

June 2011

# bcamt newsletter

## President's Message

Although I will have officially finished my term as BCAMT president by the time you read this, I still get one last chance to write a President's Message for my final newsletter. Accordingly, I will take this opportunity to express my heartfelt thanks to some of the people who have supported me through my term and helped make it such a worthwhile experience.

First and foremost, I need to thank my wife and my three kids, who have put up with my frequently being away, and my often being pre-occupied when I am at home. I thank them for their understanding and for grounding me in what matters throughout these past few years.



My family, understandably, is excited about having me at home more in the coming years, and I want them to know that I am equally excited about having more time to spend with them.

I have to acknowledge though, too, that my time as president (and vice president before that) has been exciting for me personally and professionally, and I have my colleagues on the executive to thank for that in large part. Working with such a dedicated group of volunteers, who are passionate about math education, has been stimulating and enormously rewarding. Special thanks go to the table officers with whom I have served, as

they have been a close-knit, collaborative team with which to work. I am thankful to be able to continue to serve with the table officers now as past president, and am looking forward to supporting Chris Becker as he takes over the presidency.

Finally, I wish to thank the membership as a whole and the many members I have personally met over the past few years for giving me this opportunity to serve them as president. It has been a very rewarding experience leading such a fabulous organization, honouring and promoting excellence in mathematics education. I am proud of the work the executive has done on behalf of members over the past two years,

including the ongoing work (running conferences, communicating with members, advocacy, etc.) as well as several expanded or new initiatives (regional meetings, the assessment support publication).

Though my term as president is over, I am no less excited about continuing to work on initiatives the executive set out at our annual planning session last month. We have been working hard over the past couple years to bring a publication of assessment stories to print, and have reached the stage of sending it to press. I had earlier suggested the book would be released around Spring Break of this

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year, but we did not get the editing and page-setting done in that timeline. Now we are excited about launching the book officially at next year's Fall Conference in Burnaby. Preview chapters of the publication are available on our website now.

Another new initiative I am excited to announce for the Fall is a BCAMT Leadership Summit to be held in September. For this meeting we hope to bring together district mathematics and numeracy contacts from around the province to pool resources and help form a robust leadership network that people can rely on in years to come.

I wish you all the best for the remainder of this school year and for your summer. Hope to see you all next year at Cariboo Hill Secondary for the Fall Conference!

# Post-secondary Acceptance of the New Pathways

With one year of delivering the new grade 10 courses under our belts, and the three new grade 11 courses coming this Fall, math teachers in BC remain curious about any developments in post-secondary acceptance of the new math courses. Also, the course subscription numbers at schools around the province are of general interest. At the annual meeting of the BC Committee on the Undergraduate Program in Mathematics and Statistics last month, I had an opportunity to discuss both these issues with representatives from math and stats departments at most of the colleges and universities in BC.

The chart below is similar to the one I published in January, but there are some important edits to note. First, we learned this Spring that UVIC has changed its requirement for entry into Arts programs. This is

big news, as it means all the major universities except UBC Vancouver now allow a student to enter an Arts program with Foundations of Math 11. Also, the UNBC information that I had reported was incorrect, with respect to the Nursing program. It may well be that the information I have here is or will also be out of date, but it is the most current information I could get. We are maintaining a similar chart on our website that can be updated regularly, so check there for information in the coming months. Let us know if we need to change or add any information.

With respect to course subscriptions, I reported to the BCcupms that course numbers for the new pathways are more in line with the intent of the curriculum than were the old pathway subscriptions. Recall that

the intent is about 20% subscription to the AWM pathway, 50-60% subscription to the FOM pathway, and 20-30% subscription to the PREC pathway. While these percentages are not being realized, and it definitely varies from district to district (with closer proximity to UBC Vancouver indicating an increasing percentage of PREC 11 blocks scheduled), the current indication is that FOM 11 is certainly getting healthy subscription numbers, approximately equal to PREC 11 in many districts, and only slightly less in others. Of course, small, rural schools and districts remain an issue, as they are under-resourced to offer three pathways.

Stay tuned to these pages for further updates as the courses roll out. If you have any info to add, please email [president@bcamt.ca](mailto:president@bcamt.ca).

Institution	Arts Degree (or transfer)	Business	Carpentry Program	Music	Nursing
BCIT	n/a	Any 11	Any 11	n/a	FOM 11 (B)
Camosun	Any 11	FOM 11 or PREC 11	AWM 11 preferred	Any 11	PREC 11 or FOM 12
Capilano	Any 11	AWM 12, FOM 11, PREC 11	n/a	Any 11	n/a
Douglas	FOM 11	FOM 11	n/a	Any 11	FOM 11
Okan. College	Any 11	Any 12	Any 11	n/a	PREC 11
Selkirk	Any 11	FOM 12 or PREC 11	AWM 12 (or PREC 11 or FOM 11)	Any 11	FOM 12 or PREC 12
SFU	FOM 11 or PREC 11	PREC 12	n/a	FOM 11 or PREC 11	n/a
TRU	Any 11	PREC 12	Any 11	n/a	FOM 12
UBC	PREC 11 or FOM 12	PREC 12	n/a	PREC 11 or FOM 12	PREC 11 or FOM 12
UBC-O	Any 11	PREC 12	n/a	n/a	PREC 11 or FOM 12
UNBC	Any 11	PREC 12	n/a	n/a	FOM 11 or PREC 11
UVIC	PREC 11 or FOM 11	PREC 12	n/a	FOM 11	n/a
VCC	Any 11	Any 11	n/a	Any 11	Any 11

## Questions Worth Asking

The BCAMT Executive is proud to announce that its work on a publication to support BC math teachers in understanding and adopting innovative assessment practices is nearing its goal. We announced earlier this spring that the book is ready to be printed, and we have made some preview chapters available online at [bcamt.ca](http://bcamt.ca). The print version of the book will be officially released at the BCAMT Fall Conference in Burnaby next October. What follows is an excerpt from the Preface to the book (the full preface is available online):

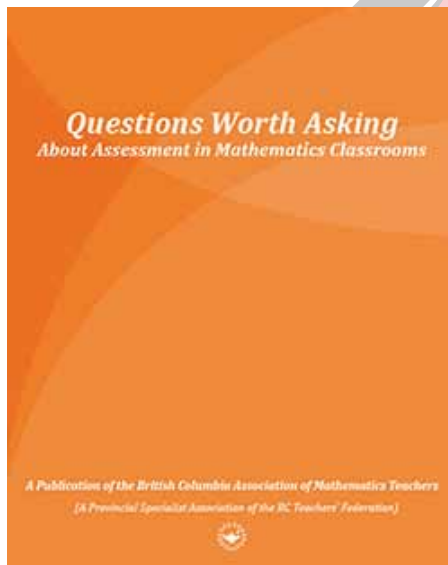
We have called the book *Questions Worth Asking* because this book focuses more on questions than answers. It is a collection of stories written by actual math teachers in BC who are wrestling with questions about assessment, and have agreed to share some of their struggles and successes with colleagues around the province. We have designed the book to be in the spirit of focused professional dialogue that we know is already occurring for the writers of these stories, and which would benefit the wider membership of the BC Association of Math Teachers (BCAMT). We all have a lot to tell each other, and this book is intended to facilitate such dialogue. Our vision is that you take these

stories as extended conversations with colleagues who might work in a classroom next door to yours. Imagine, if you will, that you are wondering about how journals can be used in a math class, and you hear a neighbouring teacher is doing just that. So you go to her and ask, “What can you tell me about journaling in math?” The story of Melissa in this book is one colleague’s answer to such a question. Our intent is not that you would adopt the strategies and interventions in these stories wholesale, but that you would take them in this spirit of ideas shared by fellow

teachers, to be discussed, reflected on, adapted, and even respectfully challenged.

The editors have provided a short preamble, a list of things to look for, and a set of further discussion questions for each story. These pieces are where we try to highlight the common themes we have found in the stories, which serve to tie these specific stories as instances of actual practice into the wider field of theories about assessment.

We feel quite confident that finding meaning in these stories will not be difficult. Check out the samples online and look for the book at Cariboo Hill Secondary in the Fall.



## Reading List

As we head into another summer, if you find yourself looking for some professional reading to do, consider one of the following four books, recommended by executive members or on the listserv recently.

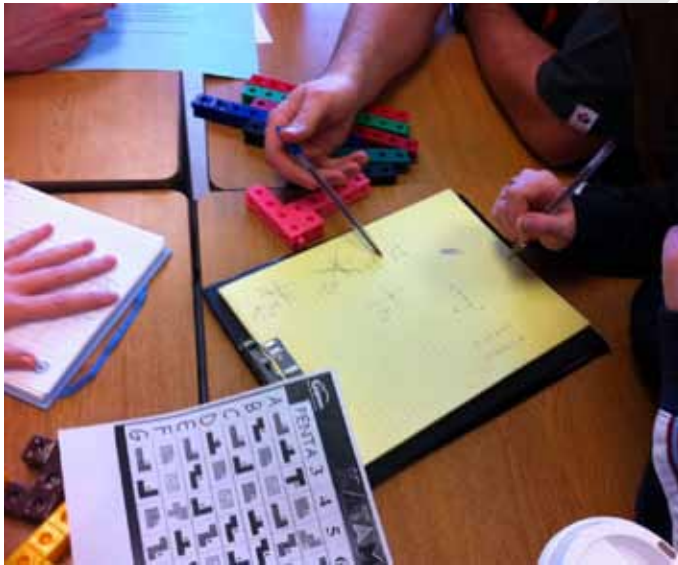
1. *Letters to a Young Mathematician* By Ian Stewart  
Written as a series of letters to a fictional correspondent named Meg, this book represents what Stewart wishes he had known when he was a student. The letters cover the time span from Meg’s final years in high school to her receiving tenure at an American university.
2. *A Mathematician’s Lament* By Paul Lockhart  
An engaging, though somewhat controversial essay about what is wrong with mathematics education in North America. It offers an astute diagnosis, and hints at some possible treatments.
3. *More Good Questions: Great Ways to Differentiate Secondary Mathematics Instruction* By Marian Small and Amy Lin  
Outlines two core strategies for differentiation – open questions and parallel tasks – and offers examples from various topic areas in high school mathematics.
4. *What’s Math Got to Do With It?* By Jo Boaler  
Professor Boaler presents her analysis of the American math education problem, and offers solutions based on her research into classroom methods that promote interest in math and retention of math knowledge.

## Regional Meetings

by Chris Becker

Over the last four months, the BCAMT held its regional meeting in six locations throughout the province (Kelowna, Prince George, Nanaimo, Vancouver, Castlegar and Terrace). With almost 150 participants, these meetings were attended by a wide range of math teachers (kindergarten

pattern blocks, base-10 blocks, algebra tiles), activities for the new grade 10 courses, developing a new course from the CCF, Geometer's Sketchpad, and BCAMT's new assessment publication. Great discussions were had regarding the new courses, implementation, manipulatives, student success, post secondary acceptance, and many other topics.



Participants at Kelowna regional work on some opening problems.

to calculus teachers, math coordinators, helping teachers, special education teachers, alternate education teachers, learning assistance teachers, and administrators). The focus of these meetings was to give teachers a chance to connect and ask questions with a ministry of education representative, to discuss the implementation of the new curriculum, and to have some professional development.

The professional development was varied and depended on the region and the teachers who attended. Some professional development areas that were discussed & investigated were manipulatives (such as integer tiles,



Participants in the Kootenays explore the use of algebra tiles and other manipulatives.

his school, South Kamloops Secondary.

A big thanks to the site coordinators and to those who presented at the regional meetings this year. Hope to see everyone again at next year's regional meetings.

If you have any questions, or would like to host a regional meeting in your area next year, please contact new Vice President, Brad Epp, at [bepp@sd73.bc.ca](mailto:bepp@sd73.bc.ca) or at

## BCAMT Summit

In several school districts now across the province, there are individuals who have a responsibility of leadership in supporting numeracy in their district. The roles go by many different names (helping teacher, coordinator, consultant, etc.), but the issues that these teachers face and the projects that they work on share a lot in common. Over the past few years, networks of neighbouring districts have emerged (e.g., GRINN, Island-Net, Lower Mainland) that have provided a vehicle through which dialogue about the issues could take place and common projects could be undertaken.

The BCAMT, who has for many decades been a voice of leadership in Mathematics education in the province, believes that district leaders in numeracy could benefit even more from networking with their colleagues from across the province and with the Executive of the BCAMT.

To this end, the BCAMT Executive is excited to announce that it is organizing an event called the BCAMT Leadership Summit, with the intention of gathering together a selection of leaders in numeracy from across the province for a face-to-face gathering: to discuss issues, to plan for potential projects, and to consider the future structure and direction of a province-wide network.

Based on some feedback on a survey conducted last month, the Executive has set a date and a preliminary agenda for the event. We will be hosting the leadership summit on September 16. The location is not yet determined. Stay tuned for further announcements and reports on the event. Email [president@bcamt.ca](mailto:president@bcamt.ca) if you have any questions.

# Tour de BC

## The Scenario

Your racing team is entered in a race through five BC towns. Your team needs to refuel several times and will use speed calculations to calculate the anticipated finish time.

## Decisions To Make Before Arriving At Class

Before beginning the "Tour de BC", your team needs to arrive at class with a race team name, team members, a vehicle chosen, and the fuel capacity and efficiency of the vehicle noted. Use the table "Make and Model of Car" provided by your teacher to help you make your decisions.

## Required Materials

To complete the "Tour de BC", get the following materials from your teacher: 30 cm string, 30 cm ruler with mm measurements, Canadian Oxford School Atlas, Access to the internet

## The Process

### 1. Map Scale: Note the map scale in the atlas

### 2. Atlas Measurements: Measure in mm the distance by road around the tour route in segments between each waypoint (Kamloops, Williams Lake, Prince George, McBride, Avola, Kamloops)

### 3. Calculations (Be sure to support your answers by showing your thought process!)

(a) Using the map scale, convert the measurements from step 2 into kilometers. Access the internet, research the actual distances using sites such as <http://maps.google.ca> or <http://www.mapquest.com>.

(b) Knowing the fuel economy of your vehicle, how far can your vehicle travel on one full tank of fuel?

(c) If fuel costs \$1.307 per litre, how much does it cost to fill your gas tank?

(d) Your racing team now knows how many kilometres the vehicle travels on one tank of fuel. How many refueling stops will your team make during the race? (Assume fuel is available when and where you need it! Use the "Distance According to Website" kilometres.)

(e) How much fuel is required for the race?

(f) If fuel costs \$1.307 per litre, what is the total cost of the fuel for the trip?

(g) In this race, it is required that each pit stop is 10 minutes in length.

(i) Calculate the total time spent in pit stops.

(ii) Convert the pit stop time into hours. Express this time as a fraction in lowest terms and as a decimal accurate to two decimal places.

(h) Traveling at an average speed of 80 km/h, how long will your team spend driving?

(i) How many hours will it take your team to finish the race? Express your answer in hours to two decimal places.

(j) Convert the race time into hours and minutes.

## Bonus:

If you drive at a speed of 100 km/h, how much faster will it take you to complete this course? What other factors would change if your team chose to do this?

## Tour de BC – Teaching Notes

### The Scenario

Each racing team is entered in a race through five BC towns. The students are to determine number of refueling stops needed and use average speed to estimate a finishing time.

### Make & Model of Car - <http://ca.autos.yahoo.com/newcars/>

Make	Model	Tank Capacity (in Litres)	Fuel Efficiency (L/100km)
Ford	Focus	49	5.7
	Mustang GT Coupe	61	11.5
	F-150 XLT 4x4 SuperCab	135	11.7
GM	Aveo LS	45	5.8
	Equinox	78	8.3
	Corvette Z06	68	8.2
Honda	Civic Coupe DX	50	5.7
	Civic Hybrid CVT	46	4.3
	Honda S2000	50	8.4
Hummer	H3	87	11.4
Hyundai	Accent	45	6.2
Jeep	Wrangler	70	10.8
Lamborghini	Murcielago LP640 Coupe	100	15.1
Mazda	Mazda3	55	6.1

### Time Required

Approximately 1-2 class periods (Depending if material has been taught or students are learning the material as they proceed through the activity)

### Required Materials

To complete the "Tour de BC", you need to collect/create thirty 30-cm strings, thirty rulers, fifteen atlases, access to the internet (book a lab). The student sheet as above can be modified to include space for students to complete work.

### Assessment: Descriptive feedback can be given based on the chart below

Of Learning	Teachers can assign marks to each "step" of the process or as desired.
For Learning	Exceeds Expectations: <ul style="list-style-type: none"> <li>• Student can measure &amp; convert distances within 5% of acceptable values</li> <li>• Student will represent their solution in a variety of ways</li> <li>• Student calculations (where appropriate) demonstrate an acceptable reasoning process and are correct</li> </ul>
	Meets Expectations: <ul style="list-style-type: none"> <li>• Student can measure &amp; convert distances within 5-10% of acceptable values</li> <li>• Student will represent their solution to a problem in one way</li> <li>• Student calculations (where appropriate) demonstrate an acceptable reasoning process and are correct</li> </ul>
	Does Not Yet Meet Expectations: <ul style="list-style-type: none"> <li>• Student measurement and conversions are more than 10% off</li> <li>• Student requires significant assistance in representing their solution</li> <li>• Student calculations (where appropriate) do not demonstrate an acceptable reasoning process and are incorrect</li> </ul>

Project Written & Designed by: Katie Hay, Jenn Filek, Jane Wolfram

Project Edited by: Katie Hay & Brad Epp

Special Thanks go to: BCAMT & School District 73

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# The MATHChallengers 2011 Competition

by Dave Ellis

Thanks to many local sponsors, including the BCAMT, another successful event has been made possible.

This year, almost fifty schools in British Columbia sent teams of Grades 8 and 9 students to participate in the MATH Challengers competitions. Professional Engineers, volunteer teachers, professors, parents and students combined their efforts to put together the massive seven-hour events held in February, March and April in search of the best young mathematical minds in British Columbia.

The Lower Mainland regional competition took place at the University of British Columbia on February 5<sup>th</sup>, while the Vancouver Island regional competition was held at Camosun College in Victoria on February 11<sup>th</sup>. An Okanagan regional competition was started successfully this year at Okanagan College in Kelowna on February 25<sup>th</sup>. Over 110 teams with about 550 students in grades 8 and 9 participated in the three regional competitions.

The higher scoring teams and individuals proceeded to the provincial level on March 5<sup>th</sup> at Simon Fraser University where 103 grade 8 and 110 grade 9 competitors participated. Along with trophies and medals to the best performing teams and individuals, the top three individual finalists in each grade were rewarded with cash prizes.

The top scoring individual grade 8 students combined to form two teams that competed in an intramural level of the competition, held on April 16<sup>th</sup> at the British Columbia Institute of Technology in Burnaby, involving teams from British Columbia, Washington and Oregon.

A big reason these events were successful was the engagement of math teachers. The time needed to prepare



teams, organize the students, and coach both in advance of, and on the day of the competitions meant that math teachers who were coaches/sponsors truly participated in their students'

success in this competition. Math teachers also played a major role in organizing the event, and in keeping the contest operating as members of the Math Challengers Organizing Committee. Each year, new committee members are welcome. Contact Dave Ellis at dellis7734@gmail.com if you are interested.

For more information on the MATH Challengers competitions, the website includes details about sponsors, rules, results and sample questions, among other items. The website address is as follows:

[www.apeg.bc.ca/mathchallengers/](http://www.apeg.bc.ca/mathchallengers/)

## Results

### Top Schools:

Ranking	School (Grade 8)	School (Grade 9)
1 <sup>st</sup> Place	West Vancouver Secondary	University Transition
2 <sup>nd</sup> Place	St. George's	Burnaby South Secondary
3 <sup>rd</sup> Place	Burnaby North Secondary	St. George's

### Grade 8 Individuals:

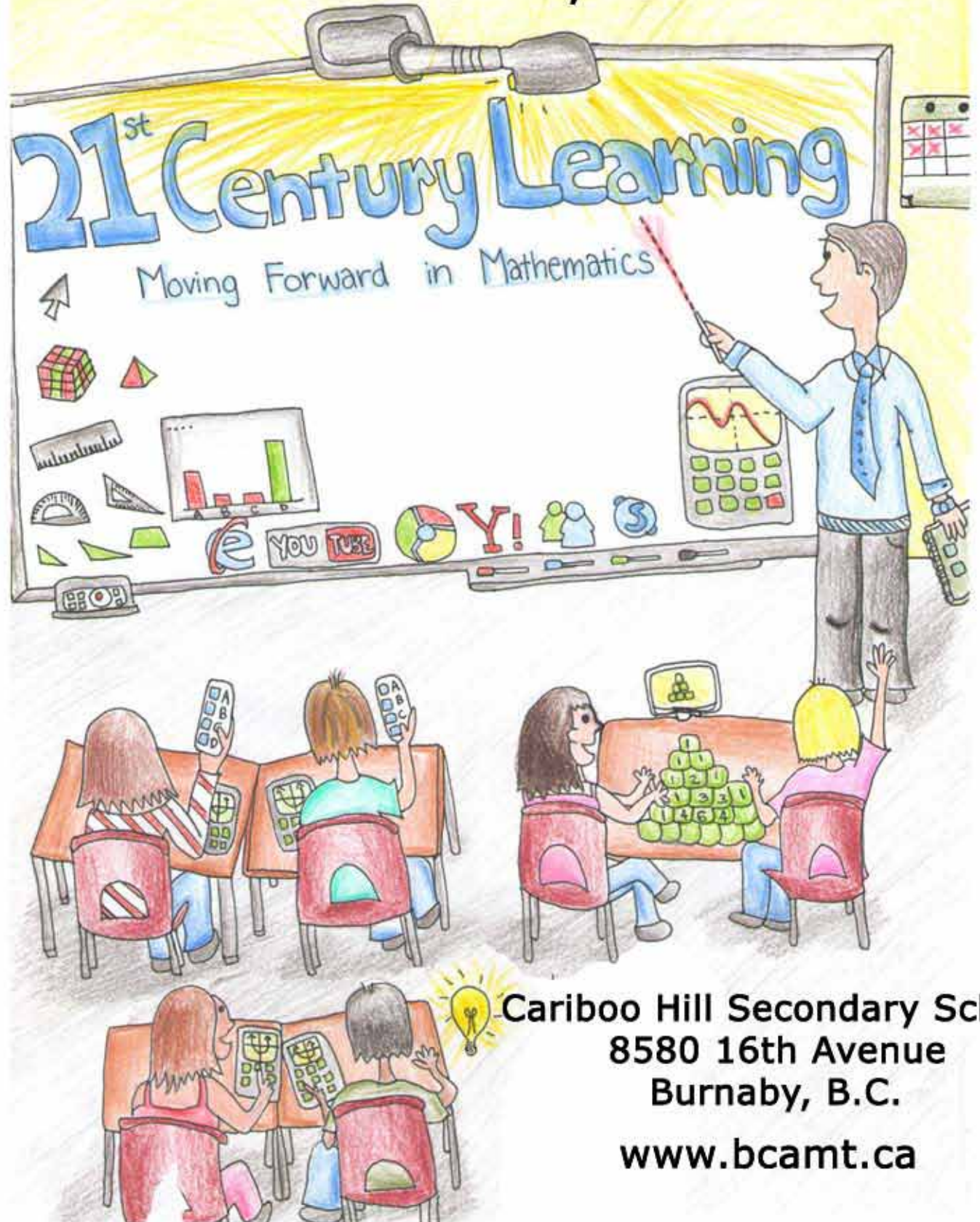
Ranking	School	Name
1 <sup>st</sup> Place	Tecumseh Elementary	Shu Hao Li
2 <sup>nd</sup> Place	Moscrop Secondary	Kathy Fan
3 <sup>rd</sup> Place	St. George's	Sam Choi

### Grade 9 Individuals:

Ranking	School	Name
1 <sup>st</sup> Place	St. Michaels University School	Andrew Kang
2 <sup>nd</sup> Place	University Transition Secondary	Young Jin Shin
3 <sup>rd</sup> Place	University Transition Secondary	Ye Jin Yi



# BC Association of Mathematics Teachers Fall Conference October 21, 2011



**Cariboo Hill Secondary School**  
8580 16th Avenue  
Burnaby, B.C.  
[www.bcamt.ca](http://www.bcamt.ca)

Registration deadline: Monday, October 17  
Registration Early Bird deadline: Friday, October 7  
\$130 BCTF Teachers | \$150 Non-BCTF Teachers | \$70 Student Teachers