Mathematics Council NEWSLETTER

The Alberta Teachers' Association

Providing leadership to encourage the continuing enhancement of teaching, learning and understanding mathematics.

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President's Message

The March 2001 issue of our newsletter included a letter the Math Council had written to Lyle Oberg, minister of learning. I thought you would also like to read his response , which you will find on page 2.

In April I attended the National Council of Supervisors of Mathematics (NCSM) conference in Orlando, Florida, which was organized around 19 strands. Even though many speakers were from the United States, the issues they face in mathematics education are many of the same challenges that we face here in Canada and Alberta. Some of these common issues were reflected in conference strands:

- Equity in the Mathematics Classroom
- What Do Building and District Leaders Need to Know?
- Using Technology to Enhance Mathematics Learning
- Mathematicians or Politicians? You Decide
- Ethnomathematics: The Time Is Right to Reconnect Mathematics and Culture
- Implementation of the NCTM Principles and Standards for School Mathematics
- Changing Prevailing Assumptions About Professional Development
- Assessment, High-Stakes Testing and Accountability
- Professional Development Work That Is Situated in the Work of Teaching
- Energizing the Mathematics Curriculum with Science
- Preservice: Preparing Future Teachers in Mathematics
- Supporting Elementary Teachers in Reform

This was the first national conference I have ever attended, and it was an affirming and informative experience. Next year, the NCSM and NCTM conferences will be held in Las Vegas in April. As well, MCATA is working with NCTM conference planners to bring you the Canadian Regional NCTM in November 2003, which will be held in Edmonton.

NASA Website and Education Links

I attended a session in Orlando that gave an overview of the educational aspect of NASA's work. The NASA presenters also went through some of their educational products and resources for teachers. One interesting site, PUMAS, Practical Uses of Math and Science, includes real situations sent in by the public. On the PUMAS homepage, the editor and founder of the site, Ralph Kahn, describes the site as follows:

> PUMAS (poo'•mas) is a collection of one-page examples of how math and science topics taught in K–12 classes can be used in interesting settings, including everyday life. The examples are written primarily by scientists and engineers, and they are available to teachers, students and other interested parties via the PUMAS website <http://pumas.jpl.nasa.gov/>. Our goal is to capture, for the benefit of pre-college education, the flavor of the vast experience that working scientists have with interesting and practical uses of math and science.

Check it out! See NASA's homepage at www.nasa.gov. A kids' section is at http://kids.msfc.nasa.gov ▲

—Sandra Unrau

From the Editor

Many thanks to all who submitted articles for this issue of the newsletter. It is by providing services to our members that MCATA fulfills its mission to enhance the teaching, learning and understanding of mathematics.

I challenge you to become an active MCATA member—attend or speak at one of our conferences, join a working committee, submit an article to *delta-K* or this newsletter, and/or nominate a colleague for an Alberta Mathematics Educator Award.

You can make a difference in our organization. Do so today! ▲

—Cynthia Ballheim

February 7, 2001
Ms. Sandra Unrau, President
Mathematics Council of the Alberta Teachers' Association
11010 142 Street
Edmonton, Alberta T5N 2R1

Dear Ms. Unrau:

I am writing this in response to your recent letter on behalf of the Mathematics Council of the Alberta Teachers' Association. I am pleased to provide you with the following information regarding the issues you have raised.

As you know, the Applied Mathematics program was designed for those students who wish to pursue a postsecondary education that does not require calculus. I am pleased that teachers are seeing the value of the course and that it is meeting the needs of the intended audience, especially the mid-range ability students. Currently, there is acceptance of Applied Mathematics 30, with limits, at major universities in Alberta.

Alberta Learning is continuing to work closely with our postsecondary partners to gain a wider acceptance for this program. In the meantime, we are working on solutions so that those students graduating this spring will have postsecondary options. In collaboration with our postsecondary partners, Alberta Learning is developing a transitions course. The purpose of this course is to allow those students who have successfully completed Applied Mathematics 30 to gain the skills and knowledge required by postsecondary institutions in lieu of Pure Mathematics 30. This measure, which will be funded by Alberta Learning for the next three years, will provide entry to those students who will be graduating with Applied Mathematics 30. In the longer term, the course will be available at the postsecondary level and will hopefully provide another entry point for Applied Mathematics students.

As we receive changes and updates from post-secondary institutions, we update our postsecondary website. For example, most recently, Concordia University College will, for a two-year period, allow students to present Applied Mathematics 30 for admission into the Faculty of Arts. For more information on postsecondary entrance requirements for mathematics, *The New Senior High School Mathematics Program and Post-Secondary Studies—June 2000* is enclosed. This document makes it clear that students who will graduate this spring have postsecondary options open to them. You can view the document on the Alberta Learning website http://www.learning.gov.ab.ca.

Staff at Alberta Learning will continue to address issues arising around Applied Mathematics. If you have further questions, please contact Katie Pallos-Haden, Program Manager, Mathematics, Curriculum Branch at (780) 422-3220.

Yours truly,
Dr. Lyle Oberg
Minister

"2001: A Math Odyssey"

October 25–27, 2001
Fantasyland Hotel, West Edmonton Mall

Join us for another great math conference this fall. Bring your family along to enjoy the mall while you're networking with colleagues.

We have two great keynote speakers:

- ★ Jere Confrey, professor of mathematics education at the University of Texas and director of Systemic Research Centre for Education in Mathematics, Science and Technology, will speak about technology in mathematics education.
- ★ David McKillop, a mathematics evaluation consultant with the Testing and Evaluation Branch of the Government of Nova Scotia, will speak and entertain regarding mathematics education in general.

There will be an increased emphasis on elementary mathematics at this conference with sessions on math and crossover to other curricular areas, especially math/science and math/computers, planning with resources, math and ESL, assessment in Grades 1–6, mathematics in French immersion, and help sessions for the Patterns & Relations, Shape & Space, and Measurement strands.

As well, there will be half-day workshop on performance-based assessment.

Brain research, differentiated instruction and multiplicative reasoning are among other topics that will be addressed during the conference.

Conference information and forms can be found on the MCATA website at www.mathteachers.ab.ca.

The fall conference speaker list is looking great so far, but to give members a really full conference we still need a few more speakers. If you are interested or know of someone who might be, please pass along the speaker form enclosed with this issue of the newsletter. ▲

—Janis Kristjansson and Len Bonifacio

Be Involved: 2003 MCATA/NCTM Conference

We are beginning to organize our planning committee for the MCATA/NCTM conference in Edmonton in November 2003. If you are a MCATA member and would like to be considered for a working committee, e-mail your name, teaching position and contact information to me at sunrau@cadvision.com so that I can get back to you. ▲

—Sandra Unrau

Spinning Mathematics' Web

How can you combine social studies, mathematics, statistics, computation, curiosity and just plain fun? Check out the countless Canadian statistics that are available right at your fingertips from Statistics Canada! The following is just a sampling of the materials that can be found at Statistics Canada's education resources website at www.statcan.ca/english/edu/index.htm.

- Canadian Statistics
  http://www.statcan.ca/english/Pgdb/

  This site is a prime information source, containing more than 350 regularly updated tables on significant, most requested aspects of Canada's economy, land, people and government.

  Canadian statistics tables are an excellent initial research tool for any independent study or assignment. Students improve their navigation and search skills on the Internet when asked to locate a specific table or find specific information in Canadian statistics. Check out Canadian statistics yourself for up-to-date information to supplement class texts that may be outdated.

You may also be interested in new classroom activities using Canadian statistics...

- Life Expectancy at Birth
  http://www.statcan.ca/english/kits/life/life1.htm

  This site introduces elementary students to line graphs. Students learn to label and plot line graphs using data from the table "Life Expectancy at Birth," and they learn to recognize and appreciate the difference in life expectancy between males and females.

- Thank Goodness It's Friday
  http://www.statcan.ca/english/kits/tgif/tgif1.htm

  This Statistics Canada page provides short activities in data analysis for intermediate and senior students, covering a range of subject areas. Students learn to analyze data presented as tables while answering questions that improve their knowledge of Canada and Canadians. ▲

Alberta Learning Update

The first administration of the Pure Math 30 and Applied Math 30 diploma examinations went smoothly. No questions from either test were dropped, and the exam averages came in such that no mark adjustments needed to be made. For this year, because the diploma examinations contained items that had not been validated by students through field tests, the final blended mark was based on 80 percent school-awarded and 20 percent diploma examination. This 80-20 blend will continue into the 2001–2002 school year for Applied Mathematics 30 only. Pure Mathematics 30 will have a 50-50 blended mark in 2001–2002. For information on how the exams were marked or how to become involved in the process, contact Hank Reinbold, Pure Math 30 examination manager, at Hank.Reinbold@gov.ab.ca, or Shauna Boyce, Applied Math 30 examination manager, at Shauna.Boyce@gov.ab.ca. An implementation schedule for diploma exams can be found at http://www.learning.gov.ab.ca/k_12/curriculum/bysubject/math/whatsnew/faq.asp.

The new Math 14 program will be piloted with a resource in schools this fall. Provincial implementation will begin in fall 2002. For more information on piloting the program or the implementation schedule, contact Katie Pallos-Haden at Katie.Pallos-Haden@gov.ab.ca, or Debbie Duvall at Debbie.Duval@gov.ab.ca. A copy of the interim program of studies for Math 14 and Math 24 is available at http://www.learning.gov.ab.ca/k_12/curriculum/bySubject/math/default.asp#program. ▲

—Shauna Boyce

Books, Books, Books

The Number Devil: A Mathematical Adventure
by Hans Magnus Enzensberger
New York: Henry Holt, 1998.

Wow! *The Number Devil* is a compelling book that teaches unique tactics for mathematical problem solving. Even better for children is that it joins the learning with an exciting plot. What I like most is that the book starts with easy problems and procedures and works its way to much greater and demanding ones. It links previous information taught with the next topic. *The Number Devil* is a great mathematical novel that should be shared with students everywhere. ▲

—Rahim Ladhani

Out and Around with MCATA

Chocolate Mathematics

It's pretty neat, how this works out. This is cool chocolate math! It only takes about a minute...

Work this out as you read. Be sure you don't read the bottom until you've worked it out! This is not one of those waste-of-time things—it's fun. Get your calculator out. OK, ready?

1. First, pick the number of times a week that you would like to have chocolate (try for more than once but less than 10)
2. Multiply this number by 2 (just to be bold)
3. Add 5 (for Sunday)
4. Multiply it by 50 (being a bit stupid)
5. If you have already had your birthday this year add 1,751. If you haven't, add 1,750.
6. Now subtract the four-digit year that you were born in (if you remember).

You should now have a three-digit number...

The first digit of this was your original number (that is, how many times you want to have chocolate each week). The next two numbers are your age.

This is the only year (2001) it will ever work, so spread it around while it lasts. Impressive, isn't it?

—Donna Chanasyk

Southern Alberta Mathematics Model $(SAM)^2$

Just over two years ago Alberta Learning announced additional funding to support teachers in the implementation of the pure and applied mathematics programs. The money was allocated to the six regional consortia, which each developed plans for professional development.

In the southern part of the province, the Southern Alberta Professional Development Consortium (SAPDC) chose to establish regional learning groups across for Grades 9–11 mathematics teachers. Two experienced high school mathematics teachers were hired half time to assist with these regional learning groups during the 1999–2000 school year. Don Gibb, who taught high school mathematics for more than 30 years at Rosemary High School, worked with teachers from Grasslands, Prairie Rose, Horizon, Medicine Hat Public and Medicine Hat Catholic school divisions, as well as teachers from a private high school. Eight regional learning groups, meeting in Brooks, Medicine Hat (2), Taber, Lethbridge (2), Cardston and Barons, were established to support teachers in the implementation of the new mathematics curricula. Grade 9 teachers were included in this program to facilitate articulation between junior and senior high school programs. The groups met for three hours once a month (usually the first week of the month) for eight months.

Teachers met in smaller groups according to their area of interest. The activities were many and diverse: information related to the mathematics program was dispensed, teachers received articles on using the graphing calculator and Geometers' Sketchpad and teachers worked together to plan units, lessons, projects, chapter exams and final exams. All materials prepared in each group were shared with teachers in all the other groups.

Overall, teachers were very enthusiastic, cooperative and positive. The needs were diverse from group to group, from school to school and even within schools. Teachers in rural schools, particularly those who were the "mathematics department," appreciated the time to share with mathematics teachers in other schools. Although the initial funding was for only one year, teachers asked that the sessions be continued for another year. To that end, some participating school boards agreed to fund the project on a smaller scale. In the 2000–2001 school year, six regional learning groups met. Half-day meetings were again held once a month, from September to January. Again, teachers shared the load of working through the Pure Math 30, Applied Math 10 and Applied Math 30 curricula, developing unit plans, unit tests and final exams.

At the end of the sessions, the evaluations were positive. All teachers involved indicated a high or very high level of satisfaction with the inservice provided. Several teachers stated that this curriculum teamwork was the best professional development that they had done in 20 years. ▲

—Don Gibb and Fern Heinen