

# Mathematics Council NEWSLETTER

The Alberta Teachers' Association

Volume 4

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## Welcome Back!

I do hope that each and everyone of you had a super vacation and are prepared to return to the classroom filled with vitality and enthusiasm. The year ahead is filled with challenges, what with the establishment of COATS, and a restructuring of the secondary school program with its increased emphasis on academics.

It is my considered opinion that the teachers of Alberta have nothing to apologize for as a result of their past performance, but in fact can hold their heads high and say in a truly professional sense for all the world to hear that they have done a good job. They are and have been dedicated to the well-being of their students and to academic excellence. I am sure that they are prepared to meet and challenge anything new which is thrown their way in the future.

However, at the same time, there is no place for complacency. There is always room for improvement. For the ATA in general and MCATA in particular, it is imperative that you as active members remain actively involved, and encourage your fellow teachers to get involved. MCATA's current membership is approximately 375. Considering the fact that there must be at least 10,000 teachers who teach students mathematics at some level from kindergarten to university, our membership is particularly small. The potential is there for many more members. If you have ideas how MCATA can be made more significant and important to teachers of mathematics, please let your executive know.

The upcoming 15 months should be exciting for MCATA members. This fall for the first time in many years MCATA will be hosting a three-day conference on October 24, 25, and 26 in Lethbridge. An extensive program has been planned. Details are enclosed. We do hope to see you and a friend there.

Plans are already under way for a NCTM "Name of Site" Conference to be held in Edmonton during October 1986. It is not too early to think about attending this conference. Encourage your school boards to give you time off and possibly help with expenses.

Please do get involved. Do have a good year.

--Art Jorgensen

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## **delta - K**



A special issue of DELTA - K is to be mailed to all schools in Alberta, as well as to all regular MCATA members. It is hoped that by so doing more teachers will be made aware of the benefits of belonging to MCATA, and will join.

Please look for this special issue in your school and encourage fellow math teachers to read it. This special issue will be mailed from Barnett House around October 19, 1985.

## **Homework Hotline**

The ATA in cooperation with ACCESS Network is sponsoring a Homework Hotline for junior high school students in the area of language arts and mathematics.

Details are included elsewhere in this issue.

Please encourage your students to make use of this special review.



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# The Role of Review in Mathematics Instruction

Editorial comments: There exists a need for constant and effective review. The following article by Marilyn N. Suydam, taken from the September 1985 issue of Arithmetic Teacher, outlines some effective review techniques.

You probably know teachers who show little enthusiasm for review, and students often reflect boredom. Yet the word carries a hidden promise of excitement that we seem to miss. Re-view. See from a new perspective. Review helps children synthesize what they've learned and helps them to identify what they haven't learned. It can help them develop confidence in their ability to be successful in mathematics.

Research clearly indicates some guidelines for planning review work:

- \* Plan review carefully and incorporate it systematically into the instructional program. Use it to establish what is known and to ascertain whether any prerequisite knowledge for a new topic is missing.
- \* Review key points or objectives after a unit or topic is taught. Students thus become aware of the main ideas, develop generalizations, and attain an overall view of what they have been learning piecemeal.
- \* Plan for an extensive overview at regular intervals and not merely daily review of homework. Thus, Good and Grouws (1979) proposed weekly and monthly reviews as well as daily reviews as components of their model for teaching mathematics. The aim is to help students develop a sense of continuity about the mathematics they are learning, to help them organize the material at their own levels of comprehension, and to provide systematic practice to promote retention. Good and Grouws showed that this approach promotes achievement.
- \* Spread out assignments about a particular topic, rather than concentrate them within a short interval, to promote retention. Review that immediately follows instruction consolidates ideas from that instruction, enabling students to fit ideas into new patterns, whereas delayed review aids in relearning forgotten material.
- \* Plan short periods of intensive review rather than long periods.

What types of review are effective? Although researchers have explored only some of the possibilities, the following have been found to be effective.

*Outlines:* The process of making an outline forces students to organize ideas and provides a structure that will help them put the ideas together.

*Questions:* Review questions are effective for recalling content that has not been meaningful to students. Thus, Burns (1970) used thought-provoking study questions, spaced throughout instruction, on fractions and decimals in grade 6. Students who used the review questions scored significantly higher than those using frill pages from the textbook. Moreover, review questions asked in words were better than exercises in calculation (Lee 1980). The questions required a thorough understanding of the concepts, plus the ability to apply them to new situations, whereas exercises in calculation emphasized only rote learning skills.

*Varied grouping:* Achievement trends favored small-group review in a study by Pence (1974), although not significantly, indicating that review could be conducted effectively with individuals or groups of any size.

*Varied content:* Homework is more effective if it contains review and exploratory exercises as well as practice on the content just taught.

*Games:* Motivation and effective review are provided by games (Bright, Harvey, and Wheeler 1980). Students focus on the mathematical objective while enjoying the process of recalling and restructuring.

Review is an important component of the mathematics instruction program. It can't be neglected -- and it can be made interesting as well as profitable! Such publications as Didactics and Mathematics 1978 offer suggestions for helping you to achieve this goal.

## PROBLEM CORNER

### (1) The Inaccurate Watch

If a watch is stopped for fifteen minutes every hour, how long will it take the hands of the watch to progress from 12 o'clock noon to 12 o'clock midnight?

### (2) Jelly Beans

What is the least number of jelly beans you can have which when counted by twos, threes, fours, fives, and sixes always leave one extra, but when counted by sevens come out even?

### (3) More Change

How can you make change for \$1.00 using fifty coins?

- 
- (1) It would take 16 hours.  
 (2) It would take 301 jelly beans.  
 (3) Two possibilities are as follows: 2 dimes, 13 nickels, 5 pennies; OR, 7 dimes, 4 nickels, 10 pennies.

# Homework HOTLINE

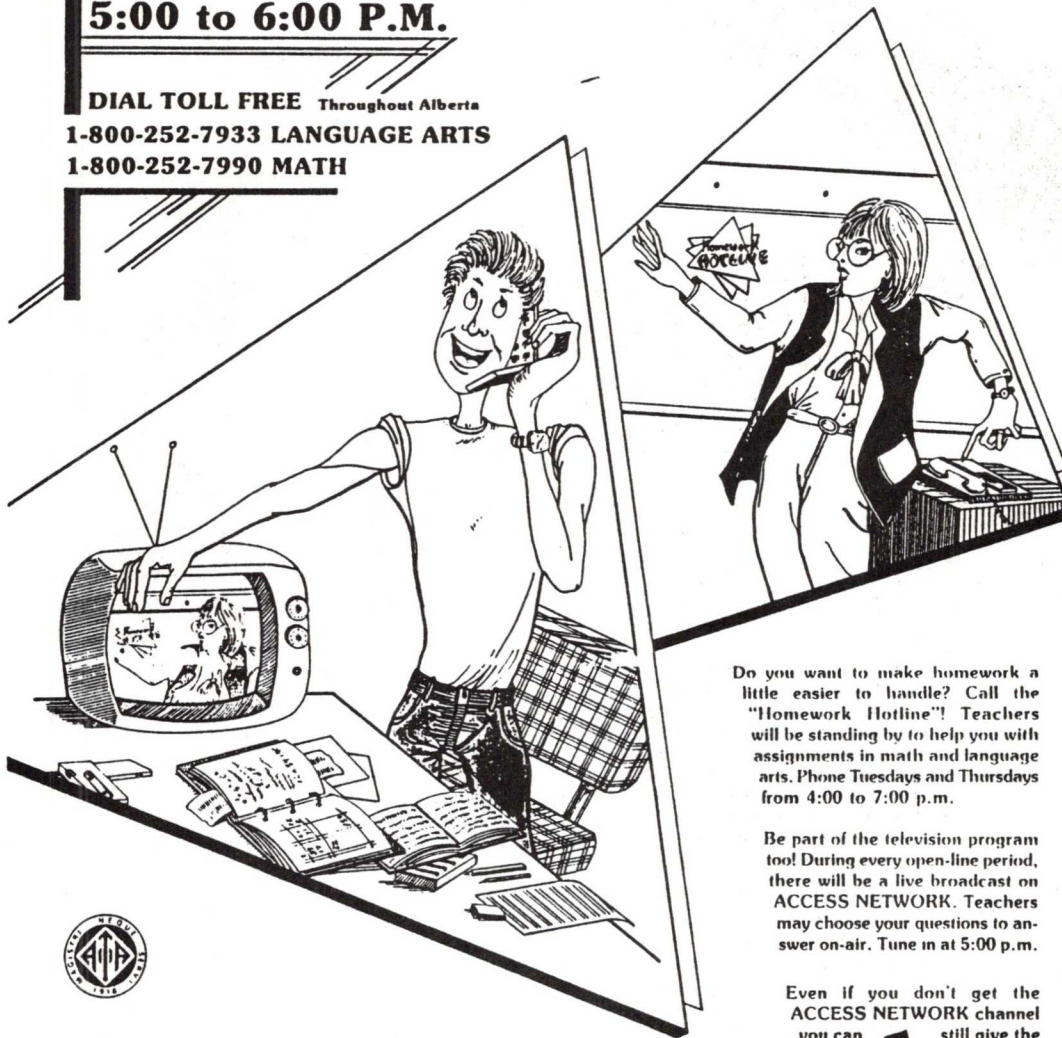
*For Junior  
High  
Students*

**TUESDAYS and THURSDAYS,  
STARTING OCTOBER 8, 1985  
OPEN-LINE 4:00 to 7:00 P.M.  
LIVE TELEVISION PROGRAM  
5:00 to 6:00 P.M.**

**DIAL TOLL FREE** Throughout Alberta

**1-800-252-7933 LANGUAGE ARTS**

**1-800-252-7990 MATH**



Do you want to make homework a little easier to handle? Call the "Homework Hotline"! Teachers will be standing by to help you with assignments in math and language arts. Phone Tuesdays and Thursdays from 4:00 to 7:00 p.m.

Be part of the television program too! During every open-line period, there will be a live broadcast on ACCESS NETWORK. Teachers may choose your questions to answer on-air. Tune in at 5:00 p.m.

Even if you don't get the ACCESS NETWORK channel you can still give the hotline a call.

**Make Your Mark**



# What's New?

In view of the current recommended changes to the secondary mathematics program, the 1985 NCTM Yearbook should prove to be of particular interest to mathematics educators.

**NCTM's  
Newest Yearbook**

## THE SECONDARY SCHOOL MATHEMATICS CURRICULUM

1985 YEARBOOK

**will help you meet the challenge  
of the rapidly changing secondary school mathematics curriculum**



The mathematics curriculum is changing! Are you prepared? *The Secondary School Mathematics Curriculum*, edited by Christian R. Hirsch, shows how far-reaching and widespread these changes are. The book discusses • **issues in curriculum planning** • **new curricular directions** • **innovative courses** • **innovative three- and four-year programs** • **courses and programs for talented students**. This book is for mathematics teachers who teach in the middle schools, secondary schools, advanced placement courses; for mathematics supervisors; and for curriculum planners.

The secondary mathematics curriculum is indeed changing. Meet the challenge and stay informed with the help of the 1985 Yearbook: 250 pp., #342, ISBN 0-87353-217-1, \$16 (20% discount to individual members).

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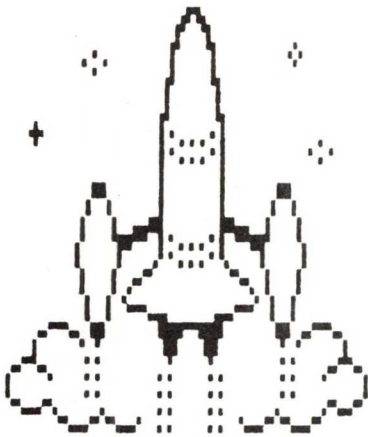
*Chapters include:* • New College Mathematics and Its Impact on the High School Curriculum • School Algebra: What Is Still Fundamental and What Is Not? • The Design of the Nonformal Geometry Curriculum • Computer Simulations: Integrating Realistic Problem Solving into the Curriculum • Discrete Mathematics: A Unified Approach • Noncareer Mathematics • Integrating Geometry into the Curriculum • Incorporating Problem Solving in Advanced Algebra • The Advanced Placement Program in Calculus • A Special School in North Carolina

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**National Council of Teachers of Mathematics  
1906 Association Drive, Reston, VA 22091**





Come Blast Off with Us!  
**October 24, 25, 26, 1985**

## **ANNUAL CONFERENCE**

The Mathematics Council of  
The Alberta Teachers' Association

Lethbridge Lodge Hotel  
Lethbridge, Alberta

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**Thursday Evening  
October 24**

- Keynote Address – “Only the Sharp Shall Survive.” *Charles E. Allen*, Los Angeles Center for Enriched Studies
- Wine and Cheese Social

**Friday  
October 25**

- Sessions
- Banquet
- Entertainment
- Casino

**Saturday  
October 26**

- Keynote Address – “Problem Solving and Thinking.” *Ralph Himsl*, Superintendent, Lethbridge Separate School District
  - Sessions
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*Altogether there will be 65 sessions on Friday and Saturday.*

For further information, see your school rep or contact:

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