.

Directions to Sir Wilfrid Laurier Secondary School

Use the instructions found below, or a mapping direction software like Google Maps to get proper directions from where you are coming.

From the West

- Stay left after St. Laurent in order to get onto Route 174

From the East or West Route 174

- Exit at Tenth Line
- Head south on Tenth Line
- Turn left (at the 3rd lights after the exit) into the parking lot (on left) at 1515 Tenth Line Road

Questions:

If you have any questions, please ask your Math Subject Council Representative. If your school does not have a Math Subject Council Representative, please feel free to contact Kim Evans via BEAM.