



# Mathematics Council NEWSLETTER

The Alberta Teachers' Association

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## President's Message

Recently, the Minister of Education signed off on the new Alberta program of studies for mathematics K–9. For the past two years, the MCATA executive has advocated strongly on your behalf to make first the *Western and Northern Canadian Protocol* (WNCP) and then the Alberta program of studies a strong foundation for the learning of Alberta students.

As in all matters relating to curriculum and teaching and learning, there were multiple viewpoints on what *best* would look like. Often “countries that excel in mathematics education” were referred to as a source for alignment of the new curriculum. MCATA, on your behalf, pointed out that Alberta is a province that excels in worldwide measures of mathematics achievement. We *are* the best!

Strong curriculum is one factor that leads to excellent mathematics learning. It is determined by the Department of Education, with input from the profession and other stakeholders.

Resources that align with the curriculum and that provide appropriate models for learning are another factor. Recently I read an article about the struggles that many American states have in finding resources that align with their curriculum. We are fortunate to have publishers in Canada who create resources that align perfectly with the WNCP. This generation of math resources is based in research and has given consideration to teacher professional learning as well as to curriculum outcomes. The selection of resources will be an important task for teachers and one that will affect our mathematics classrooms for a number of years.

Teacher knowledge and student disposition are among the most important factors affecting student learning. These factors are in our hands. Teachers in Alberta spend many hours in voluntary professional

development to enhance their knowledge of mathematics content and pedagogy. I have spoken to leaders in school mathematics from Scandinavia and Britain who are astounded by the size and quality of our MCATA conferences. The average MCATA conference is larger than the mathematics conference for the whole of the United Kingdom. While we are proud of the professional learning opportunities MCATA offers to Alberta teachers, this is only one of many opportunities that Alberta teachers seek out for their own professional growth.

Student disposition and attitude toward mathematics are affected by societal and family norms. Who has not cringed at the dismissive comment, “Oh, I was never very good at math either,” or the suggestions in the media that if you are good at math you must be a geek? Teachers have a powerful effect on student disposition. A teacher who loves math and is excited about student mathematical thinking has a profound effect on students' futures. All students who feel capable in math can identify a teacher who fostered their growth and made them feel that mathematics was an interesting challenge and a worthwhile pursuit.

Over the next several years, as the Grades 10–12 WNCP and Alberta program of studies are written and the K–9 program of studies is implemented, MCATA executive will continue to advocate assertively for you. We will provide strong input on your behalf to shape the WNCP. We will advocate for robust, government-funded implementation support, and we will provide excellent MCATA conferences to support and inspire you. As your representatives, we are eager to hear from you. Let us know what you think.

—Janis Kristjansson

## From the Editor's Pencil

As an elementary generalist, I am fortunate to have the luxury of being able to teach math within a context, much to the chagrin of some of my students. It means that I can find the math in just about anything we do, but when it surprises me, I become quite excited and jump on the problem immediately. When this happened recently, one of my reluctant math students quickly stepped in with, "Mrs MacQ! Take a deep breath and step back from the math!"

Unfortunately, many language-based elementary teachers charged with teaching math are doing just that. They fear the subject and rather than look for ways to teach it differently and more meaningfully, they plod on using the same strategies they were taught, without regard for how well they work or how efficient they are.

Personal strategies are important, but being able to consistently calculate quickly and accurately in one's head is valuable, too. Don't we owe it to our students to give them as many different ways to solve problems as we can find? Don't we also want to avoid another generation of mathephobes? By exciting children about other ways of describing their world, we can help make the language of math a thing of beauty for even the least willing students.

—Anne MacQuarrie

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## Postgraduate Education Opportunity

The University of Alberta Department of Elementary Education will be offering a Master of Education cohort specializing in elementary math and science, commencing July 2008. The cohort will allow elementary teachers to meet and work with educators who share their interest in math and science. The program will feature flexible scheduling, including three weeks of instruction on campus in July 2008 and again in July 2009. Fall and winter courses will be available online. Teachers can complete the program while remaining in a full-time teaching position.

For further information about the cohort, please contact Dr Lynn McGarvey, Professor of Elementary Mathematics Education, at (780) 492-2436 or [lynn.mcgarvey@ualberta.ca](mailto:lynn.mcgarvey@ualberta.ca); or Dr Brenda Gustafson, Professor of Elementary Science Education, at (780) 492-0872 or [brenda.gustafson@ualberta.ca](mailto:brenda.gustafson@ualberta.ca).

Additional information about graduate programs in the Department of Elementary Education can be found at [www.uofaweb.ualberta.ca/elementaryed/](http://www.uofaweb.ualberta.ca/elementaryed/) (follow Student Information, Graduate, and Graduate Courses).

## We Hear You!— Responses to “Mathematics or Semantics?”

I agree that the language we use in questioning students is very important for a correct interpretation. We should use *as much as* instead of *greater than* in those types of sample questions to convey what we really mean and to assist students in understanding and interpreting questions to get at what they know mathematically.

*Lindy Thompson, math teacher, Crestwood School*

I agree with the solution in the first problem, not with the Alberta Learning solutions in the following problems. Hope that makes sense!

*Katherine Schock, Academy at King Edward,  
Grade 7 math*

We should not use the *greater than* in the context that it has been used in the past. We should use *as much* or some other more appropriate term.

*Lis Cressy, Parkdale School*

Thank you for your “Mathematics or Semantics?” article in the October edition of the MCATA newsletter. It is critical that we use language carefully in the classroom. We expect our students not only to use the vocabulary but to use it correctly and in context (eg, *thingy* doesn't fly in my room!). If we are to set an example worth following, we must be crystal clear in our own use of language. Students face enough challenges with the mathematical tasks alone; let's not burden them further with poorly framed questions and confusing or distracting language.

My vote is definitely *for* the use of *as much* (rather than *greater than*) in the context you've submitted.

*Michelle Schafer, senior high math, Braemar School*

PS: Interesting that Alberta Education posts math and science directing words and definitions for use on diploma-level exams on its website ([www.education.gov.ab.ca/k\\_12/testing/diploma/bulletins/essential/directing\\_words.asp](http://www.education.gov.ab.ca/k_12/testing/diploma/bulletins/essential/directing_words.asp)), yet the examples you cite certainly leave room for misinterpretation!

The first interpretation is correct.

*Tammy Gauvreau*

I think the first interpretation is correct. I have never interpreted those questions using the second thought process. Thanks.

*Delcy Rolheiser, L'academie Vimy Ridge Academy*

# Mathematical Literacy—An Idea to Talk About

The following is an excerpt from the MCATA paper on mathematical literacy. The paper in its entirety can be found on the MCATA website at [www.mathteachers.ab.ca](http://www.mathteachers.ab.ca).

## What should be considered as we develop students' mathematical literacy?

An effective math program gives students time to grapple with significant ideas and worthwhile mathematical tasks, and to use space and materials in ways that facilitate learning of mathematics. It provides opportunities for teachers to provoke students to think mathematically, reason together and challenge each other's ideas as members of a mathematical community.

Creating and sustaining a powerful mathematical community involves ongoing questioning by those involved. Below are some questions for teachers, students and parents to help them to determine whether their mathematics program fosters those aspects most important in developing math literacy. School and district leaders should use all of these perspectives when assessing math programs for their schools or districts.

Aspects of a program to develop mathematical literacy. Does it ...	Do the textbooks and other resources ...	Student	Teacher	Parent
Give opportunities for students to justify processes and answers?	Require the justification of answers and processes?	Can I show how I know this is the answer? Can I justify choosing this strategy?	Do I ask, "How do you know that? What worked well with the strategy you chose?"	Can your child explain his/her thinking and justify his/her strategy choice?
Encourage flexible thinking and strategy selection?	Model multiple solution paths for both students and teachers?	Can I think about a problem in more than one way? Can I think of more than one way to solve it?	Do my students know how to approach a problem in more than one way?	Does your child know how to approach a problem in more than one way?
Focus on developing conceptual understanding?	Use models and demonstrations that support conceptual thinking?	Do I understand why I'm doing what I'm doing? Do I ask questions to clarify thinking rather than clarifying steps to be followed?	Can the student explain why he/she is doing what he/she is doing? Does he/she and do I ask questions to clarify thinking rather than clarifying steps to be followed?	Can your child explain why he/she is doing what he/she is doing? Does he/she ask questions to clarify thinking rather than clarifying steps to be followed?

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## Conference Invitation

Please join us for MCATA's annual conference, to be held October 18–20, 2007, at Fantasyland Hotel in Edmonton.

The opening keynote speaker will be Dr David Jardine, of the University of Calgary.

The closing keynote speaker will be Dave Mitchell, an award-winning math teacher from Kitchener, Ontario.

Registration and detailed program information will be posted on MCATA's website, [www.mathteachers.ab.ca](http://www.mathteachers.ab.ca), as it becomes available.

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## Miniconferences?

The MCATA executive is investigating the possibility of holding miniconferences in addition to the major conference held each year. This practice has been used in the past and was well received. If you (or someone you know) think that you might be interested in working with other members of the Math Council to develop this idea, its timelines and topics, please contact the president of the Math Council about joining the ad hoc committee. The president's address can be found on the website at [www.mathteachers.ab.ca](http://www.mathteachers.ab.ca).

# Alberta Education Update

## Elementary Mathematics

The revised *Mathematics K–9 Program of Studies* can be found on the Alberta Education website. The *Program of Studies with Achievement Indicators* can also be found on this website. Optional implementation will begin in September 2007 according to the schedule below.

	Sept 2007	Sept 2008	Sept 2009	Sept 2010
Optional	K, 1, 4, 7	2, 5, 8	3, 6, 9	
Provincial		K, 1, 4, 7	2, 5, 8	3, 6, 9

To support implementation, Alberta Education is hosting a three-day professional development activity—the Mathematics Summer Institute 2007 (Kindergarten and Grades 1, 4 and 7), to be held July 4–6, 2007, in Edmonton. The summer institute will provide teachers with an understanding of the vision, philosophy and outcomes in the revised mathematics program.

Watch for the launch of the draft *Mathematics Online Guide to Implementation* for Kindergarten and Grades 1, 4 and 7 in September 2007; it will be available through [learnalberta.ca](http://learnalberta.ca). Teachers will have an opportunity to provide feedback on the draft guide in the fall. The French version is scheduled to launch in July 2008.

The WNCPC resource review for Kindergarten and Grades 1, 4 and 7 mathematics was held in January 2007. The list of newly authorized resources can be found on the WNCPC website at [www.wncpc.ca](http://www.wncpc.ca). These resources are available through the Learning Resources Centre at [www.lrc.education.gov.ab.ca](http://www.lrc.education.gov.ab.ca).

New lessons in French are available at [learnalberta.ca](http://learnalberta.ca) in the *Math 5 en direct* resource, with more coming out this summer.

## High School Mathematics

Revisions to the high school mathematics program are ongoing. Thanks to everyone who took the time to complete the online survey or participate in two days of consultations. Your input is appreciated! Over the next several months, changes will be made to the *Western and Northern Canadian Protocol*

(WNCPC) *Common Curriculum Framework (CCF)* based on the feedback we have received.

A French version of the graphing tool is now available at [learnalberta.ca](http://learnalberta.ca) under the name “Outil graphique” and, like the English version, it correlates to Grades 10–12 math pure/applied outcomes.

Pure mathematics and applied mathematics projects will be posted and sent out over the summer. Bulletins will be updated and posted at the end of July.

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## For Your Consideration from PEC

The Alberta government’s current plan requires reporting Grade Level of Achievement (GLA) in language arts and math by June 2007 for one-third of Grades 1–9 schools in each jurisdiction. Teachers and the profession have always supported reporting student levels of achievement through multiple sources of information. The ATA has provided leadership in improving assessment practice through workshops, professional conferences and professional development programs. The government’s GLA reporting initiative focuses on the simplistic collection of a single whole number. There is no evidence that GLA reporting will improve the quality of information to parents. Teaching practice and student learning are not enhanced, and GLA reporting will not provide parents with any meaningful information on their children’s progress. The current GLA plan is superficial and misleading. Single whole-number reporting undermines the integrity of the curriculum.

If teachers are required to participate, the Association’s view is that it is only appropriate to report the achievement level of students for the grade and program for which the student actually received instruction.

Teachers have a responsibility and duty to stand up for what is right for students and to oppose the current GLA reporting program. For more information, ask for our new brochure entitled *Always More Than a Number*. Information is also available at [www.teachers.ab.ca](http://www.teachers.ab.ca).

—Carol Henderson  
Provincial Executive Council Liaison

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NOMINATION FORM FOR MCATA EXECUTIVE

Nominations for the following offices for the 2007-2008 school year are now being accepted:

- President
- Vice-president
- Secretary
- Treasurer

To nominate a candidate, complete the form below, accompanied by a letter of recommendation, and mail to Daryl Chichak, 1826 51 Street NW, Edmonton, AB T6L 1K1. The NOMINATION DEADLINE IS 2 WEEKS AFTER RECEIPT OF THIS FORM.

If an election is necessary, it will be conducted by mail. Ballots will be sent to all members on or about June 20, 2007. DEADLINE FOR RETURN OF BALLOTS IS JUNE 30, 2007.

Ensure an active executive council by nominating people who will take an active role in making the Mathematics Council benefit all mathematics teachers.

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MCATA EXECUTIVE NOMINATION FORM

We, the undersigned members of MCATA, nominate \_\_\_\_\_ (name)

of \_\_\_\_\_ (address)

MCATA Membership # \_\_\_\_\_, for the position of \_\_\_\_\_

Signatures and addresses of two nominators:

Name: \_\_\_\_\_

Address: \_\_\_\_\_

MCATA Membership # \_\_\_\_\_ Signature \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

MCATA Membership # \_\_\_\_\_ Signature \_\_\_\_\_

I accept this nomination \_\_\_\_\_  
(Signature of nominee)

Members of the Alberta Teachers' Association (ATA), as specified in ATA bylaws, are eligible for regular membership in this Council. All such members shall be entitled to full privileges of Council membership including the rights to vote and to hold office.  
This nomination form may be reproduced.