

ALBERTA EDUCATION LIBRARY
4th FLOOR
11160 JASPER AVENUE
EDMONTON, ALBERTA T5K 0L2

Mathematics Council NEWSLETTER

The Alberta Teachers' Association

Volume 8

Number 5

May 1990

Mathematics Assessment— A Travesty of Justice

The Curriculum and Evaluation Standards for School Mathematics (NCTM 1989), likely the most comprehensive mathematics document of the past decade, calls for radical "design change" in all mathematics education. But, the area that receives particular notice and calls for the most radical change is student assessment.

Without changing the manner in which student achievement is assessed, the mathematics curriculum will not be implemented in the classroom regardless of how texts or local curricula change. Explicit in this warning is the perceived power that compulsory outside assessments, such as curriculum designers and textbook publishers, wield over teachers. The tested curriculum is what will be taught regardless of the broader goals and objectives of teachers and mathematics programs. By publishing students' provincial examination results, and thereby claiming one school's superiority over another and one teacher's superiority over fellow teachers on the basis of these findings, high stake testing has become omnipresent and debilitating. Since the stakes are so high and the pressure from school boards, administration and parents is so great, teachers feel compelled to teach to the test. Imagine the pressure a teacher is under when the principal phones her home at 10 p.m. and asks, "Why didn't John Smith do better on the test?" To what extent are we as teachers a party to this situation? Do we express feelings of powerlessness as if this testing took over by "right of eminent domain"?

Influencing the powers to change the emphasis placed on provincially-based exams is not easy because people perceive it as politically prudent to do so. However, we must not become complacent and play dead.

Armed with the standards, it is time to strike a counter claim on the mathematics curriculum. Our claim should make students, not test scores, the mathematically powerful. It should make teachers, not testers, the determiners of instructional objectives. It should make learning, not licensing, the focal point of schooling. We have indicators of success in mathematics that are more revealing than the results of standardized tests. Standardized tests only consider the answer and do not recognize the students' thought processes.

As seductive as tests scores are, their perceived power must be resisted if teachers are to reclaim their roles as coordinators of curriculum reforms, if teachers are to reclaim their rightful places on curriculum-evaluation teams, and if students are to reclaim their mathematical power and become self-regulating, self-monitoring and self-controlling individuals. To achieve this, assessment must be tied to larger curricular goals and objectives. Evaluation data must come from a variety of sources, namely, observations, interviews, journal writings, portfolios, extended projects, as well as from norm and criterion reference tests. Evaluation should be determined by an evaluation team consisting of teachers, supervisors, administrators, parents, students and test constructors serving as "tenants" in common to determine the test questions and the actions to make mathematics accessible to all. Only by so doing will mathematics be exciting to teach and to learn. It is time to make our voices heard.

References

- National Council of Teachers of Mathematics (NCTM), Commission on Standards for School Mathematics. Curriculum and Evaluation Standards for School Mathematics. Reston, Va.: NCTM 1989.
- Ellicot, Portia. "Reclaiming School Mathematics." Arithmetic Teacher 37, no. 8 (April 1990): 4 - 5.

Evaluation in Mathematics

An excellent publication entitled Assessment Alternatives in Mathematics has been prepared by the California Mathematics Council and the EQUALS staff at the University of California at Berkeley. Request a copy by writing to EQUALS, Lawrence Hall of Science, University of California, Berkeley, Calif. 94720.

Get Smart

The Operation SMART Research Tool Kit is a new teaching tool designed to strengthen mathematics and science programs. The kit contains intriguing fun and challenging evaluation activities that nine- to fourteen-year-old girls conduct to assess their own and each other's attitudes, plans and aspirations in mathematics and science. Each kit contains 13 "tools" or activities with instructions, a leader's handbook and enough materials for a group of 15. Operation SMART is a Girls' Club of America program to encourage every girl to achieve in science, math and relevant technology. Kits can be purchased for \$35 (prepaid) from the Girls' Clubs of America National Resource Centre, 441 West Michigan Street, Indianapolis, Ind. 46202.

NCTM Board Approves Project

The NCTM board of directors has approved the establishment of a professional standards commission. By 1991 the commission hopes to disseminate a comprehensive document outlining the standards for teaching mathematics, the professional development of teachers and teaching evaluations. The standards will operate as a companion to the Curriculum and Evaluation Standards for School Mathematics.

Excellence in Mathematics Teaching

Declining student performance, a shortage of qualified mathematics teachers and the public demand for school accountability have forced the commission to address the gap between ideal professional practice and the reality of mathematics instruction today. The commission will strive to outline a set of principles determining what constitutes excellence in mathematics teaching and how it can be evaluated. The commission has compiled a set of conditions describing the environment necessary for teachers to implement the curriculum standards learning and teaching goals in the context of the three teaching standards sections.

Curriculum Standards + Teaching Standards = Professional Standards

Standards for Teaching will focus on how teachers select mathematical content, organize it into instructional units, plan and implement activities that motivate students, monitor and assess students' learning and use classroom data in conjunction with resources to make decisions about instructional alternatives.

Professional Development of Teachers will outline what the Council expects of teachers entering the profession and what it expects of teachers at various stages in their careers. Preservice and inservice professional development will be viewed in terms of mathematical, pedagogical and foundational content, as well as clinical experience.

Standards for the Evaluation of Teaching focuses on evaluating classroom proficiency and continued professional growth. It will delineate the goals, processes and steps of evaluation, and the roles of teachers, peers, students and supervisors. This section will also define the appropriate uses and interpretation of evaluative data.

The commission will consist of a project director and three writers, each of whom will develop one of the new standards components. The commission, along with the NCTM president, president-elect and executive director, will be assisted by a 15-member NCTM advisory group consisting of mathematics teachers, supervisors and evaluators, and teacher educators. This group will outline each component, react to drafts, suggest revisions and conduct hearings on a draft version of the project during 1989-90.

Some "Almost" Equations

On this page, you will see some "almost" equations. My typewriter broke down and will print only the numbers, not the symbols for the operations. That is, it will not type +, -, x, ÷ or = signs. So, if I meant to write $5 \times 7 = 28 + 7$, I would only get 5 7 28 7.

Your job is to fill in the proper signs between the numbers given below to make each "almost" equation a true and correct equation. The first one is done for you.

4 9 18 5
(Answer: $4 + 9 = 18 - 5$)

3 4 5 14 7
(Answer: $3 + 4 - 5 = 14 \div 7$)

3 7 15 6
15 3 8 3
24 6 5 6
24 4 15 5
12 3 3 5
12 6 12 10
12 3 40 4
12 5 22 5
14 7 7 3

8 6 6 4 5
2 3 5 36 6
5 8 3 8 2
18 2 18 2 7
6 4 6 4 14
6 6 6 6 6 2
3 4 5 30 40 10
3 3 4 4 5 5
1 2 3 4 5 6 7 8 9 10

Answers

$3 \times 7 - 15 = 6$
 $15 \div 3 = 8 - 3$
 $24 = 6 \times 5 - 6$
 $24 - 4 - 15 = 5$
 $12 + 3 = 3 \times 5$
 $12 \div 6 = 12 - 10$
 $12 \times 3 = 40 - 4$
 $12 + 5 = 22 - 5$
 $14 + 7 = 7 \times 3$

$8 + 6 + 6 = 4 \times 5$
 $2 \times 3 \times 5 = 36 - 6$
 $5 + 8 + 3 = 8 \times 2$
 $18 \div 2 = 18 - 2 - 7$
 $6 \times 4 - 6 - 4 = 14$
 $6 + 6 + 6 = 6 + 6 \times 2$
 $3 \times 4 \times 5 - 30 + 40 = 10$
 $3 \times 3 + 4 \div 4 = 5 + 5$
 $1 \times 2 + 3 + 4 + 5 + 6 + 7 = 8 + 9 + 10$

This activity is reprinted from the Idaho Council of Teachers of Mathematics Newsletter 15, no. 3 (March 1984).

The Right Angle

Senior High School Mathematics Update

The Mathematics 20, 23 and 24 courses were field-tested during the first semester of the 1990-91 school year. The Ad-Hoc Curriculum Committee used the comments and suggestions it received to revise the courses.

The following resources were field-tested to support the courses. The authorized resources will be available through the LRDC by the end of June 1990.

- Math 20 Addison-Wesley Publishers, Mathematics 11, Alberta Edition
 Dale Seymour Publications, Exploring Probability and The Art and Technique of Simulation
 Holt, Rinehart and Winston of Canada, Holtmath 11
 Nelson Canada, Mathematics: Principles and Process 11
- Math 23 Dale Seymour Publications, Exploring Probability
 Gage Educational Publishing Company, Mathematics for a Modern World Book 3, Third Edition
 McGraw-Hill Ryerson, Allied Mathematics 11
 Nelson Canada, Math Matters Book 3, Alberta Edition
- Math 24 Houghton Mifflin Canada, Consumer Mathematics
 Scott, Foresman and Company, Consumer and Career Mathematics, Third Edition Canadian Edition

The following list identifies additional resources for implementing the senior high school mathematics courses:

Title	Course	LRDC Code	Price
Print			
* <u>Activities for Implementing Curricular Themes from the Agenda for Action (TR)</u>	All Senior High	OMA10034	\$ 16.35
* <u>Curriculum and Evaluation Standards for School Mathematics (TR)</u>	All	OMA00001	29.75
* <u>How to Evaluate Progress in Problem Solving (TR)</u>	All	OMA10035	7.15
* <u>Mathematics Dictionary (TR)</u>	All Senior High	OMA10032	55.90
* <u>The Language of Graphs (TR)</u>	10, 13, 14, 20, 23	OMA10037	7.45
Kits			
* <u>Algebra Tiles for the Overhead Projector (TR)</u>	10, 13, 14, 20, 23	OMA10036	28.80
* <u>Algebra Tiles, Student Set (5 sets of 32)</u>	10, 13, 14, 20, 23	OMA10038	24.90
Software			
* <u>Computer Graphing Experiments 1</u>	10 - 12	OXC10001	101.10
* <u>Computer Graphing Experiments 2</u>	10 - 12	OXC10002	101.10
* <u>Computer Graphing Experiments 3</u>	10 - 12	OXC10003	101.10

* <u>MasterGrapher and 3D Grapher</u>	All Senior High		
Version 1.0 IBM - 3 1/2"		OXC10124	32.65
IBM - 5 1/4"		OXC10125	32.65
APPLE		OXC10126	32.65
MAC		OXC10127	32.65

Monographs

* <u>Problem Solving Mathematics:</u> <u>Focus for the Future</u>	10, 11, 12	OXS10010	3.10
--	------------	----------	------

Audiovisual

* <u>Of Dice and Men--Video</u>	20, 23	Regional Film Centres & ACCESS	
* <u>Trigonometric Function I</u> (English and French)		Regional Film Centres & ACCESS	

These resources are useful for teaching the new programs and are correlated throughout the Teacher Resource Manuals.

Thought for the Day

We as teachers dare to dream,
Hence we transform
Obstacles into advantages,
Difficulties into achievements,
And dreams into realities.

MCATA Executive 1989/90

President

Marie Hauk Res. 487-8841
315 Dechene Road Bus. 492-5860
Edmonton T6M 1W3

Past President

Louise Frame Res. 251-5841
36, 2323 Oakmoor Drive SW Bus. 278-3633
Calgary T2V 4T2

Vice-President

Bob Hart Res. 284-3729
16 Rosetree Crescent NW Bus. 276-5521
Calgary T2K 1M9

Secretary and NCTM Representative

Wendy Lukawesky Res. 420-1466
1701, 9808 103 Street Bus. 453-1576
Edmonton T5K 2G4

Treasurer

Dick Kopan Res. 271-5240
23 Lake Crimson Close SE Bus. 271-8882
Calgary T2J 3K8

delta-K Editor and Publication Director

Linda Brandau Res. 265-5395
2109, 1200 Sixth Street SW Bus. 220-6288
Calgary T2R 1H3 or 220-5635

Newsletter Editor

Art Jorgensen Res. 723-5370
4411 Fifth Avenue
Edson T7E 1B7

Monograph Editors

Bob Midyette Res. 282-8916
3343 Boulton Road NW Bus. 249-3131
Calgary T2L 1M2

Keith Molyneux Res. 289-8601
2707 48 Avenue NW Bus. 274-2240
Calgary T2L 1C4

1990 Conference Director

George Ditto Res. 282-6682
2713 17A Street NW
Calgary T2M 3S9

Faculty of Education Representative

Daiyo Sawada Res. 436-4797
11211 23A Avenue Bus. 492-0562
Edmonton T6J 5C5

Department of Education Representative

Gary Hill Res. 381-8405
200 Fifth Avenue S Bus. 381-5243
Bag Service 3014
Lethbridge T1J 4C7

Mathematics Representative

Alvin Baragar Res. 469-5626
Department of Mathematics Bus. 492-3398
University of Alberta
Edmonton T6G 2G1

PEC Liaison

Clifford Youngs Res. 245-4415
2110 26 Avenue SW Bus. 228-5363
Calgary T2T 1E6

ATA Staff Adviser

Bill M. Brooks
200, 540 12 Avenue SW Bus. 265-2672
Calgary T2R 0H4 or 1-800-332-1280

Membership Director

Diane Congdon Res. 526-7563
146 Fourth Street SW Bus. 548-7516
Medicine Hat T1A 4E3

Publicity Director

Bill Davidoff Res. 627-4283
P.O. Box 574 Bus. 527-4414
Pincher Creek T0K 1W0

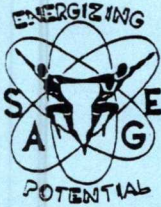
Professional Development Director

Jim Neilsen Res. 238-3919
264 Cedardale Place SW Bus. 276-5521
Calgary T2W 5J2

Directors at Large

Bryan Quinn Res. 460-7733
6 Greenhill Street Bus. 475-1737
St. Albert T8N 2B4

Wes Williamson Res. 347-2332
106 Glendale Boulevard Bus. 346-4755
Red Deer T4P 2P5



ENERGIZING POTENTIAL

**at the Westin Hotel, Calgary
September 27-29, 1990**

**A CONFERENCE FOR EDUCATORS, PARENTS,
RESEARCHERS AND ALL OTHERS INTERESTED IN
ENERGIZING HUMAN POTENTIAL**

KEYNOTE SPEAKERS

PRECONFERENCE INSTITUTE: THURSDAY SEPTEMBER 27.

STRAND A:

A.M. Administrative Provisions for the Gifted and Talented.

**Recognizing Connections: ALBERTA EDUCATION Initiatives-
Implications for Educating the Gifted and Talented.**

**P.M. DR. MARGARET LIPP - UNIVERSITY OF REGINA 'The Canadian
Perspective'**

STRAND B:

**DR. JOYCE VAN TASSEL-BASKA - WILLIAM AND MARY COLLEGE
'Appropriate Curriculum for Gifted Students'**

THURSDAY EVENING SEPTEMBER 27 FULL CONVENTION BEGINS

DR. NORAH MAIER - UNIVERSITY OF TORONTO

'Future Directions for World Wide Connections in Gifted Education'

FRIDAY SEPTEMBER 28

DR. JULIAN STANLEY-JOHNS HOPKINS UNIVERSITY

'The Mathematically Precocious'

SATURDAY SEPTEMBER 29

DRS. SHEILA AND JOSEPH PERINO-NEW YORK

'Parenting the Gifted: Developing the Promise'

DR. JAMES R. DELISLE - KENT STATE UNIVERSITY

'Understanding Giftedness From a Child's Perspective'

'ENRICHMENT IS FOR ALL CHILDREN'

CONCURRENT SESSIONS AND WORKSHOP TOPICS-PRACTICAL IDEAS FOR EVERYDAY

CLASSROOMS: SOME POTENTIAL TOPICS

**FINE ARTS, PROGRAMS FOR PARENTING THE GIFTED, CRITICAL THINKING SKILLS, SCIENCE
PROGRAMS, MATH ENRICHMENT, LIBRARY RESOURCES, IMPLEMENTING ENRICHMENT
PROGRAMS, GUIDING STUDENTS TO ADVANCED RESEARCH SKILLS, GLOBAL EDUCATION,
DISTANCE EDUCATION, TOWARDS SELF-DIRECTED LEARNING, EVALUATING
STUDENT PROGRAMS, COUNSELLING, RECENT RESEARCH RESULTS,
UNDERACHIEVEMENT, COMPUTERS, CONTINUITY IN PROGRAMS**

**FOR MORE INFORMATION CONTACT THE CONFERENCE REGISTRAR
TO REGISTER, COMPLETE REGISTRATION FORM ON REVERSE**

**SAGE CONFERENCE REGISTRAR
CENTRE FOR GIFTED EDUCATION
THE UNIVERSITY OF CALGARY
2500-UNIVERSITY DR. N. W.,
CALGARY, ALBERTA,
T2N 1N4**

**Tel: (403) 220-7799
Fax: (403) 282-9244**

**SAGE IS THE UMBRELLA GROUP COMPRISING: ALBERTA TEACHERS' ASSOCIATION GIFTED AND
TALENTED EDUCATION COUNCIL, ALBERTA ASSOCIATIONS FOR BRIGHT CHILDREN, UNIVERSITY OF
CALGARY-CENTRE FOR GIFTED EDUCATION, ALBERTA EDUCATION: EDUCATION RESPONSE CENTRE.**



CONFERENCE HIGHLIGHTS

THURSDAY, SEPTEMBER 27, 1990 - PRECONFERENCE INSTITUTES:

ADMINISTRATIVE PROVISIONS FOR THE GIFTED AND TALENTED

STRAND A: 'ALBERTA EDUCATION: INITIATIVES IN GIFTED EDUCATION AND DR. M. LIPP 'THE CANADIAN PERSPECTIVE'

STRAND B: "ALL DAY WORKSHOP WITH DR. J. VAN TASSEL-BASKA"

8:00-8:45 AM REGISTRATION FOR PRECONFERENCE INSTITUTES

12:30-7:30 PM DISPLAYS OPEN

6:00-7:45 PM SPEAKERS' DINNER

REGULAR CONFERENCE BEGINS

6:30-7:45 PM REGISTRATION FOR FULL CONFERENCE AND RECEPTION

8:00-9:30 PM KEYNOTE SPEAKER - DR. NORAH MAIER

FRIDAY, SEPTEMBER 28, 1990

8:00-8:45 AM REGISTRATION

9:00 AM-5:00 PM DISPLAYS OPEN

9:00 AM- KEYNOTE SPEAKER - DR. JULIAN STANLEY

11: 00 AM-4:00 PM OVER 20 CONCURRENT SESSIONS INCLUDING TALKS BY DR. N. MAIER, DR. M. LIPP AND DR. J. STANLEY

4:00 PM ATA GTEC ANNUAL GENERAL MEETING

6:30 PM BANQUET AND ENTERTAINMENT

SATURDAY, SEPTEMBER 29, 1990 - LAST DAY OF THE CONFERENCE

8:00-8:45 AM REGISTRATION

9:00 AM - 2:30 PM DISPLAYS OPEN

9:00 AM - KEYNOTE SPEAKERS - DRS. S. AND J. PERINO

11: 00 AM-3:00 PM OVER 20 CONCURRENT SESSIONS INCLUDING TALKS BY DR. S. PERINO, DR. J. PERINO, DR. J. DELISLE, AND DR. J. STANLEY

12:30 PM - 1:15 PM AABC ANNUAL GENERAL MEETING

3:00 PM CLOSING ADDRESS BY DR. J. DELISLE



ENERGIZING POTENTIAL - SEPTEMBER 27-29, 1990

___ THURSDAY PRECONFERENCE INSTITUTE INCLUDES THURSDAY NIGHT RECEPTION & KEYNOTE ADDRESS & 1 LUNCH. PLEASE INDICATE WHICH STRAND YOU WILL BE ATTENDING STRAND ___ A, OR ___ B, \$85.00 BEFORE JUNE 1. \$100.00 AFTER JUNE 1.

___ FULL CONFERENCE REGISTRATION- INCLUDES THURSDAY NIGHT RECEPTION & KEYNOTE ADDRESS, & ALL FRIDAY AND SATURDAY SESSIONS, and 2 LUNCHES. \$125.00 BEFORE JUNE 1. \$150.00 AFTER JUNE 1.

___ 1 DAY REGISTRATION-INCLUDES THURSDAY NIGHT RECEPTION & KEYNOTE ADDRESS, FRIDAY OR SATURDAY SESSION, and 1 LUNCH. PLEASE INDICATE WHICH DAY YOU WILL BE ATTENDING ___ FRIDAY OR ___ SATURDAY \$85.00 BEFORE JUNE 1. \$100.00 AFTER JUNE 1.

___ BANQUET TICKET(S) FOR FRIDAY NIGHT @ \$23.00 EACH

___ Total Payable (include registration fee and banquet tickets)

MAKE CHEQUE PAYABLE TO THE UNIVERSITY OF CALGARY

NAME _____

ADDRESS _____

POSTAL CODE _____ PHONE _____

TO BOOK A ROOM AT THE WESTIN AT THE SPECIAL CONFERENCE RATE OF \$89 PER NIGHT SINGLE OR DOUBLE CALL 1-800-228-3000 BEFORE AUGUST 28, 1990.



NCTM Canadian Regional Conference

Mathematics: Into the Third Millennium

**Convention Centre
Calgary, Alberta**

October 25 to 27, 1990

Keynote Speakers

Ken Jesse

Student Needs - Teaching - Politics

Kathy Richardson

Teaching for Understanding
Some Things to Consider

Don Fraser

Fun-Filled Practical Ways of
Taking the Numb Out of Numbers
As We Head Back to the Future

Miriam A. Leiva

Mathematics for the Third Millennium:
From Rote to Reason

James M. Rubillo

Mathematics in the Next Millennium:
Lively Ideas Logically Linked to
Life and Learning

* 42 workshops * 85 sessions * publisher displays * make-and-take sessions

For further information, contact

George Ditto, Conference Chairperson
(403) 282-6682

Lois Marchand, Program Chairperson
(403) 294-6310
FAX (403) 294-6301

or

NCTM
(703) 620-9840
FAX (703) 476-2970



NCTM Canadian Regional Conference

Mathematics: Into the Third Millennium

Information Sheet

Registration

Registration forms will be included in the program booklets that will be sent to all NCTM members in August 1990.

Fees

NCTM Member	\$28 (U.S.)
Institutional Member	\$28 (U.S.)
Nonmember	\$63 (U.S.)
(One-Day)	\$38 (U.S.)

Special Registration Fees

Elementary schools with an institutional membership including a subscription to the Arithmetic Teacher can register their teachers at the member registration rate in advance. All other institution members can register one teacher only at the member rate in advance.

Group Discounts

NCTM offers discounts for group registrations paid by schools or school districts, parent-teacher associations or companies. To qualify as a group, all individual registration forms must be submitted together and paid for at one time. Group registrations must be received no later than the established advance-registration deadline.

Discounts will be based on the appropriate registration fee for each teacher:

2 to 5 teachers	10% discount
6 to 10 teachers	20% discount
10 or more teachers	30% discount

Membership fees do not qualify for the discount.

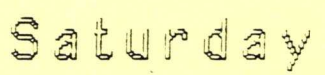
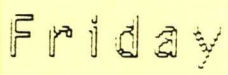
Conference Hotels

Skyline
 110 9 Avenue SE
 Calgary, Alberta
 266-7331

Palliser
 133 9 Avenue SW
 Calgary, Alberta
 262-1234

WORKSHOPS

Friday October 26	McIntyre	Stephen	Glendale	Glengarry	Colonial	Corral
8:30-10:00	3. K-3 Jane Ann McLaughlin Let's Use Links to Provide the Missing Links in Children's Understanding of Math Congdon	4. K-3 Mary Lou Nevin Develop Logical Thinking with Your Own Attribute Models Reimer	5. 4-6 Marvin Taiman Gary Hardy Construction & Use of Metric Measurement Devices Taschuk	6. 4-6 Irvin Burbank Innovative Geometry for the Elementary Teacher and their Students Renneburg	8. 10-12 James Beamer Concrete Models to Enhance the Teaching of Secondary Algebra and Geometry Hider	7. 6-9 Gene Dolson Negative Attitudes? Positive Activities! R. Lee
10:30-12:00	32. 10-12 Stuart Teller Just for Operators Activities & Challenges to Kick-off Kids Thinking Math Marian	31. 6-9 Barbara Morrison Stephen Joans Discovering Mathematics through Technology Skrypnek	30. 6-9 Cherry Mauk Modeling Mathematical Ideas in Real Life Situations Jones	29. 6-9 Craig Loewen Alternate Instructional Strategies in the Junior High Chow	27. K-3 Rick Johnson Activities to Aid the Intelligent Learning of Primary Mathematics Sherman	28. 4-6 George H. Willson A Medley of Geometric Activities Mendes
12:45-2:15	43. 4-6 K.A. Neufeld Computational Pizzazz Create Your Own Puzzles Chong	44. 6-9 Thor Fridriksson Math: A Way of Thinking Data Analysis Unit Crawford	42. K-3 Claire Beaulne Let's MATHipulate Galbraith	46. 10-12 Jane F. Kern Exploring Fractions Using Logo Shenher	47. 10-12 Pamela Giles Using Graphing Calculators to Enhance Algebra Instruction Ken May	45. 7-9 Barry & Jan Scully Cling, Tie, Fold, Cut, Paste, String It, Ideas to Move from Concrete to Abstract Heater
2:45-4:15	70. 6-9 Sue Haich Spatial Visualization Blocks & Dot Paper for Fun & Enriching Activities in Geometry Walton	71. 9-11 David Parkinson Using Algebra Tiles To Factor Trinomials with Leading Coefficients not 1 Nicholas	67. K-3 Bill Swan Using Manipulative Materials to Teach Number & Operations to LD Johns	69. 4-6 Victor Brown Communicating in Mathematics Hamaguchi	68. 4-6 Julie Boucher Making Sense of Two Digit Multiplication Brown	66. K-3 Clare Heidema Personal Language & Concrete Tools for Problem Solving O'Grady
Saturday, October 27						
8:15-9:45	83. K-3 Sandra Unrau A Place for Talking and Writing in math Kind	84. 4-6 Jane L. Bowles Manipulatives The Building Blocks for the Next Generation Whitehead	87. 10-12 Leslie Dukowski Manipulatives in High School MacRae	86. 7-9 Barry & Jane Scully Problem Solving for the Future Williams	82. K-3 Jane Felling J. Currah C. MacDonald Box-Cars and One Eyed Jacks Frison	85. 6-9 Sol Sigurdson A. Olson Activities for Teaching Math with Modeling Klopoushak
10:15-11:45	98. 4-6 Claire Beaulne Brush Up Your Second Language Math Hopper	97. K-3 Evelyn M. Neufeld The Construction of Concrete Operational Thought Medeiros	101. 6-9 Denise A. White Cooperative Group Problem Solving MacMillan	102. 10-12 Bruce Kabaroff Homework in Senior High School Yoshioka	99. 4-6 Lorna F. Wiggan Heads Together and Hands On Investigating Math Brandelli	100. 4-6 Marilyn Komarc Introducing Topology M. Kennedy
12:15-1:45	125. 5-9 Ralph Connelly Probability Panorama Percevault	123. 4-6 Gay Riley Using the TI Math Explorer Pawloff	122. K-3 Marilynn Reid Probability & Statistics for Primary People Friesen	126. 6-9 Chogollah Maroufi Schemata & the Concept of Faculty Algorithms Adomeit	121. G1 4-12 Jill Britton Escher Art Orsten	124. 4-6 Wendy L. Klassen Active Learning in the Intermediate Math Class Ibbotson



SESSIONS

Sections	Macleod A	Macleod B	Macleod C	Macleod D	Glencoe	Glenview	Glenmore	Alberta	Marquis	Turner Valley	Oval
Thursday 5:00-7:15 7:30-11:00					Registration Reception						
Friday 7:30-3:00											
7:30-8:15											
9:00-10:00											
10:15-11:15											
11:30-12:30											
12:45-1:45											
2:00-3:00											
3:15-4:15											
6:00-11:00											

81. Social - "Evening in the Foothills" 3:15-4:15

The MCATA Award for Excellence in Mathematics Teaching

Guidelines for Candidate Selection

MCATA wishes to acknowledge the excellence in teaching mathematics within Alberta. As part of this acknowledgment, MCATA is providing an opportunity for colleagues to nominate individuals who

- * are actively teaching or are otherwise involved in the field of mathematics in the Alberta educational system (e.g., classroom teachers, postsecondary institution teachers, teachers with Alberta Education, administrators or other people involved in the field of mathematics);
- * represent the profession positively and with enthusiasm to students, colleagues and the public;
- * are identified as effective teachers by students, colleagues and/or parents;
- * motivates students to pursue mathematics;
- * stimulates students to see mathematics as a major force in society;
- * participates in professional activities; and
- * demonstrates a knowledge of current issues and developments in mathematics education.

MCATA Award for Excellence in Mathematics Teaching

Nomination Form

Mail to Louise Frame
Past President, MCATA
32, 1012 Ranchlands Blvd. NW
Calgary, Alberta
T3G 1Y1

Nomination Deadline: September 5, 1990

I would like to nominate _____ as a candidate to receive the MCATA Award for Excellence in Mathematics Teaching. Please find attached a letter supporting my nomination outlining the qualifications of the nominee.

Nominator	Nominee
Name _____	Name _____
Address _____	Address _____
City/Town _____	City/Town _____
Postal Code _____	Postal Code _____
School _____	School _____
Phone _____	Phone _____



Membership Application

MEMBERSHIP APPLICATION* (Full-time student dues are one-half regular dues.)

Dues support the development, coordination and delivery of council services for one year including \$15 for each subscription to the Arithmetic Teacher and the Mathematics Teacher, \$20 for the Journal for Research in Mathematics Education and \$3 for five issues of the NCTM News Bulletin, including Math Student Notes.

_____ Arithmetic Teacher (AT) Individuals \$40 Institutions \$45 \$ _____
9 issues September - May for elementary Grades K-8

_____ Mathematics Teacher (MT) Individuals \$40 Institutions \$45 \$ _____
9 issues September - May for secondary Grades 7-14

_____ Journal for Research in Mathematics Education (JRME) \$ _____
5 issues November, January, March, May and July. Individuals \$45

Periodical Combinations (Select one option) _____ AT and MT: \$55; \$ _____
_____ AT and JRME: \$60; _____ MT and JRME: \$60; AT, MT and JRME: \$75

***Additions and Information** \$ _____

- * Special Product orders must be prepaid and include \$2 for shipping and handling.
- * Sales tax on materials and products (not membership) for Virginia residents 4.5%.
- * Additional AT copies, for institutions only, mailed to the same address \$15/order/year.
- * For mailing outside the U.S., add \$5 for the first AT or MT and \$2.50 for each additional AT or MT; add \$1.50 for JRME.

_____ MasterCard _____ VISA _____ Total payment to NCTM \$ _____
in \$ U.S. enclosed.

Credit Card # _____ Expires _____

Signature _____

- * Canadians enter "U.S." after the dollar amount on your personal checks.
- * Other international orders must be paid by MasterCard, VISA or a U.S. check drawn on a U.S. bank.

Home Phone _____ Work Phone _____

Name _____

Address _____

_____ Postal Code _____

National Council of Teachers of Mathematics
1906 Association Drive, Reston, Va. 22091
(703) 620-9840 FAX (703) 476-2970

