



Mathematics Council NEWSLETTER

The Alberta Teachers' Association

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From the Editor

by Art Jorgensen

Welcome to another school year, and to another year with MCATA. I hope it is an excellent one for all concerned.

I want to take this opportunity to reflect upon the changes that have, or should have, taken place over the past decade in mathematics education.

In the September 1988 issue of the Arithmetic Teacher (p. 11), Stephen Willoughby points out that Americans have been quick to talk about goals and accomplishments, but slow to effect meaningful changes. I am afraid that the same situation holds true in Canada.

If you were to conduct an investigation of the mathematics classroom in Canada today, you would find that the methods and content used are not very different from those of 10, 20 or even 40 years ago. Students sit quietly in rows, while a teacher using a blackboard, and sometimes an overhead projector, lectures the class. The textbook is the course: on the first day it is opened to the first page, and on the last to page 379. Emphasis is still placed on the memorization of low-level skills and trivial facts. Little effective use is made of technological advances such as the hand held calculator or the computer.

It is too easy to blame the teachers for this sad state of affairs. Frequently overworked and underpaid, they teach as they have been taught. Furthermore, they have to handle large and diverse classes, and are expected to be experts in mathematics, science, language, social studies, physical education, and so on. These are totally unrealistic expectations.

Unfortunately, little opportunity exists for mathematics teachers to participate in meaningful inservices. One half day of inservice is totally inadequate when a new course or textbook is introduced.

On the plus side, some school systems are recognizing the need for effective inservices, and are beginning to arrange for them. Textbooks are becoming more interesting and challenging. Good programs are being prepared for use with the computer. Hand held calculators have been introduced in some classrooms, and more and more teachers are involving students in exciting and challenging problem solving activities.

However, there is still much to be done. Knowing that all of you, as members of the MCATA, have a keen interest in excellent mathematics education, I urge you to lobby for inservices, to demand the best of textbooks and to press for effective training for prospective teachers in the area of mathematics education. In short, take an active role in MCATA! We are over 700 strong, and if we face the challenge and put our hands and heads together, we could accomplish a great deal.

Upcoming Conferences

- The 1988 Conference of the Mathematics Council of the ATA will be held November 3 to 5, 1988 at the Edmonton Inn in Edmonton. The conference theme is "A Focus on Understanding." Watch The ATA News for registration forms. See you there!
- The 1989 MCATA conference will be held in Lethbridge. Presenters will be needed. How about taking up the challenge?
- The MCATA has been asked to host a regional conference of the National Council of Mathematics Teachers to be held in Calgary October 25 to 27 1990.
- The 1989 NCTM annual conference will be held in Orlando, Florida, during the period of April 18 to 21.

Math Neophytes

*They like the words "infinity,"
"Divergent," and "scalene,"
They toss them off with nonchalance,
But they don't know what they mean!*

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Math! The Winning Ticket

National Council of Teachers of Mathematics Western Regional Meeting

February 23 to 25, 1989 --in San Jose, California-- over 200 sessions, workshops and exhibits will be held for mathematics teachers from Kindergarten to College, at the Fairmont Holiday Inn and San Jose Convention Center.

Thursday, February 23

- 13:00 to 14:00 • Greetings from Thomas Romberg, Chair,
NCTM Commission on Standards for School Mathematics
- 14:15 to 17:30 • Sessions
- 19:00 to 20:00 • Keynote speaker Seymour Papert, author and creator of
Mindstorms and of the Logo programming language
- 20:00 to 21:00 Reception

Friday, February 24

- 08:30 to 14:20 • Sessions, workshops and exhibits
- 18:00 to 23:00 • Dinner, Dance, Monte Carlo night
Shirley Frye, president of NCTM, featured speaker

Saturday, February 25

- 08:30 to 14:20 • Sessions, workshops and exhibits

Registration

NCTM Member.....	\$28
Nonmember.....	\$58
Student.....	\$14
Nonmember - 1 day.....	\$34
Dinner/Dance/Monte Carlo Night (Friday).....	\$35
Tour of San Francisco Garment District (Friday).....	\$15
Santa Clara Valley Wine Country Tour (Saturday).....	\$22

NCTM members will receive a conference program booklet in the Fall. Nonmembers may write to Marilyn Blockus, Dept. of Mathematics and Computer Science, San Jose State University, San Jose, CA 95192 to request a program.

* * * * *

The only thing that makes the assembly line possible is our ability to make pieces so exactly alike that we can take any one of a thousand and drop it into place and it will fit.

--C.F. Kettering

Local Inservices

Local MCATA executives will help organize local inservices. Don't hesitate to call to discuss your need.

If you are looking for a particular resource person, a "Speakers' List" is available from the treasurer, Dick Kopan, 23 Lake Crimson Close SE, Calgary T2J 3K8. Telephone: (Res) 271-5240, (Bus) 271-8882.

Writers Needed

Are you a closet writer? Are you waiting for an opportunity to share your excellent ideas in some worthy publication? Then why not consider delta-K, the journal of the Mathematics Council of The ATA?

John Percevault, editor of delta K, is on a quest for manuscripts. The themes listed below are guidelines. John will consider all original articles about teaching mathematics.

<u>Issues</u>	<u>Themes</u>	<u>Due dates for Manuscripts</u>
February	Estimation	December 15
June	Manipulatives in Teaching Mathematics	March 30

Guidelines for Manuscripts

1. Manuscripts should be typewritten, double spaced, a maximum of 12 pages in length, and submitted in duplicate.
2. Diagrams, tables and pictures should be included, and their proper place within the text should be clearly indicated.
3. When diagrams or charts are taken from other sources, written statements from the publisher or author regarding permission to reprint must be included.
4. delta K is a professional journal for practicing teachers. Its articles must be informative and offer practical advice from teachers' personal experiences and research.
5. delta K grants permission to reproduce any article for classroom use without permission of the author, except in the case of those published with permission of the author and specified "Not for reproduction."
6. Include your name, position and institution, and provide a short biographical statement.
7. Forward to: John B. Percevault, Editor, delta K
2510 22 Avenue South, Lethbridge, Alberta, T1K 1J5

Errata

In R. Scott Erickson's article "Escher Revisited: Modeling Gradual Deformations Using Logo," published in delta-K, volume 27, number 1, June 1988, the three designs appearing on page 20 are improperly credited. "Razor Blades" was created at Carnegie-Mellon University, "Consternation" by Scott Grady and "Fylfot Flipflop" by Fred Watts are designs that originated at the Basic Design Studio of William S. Huff, professor of architectural design at the State University of New York at Buffalo. The designs originally appeared in "Metamagical Themas" written by Douglas R. Hofstadter and published in Scientific American, volume 249, number 1, July 1983.

R. Scott Erickson, John Percevault (editor of delta-K) and the Mathematics Council of The Alberta Teachers' Association apologize to William S. Huff and students at the Basic Design Studio and Carnegie-Mellon University.

Permission to reprint or reproduce in any way the above-mentioned designs must be obtained from Scientific American and William S. Huff.

Also, two errors appeared on page 3 of the June 1988 issue of the MCATA Newsletter, in an article called "Solving an Infinitely Nested Radical."

Here is the correction:

$$x = 2 + x, \text{ should read } x^2 = 2 + x$$
$$x - x - 2 = 0, \text{ should read } x^2 - x - 2 = 0$$

Suggested Readings

Math Fiction

Flatland, A Romance of Many Dimensions, is a neat little book by A. Square (Edwin A. Abbott), available from Penguin Books at a cost of \$5.95.

This is classic science fiction - or is it math fiction? - mocking Victorian English times in a novel comparable in length and pace to Jonathan Livingston Seagull. Part I centres on a square's cultural description of his life in a two dimensional world called Flatland, a place where social order is determined by one's shape and where being an irregular polygon is punishable by destruction. Women, being line segments, form the lowest class while circles act as priests and judges. The satire is blatant, but fun.

In Part II, the square is visited by a sphere, who he can see only as a circle. The sphere tries to describe space to the Flatlander, but the words needed to explain three-dimensional space do not exist in the square's culture. The sphere then lifts the Flatlander out of his "universe," thus providing him with a look back and an understanding. Other encounters and adventures follow and the Flatlander returns to tell and explain them.

This 1884 work does not fit into any niche of the basic curriculum guide. However, I would recommend it for the pure fun of reading.

--Martin H. Badke

Problem Solving

How to Evaluate Progress in Problem Solving and Problem Solving Techniques Helpful in Mathematics and Science are two new publications from NCTM. Both books support NCTM's 1980 recommendation that "problem solving be the focus of school mathematics in the 1980's."

How to Evaluate Progress in Problem Solving is divided into four chapters. Each chapter provides practical and sensible suggestions that are applicable to all levels of mathematics instruction. Some of the chapters are: "What Are You Trying to Evaluate?", "What Are Some Evaluation Techniques?", "How Do You Organize and Manage an Evaluation Program?" and "How Do You Use Evaluation Results?" This publication is also part of NCTM's "How to..." series.

Teaching With Calculators

How to Teach Mathematics Using a Calculator, Activities for Elementary and Middle School is a new publication from NCTM that focuses on how the calculator can be used as an instructional tool. This publication is illustrated with activities that can be duplicated for classroom use. These activities assist in the development of concepts, help reinforce skills, promote higher-level thinking, and enhance problem-solving instruction. It is the perfect resource to be used in conjunction with NCTM's calculators.

NCTM has two new calculators. "The Basic NCTM Calculator" is solar-powered, the size of a credit card, and handy for classroom or home use. "The Teacher's Calculator" is designed for use on overhead projectors. It has a see-through display window with an opaque readout for easy projection.

How to Teach Mathematics using a Calculator, Activities for Elementary and Middle School is available from NCTM for \$5.60 (prepaid; ISBN 0-87353-245-7). The Basic NCTM Calculator is available from NCTM for \$4.95 (prepaid), and the NCTM's Teacher's Calculator is available from NCTM for \$6.96 (prepaid).

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