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Mathematics Council
NEWSLETTER
The Alberta Teachers' Association

Volume 8 Number 1 October 1989

From the Editor

Welcome back! I hope that the new school year is off to an excellent start for you and your students. As always, there will be the usual mix of students, from those who are anxious to learn, to those who, for whatever reason, find school anything but exciting and are prepared to do everything possible to make school difficult for the teacher and fellow students.

These students who are turned off school become a real challenge for the teacher. I feel that the following prayer might make us a little more understanding and forgiving.

Teacher's Prayer

O Heavenly Father, make me a better teacher. Teach me to understand my students, to listen patiently to what they have to say and to answer their questions kindly.

Keep me from interrupting or contradicting.

Help me to be as courteous to them as I want them to be to me.

Forbid that I should ever laugh at their mistakes or resort to shame or ridicule.

May I never punish them out of anger or spite or to show my power.

Help me, dear Lord, to demonstrate by all that I say and do that honesty does produce happiness.

Reduce, dear Lord, the meanness in me. And when I am out of sorts, help me to hold my tongue.

May I be ever mindful that my students are merely children, and that I should not expect them to have the maturity and judgment of adults.

Let me not rob them of the opportunity to do things for themselves or to make their own decisions.

Help me to be fair and just and kind Lord, so that I will earn their love and respect and they will want to imitate me. This is the supreme compliment.

Amen.

--Art Jorgensen

A Tribute to Bill Bober

Dr. William Bober was the 1987 recipient of the Mathematics Educator of the Year Award. This honor is bestowed annually by the Mathematics Council of The Alberta Teachers' Association on an individual who has made a significant contribution to mathematics education in Alberta. Held in high esteem by his peers, Bill has joined the company of distinguished award recipients.

Bill has contributed to mathematics education in Alberta for many years and in many ways. He holds a master's degree in mathematics education and a doctorate in mathematics from the University of Alberta. A dedicated and caring teacher, he inspired his students by the example of his personal high standards. During his tenure as a mathematics supervisor with Edmonton Catholic Schools, he was always available to serve classroom teachers, whether providing personally handmade teaching materials or assistance with instruction. A respected author, his work with major publishers has brought him recognition at a national level.

When Bill retired from Edmonton Catholic Schools he did not retire from his lifelong commitment to mathematics education. Among his most recent accomplishments is his work as a senior author of a mathematics textbook series now used across Canada and in the majority of junior high schools in Alberta. A tireless worker, Bill is presently employed by Alberta Education as a codeveloper of the Diagnostic Mathematics Program for Elementary Schools.

Perhaps most importantly, Bill may be characterized as a generous, caring colleague and friend. He is an example of what it means to truly serve others.

--Marie Hauk

Has It Ever Happened in the Major Leagues?

I came back from MCATA '88 with a wonderful story told by Brendan Kelly. The story, set in a baseball context, is a situation that arises in statistics called Simpson's Paradox.

A rookie joined a baseball team in the spring as a fielder; however, the team already had a veteran playing the same position. The rookie and the veteran split the job over the course of the regular season, but as the playoffs neared, the rookie asked the coach who would play then. The coach said he would base his decision on each player's batting average.

The rookie watched the newspaper and found he was outperforming the veteran, so he dressed for the first playoff game. When the coach saw the young player he yelled, "But, you don't play!" The coach explained that the other team was starting a left-handed pitcher and while the rookie's batting average was better overall, it was not better against left-handed pitchers. Not about to argue with the coach, the rookie walked away.

Two games later the opposition was starting a right-handed pitcher and the rookie again dressed for the game. The same scene arose with the coach, who explained the apparently opposite case that the veteran had a better batting average against right-handed pitchers. He had Table 1 with him to prove it. The rookie left with the uneasy feeling that something was funny with the numbers, but he did not know what.

Mr. Kelly presented numbers to illustrate this paradox. Under the mistaken impression that similar numbers could be found quickly, I did not copy them down. For several weeks I told people the story, but no one believed me because I did not have the numbers to prove it. I spent many hours trying to recreate the set found in Table 1. People are generally very suspicious even when they see the numbers. I assume they're suspicious because numbers don't usually lie, at least not in my experience.

In addition to telling the story and giving students the numbers, I am tempted to use this illustration for several other purposes. Students could write an essay about how their perception of numbers or mathematics changed after hearing the story. Students with exposure to programming could be asked to explore the limits of the set of all numbers that fit into Simpson's Paradox. I do not know how discrepant the numbers can be made to appear.

What I would like to know is if this "twist of fate" has ever actually occurred in the major leagues. If anybody knows, please let me know.

Table 1

Pitchers	Rookie			Veteran		
	Hits	Tries	Batting Average	Hits	Tries	Batting Average
Left-handed	48	120	0.4	21	50	0.42
Right-handed	120	400	0.3	186	600	0.31
Total	168	520	0.323	207	650	0.318

--Martin H. Badke

Mathematics Educator of the Year

Each year, MCATA recognizes someone who has made an outstanding contribution to mathematics education in Alberta. If you know someone who qualifies for this award, complete the enclosed nomination form and forward it to Bob Michie.

Simplifying Fractions

Duncan McDougall of Victoria, British Columbia submitted the following interesting idea for simplifying fractions.

To simplify even the largest fraction, just follow these instructions.

1. Find the difference between the numerator and the denominator.
2. Working with the absolute value of this difference, record the factors of the difference in descending order.
3. Since these factors are the only possible numbers that can be used to break down the fraction, try each of the factors in descending order.
4. If none of the factors divide evenly into the numerator and denominator, state that no other numbers will work and that the fraction is already in lowest terms.

Example: Reduce 38/95 to its lowest terms.

1. 95 - 38 = 57.
2. The factors of 57 are 57, 19, 3 and 1.
3. Since 57 is greater than 38, 57 obviously doesn't work. Using 19, the fraction can be reduced to 2/5. Please note that 3 would not have worked since neither 38 nor 95 are multiples of 3.

This technique is designed for students who are familiar with the concept of prime factorization. It offers a viable alternative to simplifying fractions.

The advantages of this approach are as follows:

1. The only possible numbers that will work are factors of the difference.
2. There is no guessing as to which numbers to use to begin the process.
3. By trying the factors in descending order, the correct factor is quickly determined.
4. If no factor of the difference between the numbers works, then no other number will work.

This method provides a new way for students to simplify fractions and it can be used by any student who has done prime factorization. This method of simplifying fractions is much easier than learning the rules of divisibility for prime and composite numbers from 2 to 13 the way students usually do. It can be taught to the student who is likely to forget the rules of divisibility. This simple algorithm helps students who find fractions difficult.

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MCATA Conference

The MCATA conference will be held November 2-4, 1989, at the Lethbridge Lodge in Lethbridge.

Program Chairman John Percevault says that over 90 conference sessions, ranging from activity-oriented workshops to more theoretical sessions, will be available. Faculty members from all universities in British Columbia, Alberta and Saskatchewan, teachers from many Alberta centres, representatives of publishing companies and Alberta Education personnel will be presenting sessions.

On Thursday evening, Ralph Himsl, superintendent of schools for Lethbridge RCSSD No. 9, will kick off the conference with a presentation entitled, "Intelligence, Thinking and Mathematics." Ralph has been involved in researching the teaching of thinking skills. He is well known as an enthusiastic and witty speaker. His presentation will be followed by a wine and cheese social.

The Friday evening banquet will be followed by some light entertainment and a funny money casino. It's a chance to win some "Lethbridge Loot!"

The Lethbridge Lodge (1-800-661-1232) has a limited number of guest rooms, so conference participants may have to find other accommodation. The Travelodge (1-800-255-3050) and Motel Magic (1-800-661-8085) are next door to the Lethbridge Lodge. The Sandman Inn, El Rancho Motor Hotel and numerous other inns are within a 10-minute drive. Please contact the Alberta Motor Association or your local travel agent for further details.

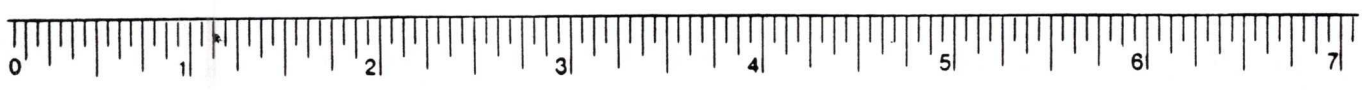
Please complete and mail the attached conference registration form. We look forward to seeing you there!

Did You Know That . . .?

* On December 19, 1988, Education Minister Jim Dinning announced a 5.5 percent increase in provincial operating grants to school boards for the 1989/90 school year. This is an increase of approximately $100 per student. With the increase, total government funding for education will be approximately $1.5 billion. That's more than double the funding provided in 1979.

* This year, $4 million will be available to help school boards and teachers implement curriculum changes under Alberta's Secondary Education Policy. This translates into $20 per student. Of that amount, $14 is allocated as credit at the Learning Resources Distributing Centre for the purchase of new learning materials and $6 is used for teacher inservice workshops.

For more information, please contact Florence Glanfield, coordinator, Mathematics, Curriculum Support Branch, 5th Floor, Devonian Building, West Tower, 11160 Jasper Avenue, Edmonton, Alberta T5K 0L2; phone (403) 422-4872; FAX (403) 422-5129.



The Right Angle

To welcome you back to a new school year, we have provided a list of recently authorized resources for junior and senior high school mathematics, and information on inservice sessions for teachers.

JUNIOR HIGH MATHEMATICS PROGRAM

Teacher and student resources are now available for the junior high mathematics program implemented in September 1988.

Recommended Resources

Ginn and Company, Journeys in Math 9: Teacher Resource Manual

Ginn and Company, Actimath 7: Blackline Master Teaching Aids

Ginn and Company, Actimath 8: Blackline Master Teaching Aids

SENIOR HIGH MATHEMATICS COURSES

The printing and distribution of the Mathematics 10, 13 and 14 Interim Teacher Resource Manual has been delayed. To assist in the initial implementation of the new Mathematics 10, 13 and 14 courses, Alberta Education distributed excerpts from the manual to all senior high schools in August 1989. These excerpts contain the first two units for each course.

Recommended Resources for All Senior High Mathematics Courses

Charles, R., et al. How to Evaluate Progress in Problem Solving. Reston, Va.: The National Council of Teachers of Mathematics, 1987.

James, G., et al. Mathematics Dictionary Fourth Edition. New York, N.Y.: Van Nostrand Reinhold Co., 1976.

National Council of Teachers of Mathematics. Curriculum and Evaluation Standards for School Mathematics. Reston, Va.: The National Council of Teachers of Mathematics, 1989.

Recommended Resources for Mathematics 10, 13 and 14 Courses

Hirsch, C.R., ed. Activities for Implementing Curricular Themes from the Agenda for Action. Reston, Va.: The National Council of Teachers of Mathematics, 1986.

Howden, H. Algebra Tiles for the Overhead Projector. New Rochelle, N.Y.: Cuisenaire Company of America, 1985.

Swan, M. The Language of Graphs. Nottingham, England: The Shell Centre for Mathematical Education, 1987.

Other Recommended Resources

Course	Resources
Math 10, 13	Demana, F., et al. Master Grapher. Don Mills, Ont.: Addison-Wesley Publishing Co., 1987. (computer software)
Math 13, 14	Easterday, K.E., et al., eds. Activities for Junior High School and Middle School Mathematics. Reston, Va.: The National Council of Teachers of Mathematics, 1981.
Math 14	Math Ways, Kinetic, 1980. (video series)
	Math Wise, Agency for Instructional Television, 1981. (video series)

Resources can be obtained from the Learning Resource Distributing Centre, 12360 142 Street, Edmonton, Alberta T5L 4X9; phone (403) 427-2767; FAX 422-9750.

Zone Inservices

A series of eight zone inservice sessions for Mathematics 10, 13 and 14 have been set up for curriculum supervisors and senior high school mathematics teachers. Dates, times and locations are listed below.

Date	Time	Location	Regional Consultant	Phone
September 22	9:00 - 4:00	Red Deer	Ron Babiuk	340-5262
September 25	9:00 - 4:00	Lethbridge	Gary Hill	381-5243
September 26	9:00 - 4:00	Medicine Hat	Gary Hill	381-5243
September 27	9:00 - 4:00	Calgary	Pat McLaughlin	297-6353
October 11	9:00 - 4:00	St. Paul	Dick Daly	427-2952
October 12	9:00 - 4:00	Edmonton	Dick Daly	427-2952
October 17	9:30 - 4:30	Grande Prairie	Hugh Sanders	538-5130
October 18	9:30 - 4:30	Peace River	Hugh Sanders	538-5130

Details of these sessions can be obtained from your superintendent, or by contacting the regional office consultant in your area.

MATHEMATICS 20, 23, 24

The Mathematics 20, 23 and 24 teacher resource manuals and textbooks are being field tested by teachers in 39 classrooms throughout the province. They will comment on program effectiveness, make recommendations for changes, provide suggestions for activities and mathematical problems to be included in the teacher resource manuals, and provide feedback on textbook effectiveness with the program and in the classroom.

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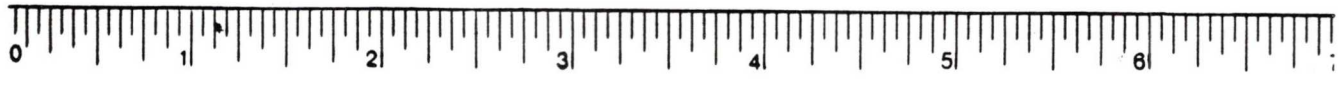

The Mathematics Council of The Alberta Teachers' Association presents its annual professional development conference

Directions for the '90s

November 2-4, 1989
Lethbridge Lodge, Lethbridge, Alberta

Keynote address by Ralph Himsl, superintendent of schools for RCSSD No. 9
entitled
"Intelligence, Thinking and Mathematics"

Session and Workshop Themes

* Diagnosis and assessment in mathematics
* Learning models for the twenty-first century
* Strategies for teaching understanding--concept development through manipulatives, cooperative learning and more
* Microcomputers and calculators in mathematics
* Changes in mathematics education
* Problem solving and thinking skills

Registration Form

Name _____ Phone (res.) _____

Address _____ (bus.) _____

School _____

REGISTRATION FEES:

Before October 1, 1989

*MCATA Member	$70 ($80 after October 1)
*Student Member	$20
Saturday only	$40
Banquet ticket(s)	$20

*Nonmembers please add $20 for regular membership
or $5 for student membership

Please make cheques payable to the Lethbridge Community College, and mail your registration and cheque to

Lethbridge Community College
3000 College Drive S
Lethbridge, Alberta
T1K 1L6

VISA/Mastercard No. _____ Expiry Date _____

Signature _____

Mathematics Educator of the Year

Nomination Form

Nominee's Name _____ Phone _____

Home Address _____

School Address _____

Present Position _____

_____

_____

_____

_____

_____

Nominated by _____ Phone _____

Address _____

Date _____

The award will be presented at the annual MCATA conference held in Lethbridge from November 2 to 4, 1989.

Mail nomination form before October 5, 1989 to

Bob Michie
Chairperson
Award Selection Committee
149 Wimbledon Crescent SW
Calgary, Alberta
T3C 3J2