Mathematics Council NEWSLETTER

The Alberta Teachers' Association

Volume 10 Number 3 February 1992

From the Editor

The following article points to the importance of relating mathematics teaching to the real world of children. Many students do not understand one of the most basic concepts of the mathematics system--place value--because they have never been able to associate it with their world.

Curriculum developers, textbook authors and teachers must place more emphasis on practical hands-on activities before moving on to abstractions. This way, far more students would succeed in and enjoy mathematics.

Understanding Place Value Concepts

Understanding place value concepts and base-10 notation for whole numbers and decimals is crucial for success in elementary school mathematics. However, a number of studies have demonstrated that many students lack fundamental understanding of place value. Although children eventually are able to respond correctly to standard textbook questions such as, "How many tens are in 63?" and "What digit is in the tens place of 462?", many of these students do not really understand place value. For example, Kamii and Joseph (1988) found that none of the Grade 1 students and only a third of the Grade 2 students they studied thought that the "1" in the numeral "16" would be represented by 10 chips rather than by one chip. The students had been able to read the numeral, represent it with 16 chips and indicate what the "6" part of the numeral meant with chips yet were unable to correctly associate the tens digit with 10 chips.

In another study, Ross (1985) asked a group of Grade 3 students to count a set of 26 chips, write the numeral and then put the chips into six groups of four with 2 leftover chips. She found that approximately half of the students incorrectly thought that the 2 in 26 went with the 2 leftover chips, and the 6 was represented by the six groups of four objects. These two studies, among others, indicate that children are acquainted with the vocabulary for place value but do not comprehend the underlying concept that a ten is both a unit and a composite of 10 ones, that 6 in the numeral 63, for example, represents 6 tens and 60 ones. Instruction that assists students in making connections between the written notation and meaningful referents, that emphasizes the dual role of the tens digit, for example, may help them completely understand our place value system.

A recent study with Grade 1 classes found that students who received instruction that emphasized developing meaning for two digit numbers were able to use this knowledge to solve routine and novel tasks. For example, approximately 40 percent of the students in this study were able to compute sums requiring regrouping (e.g., 46 + 38) even though this topic was not part of the instruction.

References

Kamii, C., and L. Joseph. "Teaching Place Value and Double-Column Addition." Arithmetic Teacher 35, no. 2 (1988): 48 - 52.

Ross, S. "Parts, Wholes and Place Value: A Developmental View." Arithmetic Teacher 26, no. 6 (1989): 47 - 51.

Prepared by the Research Advisory Committee of the National Council of Teachers of Mathematics

Upcoming Conferences

NCTM Regional. Eugene, Oregon. March 19 to 21, 1992.
This is shaping up to be a great conference in a great city. Furthermore, it is close to home.

NCTM Annual. Nashville, Tennessee. April 1 to 4, 1992.
Here is an opportunity to participate in some excellent sessions, meet some fine people and enjoy the bright lights of the "Foot Stomping Capital of the World."

ICME-7. Quebec City, Quebec. August 17 to 23, 1992.

MCATA Annual--"Math Fare". Medicine Hat, Alberta. November 5 to 7, 1992.
Yes--Medicine Hat! You'll be pleasantly surprised.

April is Mathematics Education Month

Historically, mathematics has received little, if any, positive attention. Students perceive it as something that they have to do and rarely see in it anything but pages of uninteresting and drudgery-type activities. Put a little pizzazz into your math classes by trying some of the following:

* Organize a math fair.
* Organize a math regional in your area.
* Devote a school inservice workshop to math.
* Decorate your classroom or library focusing on math.
* Display student math materials in your community.
* Organize a math contest.
* Invite a guest speaker to talk about the importance of mathematics in industry.
* Have students develop interesting math problems or activities.

The MCATA executive will help with personnel and money--all you have to do is ask.

THE CANADIAN MATHEMATICAL OLYMPIAD

ANNOUNCEMENT OF THE TWENTY-FOURTH CANADIAN MATHEMATICAL OLYMPIAD

DATE

The Twenty-fourth Canadian Mathematical Olympiad will be held on Wednesday, April 8, 1992. The examination will be written at the schools of the candidates from 9:00 a.m. to 12:00 noon.

ELIGIBILITY FOR PRIZES:

In order to be eligible for prizes, a candidate must:

(i) be a Canadian citizen or a permanent resident in full-time attendance at an elementary or secondary school or CEGEP.

(ii) be temporarily resident in Canada and have been attending a Canadian elementary or secondary school or CEGEP since October 8, 1991.

Any student satisfying these conditions but enrolled in advanced mathematics courses at his/her own institution or elsewhere, is still eligible for prizes.

NOMINATION PROCEDURE:

The Olympiad is open only to students who have been nominated by either the Olympiad Coordinator of their province or by their school principal. Please note the following deadlines for submission of nominations forms.

(i) Provincial Nominees

The Olympiad Coordinator in each of the provinces is entitled to nominate up to a certain number of candidates on the basis of student performance in a provincial, territorial or local mathematics competition. The numerical limits are as follows:

British Columbia and the Yukon	.....	27
Alberta and the Northwest Territories	.....	22
Saskatchewan	.....	10
Manitoba	.....	10
Ontario	.....	60
Quebec	.....	60
Prince Edward Island	.....	5
New Brunswick	.....	7
Nova Scotia	.....	9
Newfoundland	.....	6

Provincial nominees must satisfy the eligibility requirements for prizes. Registration forms for provincial nominees must be completed and returned to the Provincial Olympiad Coordinator in time to reach the Executive Office of the CMS by March 27, 1992. The Provincial Coordinator will mail the exam for the school nominee to the School.

(ii) School Nominees

Any student registered full time at a Canadian high school who is deemed to have exceptional ability and is not nominated by the Provincial Coordinator, may be nominated by his/her school principal. A school may nominate not more than three such candidates unless the approval of the Provincial Coordinator is obtained and the Executive Office is so informed. School nominees who are not eligible for prizes may participate in the Olympiad, and their placement will be listed in the final Report. The Executive Office will mail the exam directly to the school.

Registration forms for school nominees must be completed and received at the Executive Office of the CMS by March 20, 1992.

REGISTRATION FEES:

A twenty dollar ($20.00) registration fee must be enclosed with the nomination form of each school nominee. A ten dollar ($10.00) registration fee is payable for each provincial nominee.

NOMINATION FORMS:

Forms for Provincial nominees will be distributed by the Provincial Coordinator. School nomination forms and any additional information may be obtained by writing to:

1992 CMO
Canadian Mathematical Society
577 King Edward
Ottawa, Ontario
K1N 6N5 Canada

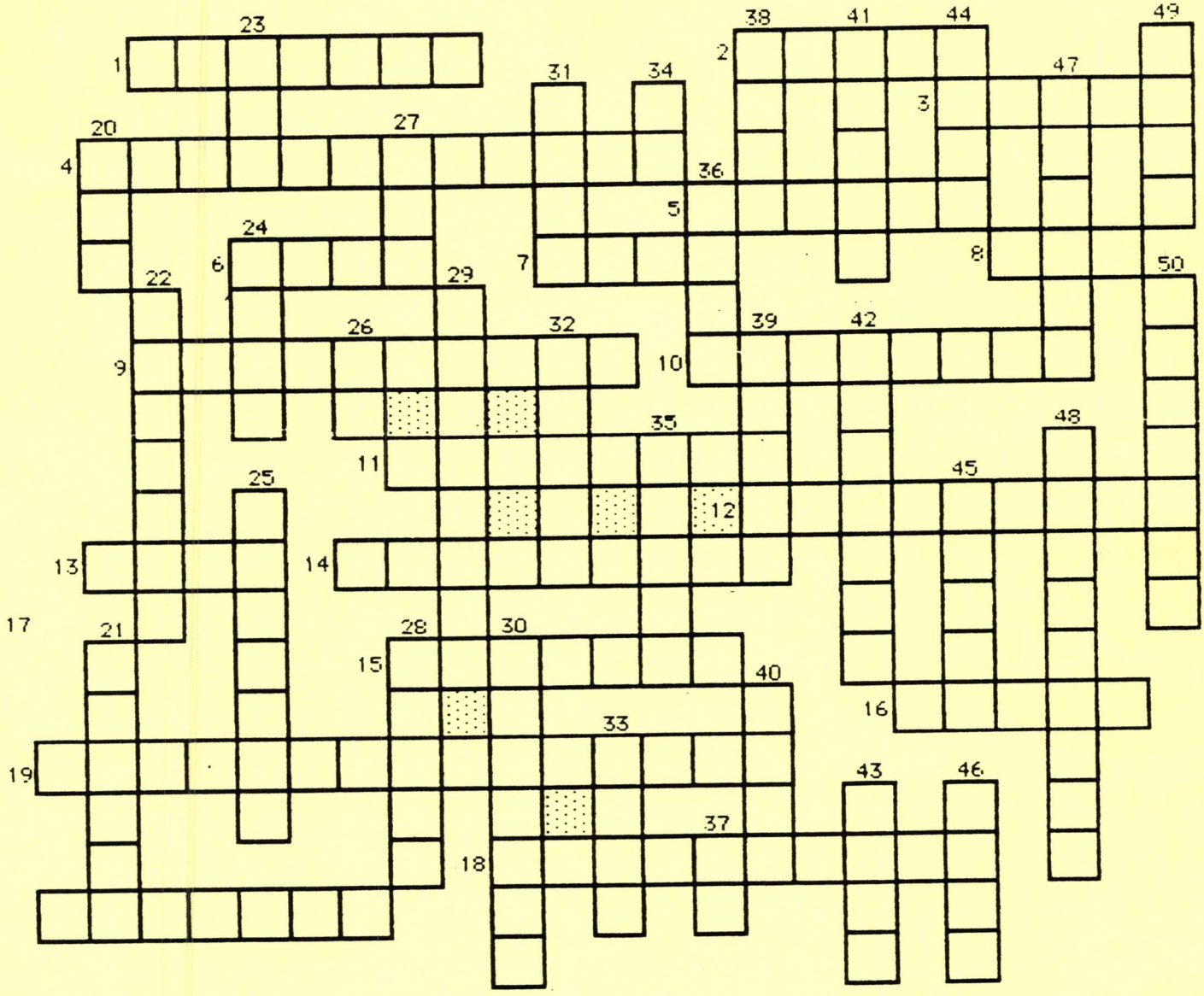
FIRST 15 OLYMPIADS:

Booklets containing the problems and solutions for the Olympiads (1969-78) and (1979-85) are available at a cost of $7.50 each from

Publication Orders
(see above address)

MATH-MOTS 03

Jean Grignon



HORIZONTALEMENT

1- Racine
2- Formé par l'horizontale et la verticale
3- Relation réflexive
4- Une des quatre
5- Ensemble de points
6- Solide régulier
7- Préfixe
8- Deux fois
9- Perpendiculaire
10- Fraction supérieure à l'unité
11- Chiffres
12- Ensemble d'un élément
13- Associées au plan cartésien
14- Conserve les mesures
15- Compter le nombre d'unités
16- Associé à la division euclidienne
17- A toutes les propriétés du trapèze et plus
18- A même valeur
19- Le rationnel en a toujours une

VERTICALEMENT

20- Produit ou somme de trois nombres consécutifs
21- Ensemble de points
22- Non concave
23- Indique le redoublement
24- Frontière d'un polygone
25- Triangle qui admet un axe de symétrie
26- Associé à l'union
27- Mesure agraire
28- Ancienne mesure
29- Formé de segments
30- Parfois ouvert, parfois fermé
31- Associé à la surface
32- Diagramme...
33- Associé à huit
34- Ni premier, ni composé
35- Opposé à "stricte"
36- Dont on peut compter les éléments
37- Unité de pression
38- Fraction
39- Faussement "poids"
40- Aucune place pour lui au dénominateur
41- Le triangle en a au plus un
42- Opération
43- Associé à la semaine
44- "Beigne" de grand-maman
45- Limite de deux surfaces sécantes
46- Sur lequel agit l'opérateur
47- "Partage" ou "mesure"
48- Répétition
49- Premier et pair
50- Ligne qui coupe une figure

ADHÉSION À L'APAME (1991-1992)

Prix en vigueur jusqu'au 31 mai 1992

1. Cotisation annuelle comme membre au pays ..... 35,00 $
2. Cotisation annuelle comme membre/étudiant à temps plein (carte exigée) ..... 30,00 $
3. Cotisation annuelle comme membre à l'étranger ..... 45,00 $

   *La cotisation de membre inclut la revue **Instantanés Mathématiques** et les numéros spéciaux; elle donne droit à des réductions sur les inscriptions à nos congrès, nos sessions...*
4. Cotisation annuelle pour institution ..... 35,00 $

   La cotisation annuelle pour institution ne donne droit à recevoir que les revues et les numéros spéciaux, s'il y a lieu.
5. Cotisation annuelle conjointe APAME-AMQ ..... 76,00 $

   APAME-GRMS ..... 60,00 $

   APAME-AMQ-GRMS ..... 108,00 $

Remplir la formule ci-dessous et la faire parvenir avec votre paiement à:

APAME
C.P. 300
Terrebonne (Québec)
J6W 3L5

Tél.: (514) 471-2992
Télécopieur: (514) 471-4960

FORMULE D'ADHÉSION

NOM _____ PRÉNOM _____

ADRESSE _____
no rue ville code postal

ORGANISME _____ TÉL. rés.: (____) - _____
bur.: (____) - _____

RÉGION AU TRAVAIL _____ télécopieur: (____) - _____

FONCTION _____ Niveau: ☐ préscolaire
☐ primaire (1er cycle)
☐ primaire (2e cycle)
☐ autre: _____

J'étais membre l'an passé: ☐ oui ☐ non

Ci-joint la somme de _____ $ Signature: _____

Partie réservée au secrétariat de l'Apame

Chèque: C.S. ____ École ____ Pers. ____ Autre: _____

Date du chèque: _____ No du chèque: _____ Date du renouvellement _____

Membership Application

Friends of Environmental Education Society of Alberta

Name _____

Address _____

Postal Code _____ Phone: (Bus.) _____ (Res.) _____

Please circle one: Corporate Institution Individual Student

Affiliation, experience & interests in environmental education: _____

_____

_____

_____

_____ Date: _____

Note: All members names, addresses and business telephone numbers may be published as a membership directory available for distribution to members and supporters of FEESA.

Make cheques payable to:

FEESA, 9914 - 76 Avenue, Edmonton AB T6E 1K8

Telephone: (403) 439-0243 Fax: (403) 432-1203

Participate in and support the activities of FEESA by becoming a member. In addition to receiving a subscription to UPDATE and a members newsletter, members also have access to the materials and services produced by the society.

Join us in helping to support education about Alberta's environment.

Annual Membership Fees:

Student	$15.00
Individual	$25.00
Institution	$50.00
Corporate	$100.00

FEESA

National Council of Teachers of Mathematics

Proclamation

Whereas, Mathematical literacy is essential for citizens to function effectively in society; and,

Whereas, Mathematics is used everyday—both in the home and in the workplace; and,

Whereas, The language and processes of mathematics are basic to all other disciplines; and,

Whereas, Our expanding technologically based society demands increased awareness and competence in mathematics; and,

Whereas, School curricula in mathematics provide the foundation for meeting the needs above;

Now, therefore, I, _____, the _____ of _____, do hereby proclaim the month of April 1992 as

Mathematics Education Month

To be observed in schools and communities in recognizing the increased importance of mathematics in our lives.

In witness thereof, I have hereunto set my hand and caused the seal of _____ to be affixed on this ____ day of _____ 19___.

Your Seal Here

_____

_____

From the President's Pen

Bob Hart

The 1991 MCATA annual conference, "Mathematics: A Meaningful Mosaic," was a great success! Close to 600 participants met with friends, attended informative sessions and viewed an array of mathematical aids and books. A tremendous thank-you goes to Marie Hauk and Bryan Quinn, the conference cochairs. Also, thanks to everyone who helped to organize the conference.

Now is the time for all MCATA members to plan for the 1992 annual conference in Medicine Hat to be held November 5 to 7. Diane Congdon and the committee are working hard to plan meaningful sessions for all levels of the curriculum. Are you staying current with the changing trends in mathematics education? The annual conference is one way to keep up to date. Mark the dates in your day timer, and plan now to attend.

A major focus of the MCATA executive is to reach more mathematics teachers in Alberta. The only way that others can obtain the necessary knowledge about MCATA is for us to promote MCATA. Please pass this newsletter on to your colleagues. Encourage your school library to add MCATA publications to their list of professional readings. Our strength comes from an increased membership. Our association exists for you.

Problem of the Day

Arrange seven coins in five straight rows with three coins in each row. The rows can go in any direction.

Update

Update--The Environmental Education Newsletter is an excellent publication full of interesting articles and activities for math and science teachers. Look for the Newsletter in your school library.

If you or your school wish to join the Friends of Environmental Education Society in Alberta, complete and mail the application form attached to this newsletter.

Fun with French

If you teach mathematics in French, the crossword attached to this newsletter may interest you. It was taken from Instantanés mathématiques, Volume XXVI, Number 3, janvier-février 1990, the official journal of APAME. The Journal has a number of interesting articles for teachers of French Immersion programs.

To join APAME and to receive this publication, complete the application form attached to this newsletter.

1991 MCATA Annual Conference

L to R: Bryan Quinn, Don Fraser and Marie Hauk

Hats off to those who attended the MCATA annual conference October 31 to November 2, 1991! Approximately 600 delegates took part in 49 presentations and 24 workshops. On Thursday evening, Don Fraser's humorous and relevant keynote address opened the conference on an upbeat note. Another highlight of the evening was the presentation of the Mathematics Educator of the Year Award to Cynthia Ballheim of Calgary.

A special thank you to the 76 people who returned the conference evaluation forms, from which the following data were derived:

1. Almost 90% rated the conference as positive (excellent 49%, good 38%).
2. All divisions were well represented (elementary 25%, junior high 30%, senior high 40%).
3. The conference enjoyed a wide appeal in terms of the delegates: (math backgrounds: major 57%, minor 13%, neither 30%; number of years teaching math: 0-9 years 30%, 10-19 years 40%, 20 or more years 30%; attendance at previous math conferences: first time 30%, 1-5 conferences 35%, 6 or more 35%).
4. Preconference information was one area of concern; only 50% were satisfied. Although adequate preconference details were publicized through a variety of media, the delegates were not given the conference booklet until they arrived on site. Reasons for this include ongoing adjustments to the program up to the date of the conference, budget restrictions (printing and mailing) and a province-wide distribution process that precluded an early mailing.
5. Regarding the social events, only 3% voiced dissatisfaction. Unfortunately, the conference opened on Halloween. Despite this, the Wine and Cheese reception was well attended (35%), and the Hospitality Hour had a successful turnout (20%). Facilities for the Friday night Beach Party could have accommodated a larger turnout; however, those who did attend had a great time. The large number of people who won prizes is a tribute to the hard work and success of the social committee in obtaining sponsorship for this event.

We wish to thank the conference subcommittee chairs who met regularly over 18 months for countless hours. We send a special thank-you also to their subcommittee members. We are sincerely indebted to them and their families.

Treasurer:	Doug Weisbeck, Edmonton Public Schools
Program:	Daiyo Sawada and Sol Sigurdson, University of Alberta
Supplies and Equipment:	Glenn Miller, Edmonton Public Schools
Publicity:	Karen Skrypnek, Edmonton Public Schools
Hospitality:	Ralphina McLeod, Edmonton Catholic Schools
Social:	Mary Lou Forest, Edmonton Catholic Schools
Exhibits:	Clint Sopchyshyn, Edmonton Catholic Schools
Take It and Use It:	Sharon Kratky, Edmonton Public Schools
General Advice:	Wendy Richards, Edmonton Public Schools

—Bryan Quinn and Marie Hauk
Conference Cochairs

Cynthia Ballheim Receives Mathematics of the Year Award

It has been said that educators are the most extensively observed, thoroughly evaluated and severely criticized of all professionals. Cynthia Ballheim, St. Mary's High School, Calgary, has faced this examination and has distinguished herself. She is one of the very few called upon to receive the tribute of being truly an outstanding teacher.

Her students benefit from such innovative techniques as the angles of depression and elevation becoming the heart-wrenching love story of Joe and Mary and mathematics made simple by the "squish and sandwich" rules. She establishes an extremely positive and stimulating environment in her classroom through her obvious love of teaching, her students and mathematics. This environment is fostered through the students' assignments, her dynamic personality, her creative methodologies and the classroom displays.

Cynthia fosters students' social, emotional, physical and intellectual growth by attending to individual students' needs. She is an excellent Christian role model, tutors one-on-one, organizes peer tutoring sessions and encourages her students in every possible manner. One student suggests that "her ability to understand and evaluate students is definitely a plus and that she knows exactly when we are burned out, excited or just not doing the work." Another student suggests "she is simply the best."

Not only does Cynthia communicate effectively with her students but also with her colleagues and parents. She is the coordinator of the Mathematics Department, and, as such, strongly influences the expertise of that department. She is a mentor to a new mathematics teacher in the Colleagues in Reflection program and has spent a great deal of time with this teacher. As a result of Cynthia's mentoring, this "at-risk teacher" has improved steadily and is no longer at risk. Parents are contacted on a regular basis and involved in their children's education at every possible opportunity.

Cynthia's credentials are exemplary. In October 1991, the minister of education recognized Cynthia as one of Alberta's 20 distinguished teachers. She is a recipient of a District Teacher Plus Award (1990). Her knowledge of her subject is thorough and precise due to her outstanding academic background (bachelor of science in mathematics, master of arts in guidance and counselling, and nine classes toward a master's in accounting) and her continued professional development. Cynthia has served on nine curriculum committees ranging from the Mathematics 20 Curriculum Specifications Committee to the Educational Quality Indicators Project. She has given presentations on Gifted Programs, Graphing Calculators and Developing Long-Range Plans in Mathematics, and has participated in numerous inservice sessions. She has attended at least one major conference per year in mathematics or related areas. Cynthia is a group leader for diploma examination evaluation and has marked diploma exams since 1987. At present, she is the vice-president of the Calgary Mathematics Association. Congratulations, Cynthia!

—Stanley Cichon, Principal
St. Mary's High School

Attention Elementary Teachers!

A new publishing company is now accepting teaching unit submissions from experienced elementary teachers for all elementary subjects and grade levels. If you have developed a unit that has been used successfully with your students, we'd like to consider it for publication.

- Units must be previously unpublished material.
- Units must not be restricted to the use of any one textbook or series but can mention suggested titles.
- Units must have been used successfully with students.
- Units must adhere to Alberta Education's Program of Studies for your grade level.

Payment rates are negotiable (depending on the unit content) but will involve a flat fee, paid immediately, plus a royalty (based on sales of your unit), paid anually. Submit material as soon as possible to Edu-Cater, 77 Jerry Potts Blvd., Lethbridge, Alberta T1K 5R2; phone 381-7768 (collect).

The Grade 9 Achievement Test

Nola Aitken

The Grade 9 Achievement Test consists of two parts: Part A has 40 multiple-choice questions, and Part B has 10 numerical-response questions. All questions are worth one mark each. Students will record answers to questions on machine-scored answer sheets.

To reflect the NCTM Standards, the test allows students a minimum of one hour and a maximum of two hours to complete. This should provide ample time for students to solve problems without being overly concerned with a time factor. We suggest those sudents who finish writing before one hour has elapsed remain in their desks to review their answers.

Most of the questions are embedded in context and focus on real-world situations more so than in past tests. At least one question is a "data" or "cluster" question where two or more questions are generated from one piece of data.

A numerical-response section has been included where students must generate their own answer rather than choose from four alternatives. A sample of the numerical-response answer sheet has been provided in the Grade 9 Achievement Test Bulletin, so students can familiarize themselves with this new form. Unlike the Grade 12 Diploma numerical-response sheet however, the Grade 9 one does not provide for a decimal place because all answers in this section are exact.

As usual, students will require HB pencils, rulers, erasers and scrap paper. Again, calculators are highly recommended. An example of Part B follows.

Part B: Numerical Response

Instructions: Read each question carefully.

Record your answer on the answer sheet by writing it in the boxes and filling in the circle in EVERY column as illustrated.

Make sure you fill in **all** boxes e.g., and corresponding circle in the column.

0	2	4	3

1. Record only one answer for each question. If you change an answer, erase your first mark completely.
2. Use ONLY an HB pencil to mark your answer.
3. Be sure that the number of the answer sheet matches the question you are doing.

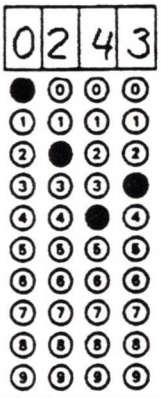
1. Evaluate 3^5

$3^5 = 3 \times 3 \times 3 \times 3 \times 3$

$= 243$

0243 has been recorded for you.

Answer Sheet



2. Each side of an equilateral triangle is 2 cm longer than each side of a square. Their perimeters are equal. Find the length of each side of the triangle.

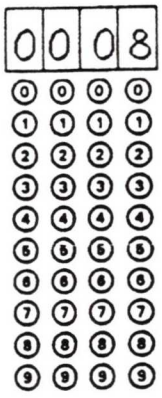
Let x = length of each side of the square.
Then $(x + 2)$ = length of each side of the triangle.

$4x = 3(x + 2)$
$4x = 3x + 6$
$4x - 3x = 6$
$x = 6$

The length of each side of the triangle is 8 cm.

Now, record 0008 on the example on the right.

Answer Sheet



Attention Mathematics 30 Teachers!

Are you having problems in acquiring resources for the new unit on Quadratic Relations? The Alberta Distance Learning Centre has developed a print and video package to assist you. The print component follows the prescribed Program of Studies from Alberta Education and covers the following topics:

1. The Physical Properties of Conic Sections
2. Describing Conics Through Parameters
3. Defining Each Conic as a Locus of Points
4. Using Eccentricity to Define Conics

The accompanying video series Discovering Conics consists of the following four programs:

- **Cutting the Curves** shows how the various conics, including the degenerate forms, can be produced by cutting a cone and a cylinder with a plane.
- **Graphing the Curves** shows the various curves produced and the changes on the curves when the parameters (A, B, C, D, E, F) are varied in the general equation of the quadratic.
- **Defining the Locus** gives the locus definition and shows how to draw the graphs of a parabola, an ellipse and a hyperbola using concentric circle graph paper and the locus definition for each curve.
- **Eccentricity** shows how to draw a parabola, an ellipse or a hyperbola using circle line graph paper and a given eccentricity value.

Obtain copies of the above print material and/or video programs from the Learning Resources Distributing Centre, 12360 142 Street, Edmonton, Alberta T5L 4X9; phone 427-2767.

Bonjour! You Are Invited to ICME-7

ICME-7, the Seventh International Congress on Mathematical Education, will be held at Université Laval in Québec City on August 17 to 23, 1992. This prestigious event is organized every four years and will bring together many of the world's most distinguished experts in mathematics education from more than 75 countries.

If you're interested in finding out what's happening in mathematics classrooms around the world, this is a unique opportunity. You will obtain an international perspective on such things as calculators and computers, probability and statistics, innovative means of assessment, geometry in general education, mathematics competitions, improving students' attitudes and motivation, mathematics in vocational education, project work in math, mathematical games and puzzles, and much more.

For more information, ask for a copy of the Second Announcement containing registration and housing information. The countdown has begun, so RUSH. Send your name and address to or call Congrès ICME-7 Congress, Université Laval, Québec, QC, Canada G1K 7P4; phone (418) 656-7592, Fax (418) 656-2000.

ESL Publications and Resources

As of April 2, 1991, most Alberta Education English as a Second Language (ESL) publications, including those formerly available from Central Support Services, may be obtained from the Learning Resources Distributing Centre (LRDC), 12360 142 Street, Edmonton, Alberta T5L 4X9; phone 427-2767, Fax 422-9750. The following resources and support materials are available for teachers instructing students with ESL needs:

(New) Cross-Cultural Caring: A Handbook for Health Professionals in Western Canada, 1990, $14.00

OES00001 (New) The-More-Than-Just-Surviving Handbook: ESL for Every Classroom Teacher, 1990, $11.90

OES01001 Making the Grade: Evaluating Student Progress, 1987, $24.60

OES04001 Teaching Language in Context, 1986, $40.20

OXS00107 ESL Instruction in Elementary Schools: Curriculum Guidelines and Suggestions, 1987, $4.40

OXS07009 ESL Instruction in the Junior High School: Curricular Guidelines and Suggestions, 1987, $4.30

OXL10001 English as a Second Language 10A, Basic English, Program Book, 1986, $4.95

OXV10050 English as a Second Language 10B, Language Development Across the Curriculum, 1986, $5.10

OXL10009 English as a Second Language 10C, An English Language and Literature Transition Course, 1986, $5.90

OXS01013 English as a Second Language, A Selective Bibliography of Supplementary Learning Resources, 1988, $1.35

OXF00054 Language Education Policy for Alberta, 1988, $1.75

OXS00109 Integrating Cultural Concepts into Second Language Instruction, 1987, $1.50

OXF00015 Into the Nineties: Second Language Education for the Next Decade, A Conceptual Framework, 1989, $2.50

OXF00039 Into the Nineties: Second Language Education for the Next Decade, Needs Assessment and Review of Background Studies, 1989, $2.95

OXF00040 Framework for a Proficiency Based Second Language Curriculum, 1988, $2.75

OXF00058 The Use of an Interpreter in an Educational Setting--Guidelines and Standards, 1988, $1.75

Consult the LRDC Catalogue for a more detailed listing of resources and support materials: elementary ESL--p. 49; junior high ESL--pp. 135-136; senior high ESL--pp. 238-240.

For further information regarding ESL programs and learning resources, contact Jane Wilson, Program Consultant, English as a Second Language, Language Services Branch, Alberta Education, Devonian Building, West Tower, 11160 Jasper Avenue, Edmonton, Alberta T5K 0L2; phone 427-2940, Fax 422-1947.

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Newsletter

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Edmonton T6M 1W3 — Fax 492-0236

Submit all manuscripts or inquiries to the directors, who will forward same to the appropriate editors.

Be a "Standards-bearer," and Spread the News!

Because the future of mathematics is in your hands, you and your colleagues need the Standards now. The NCTM has just published the Professional Standards for Teaching Mathematics, the companion to the Curriculum and Evaluation Standards for School Mathematics. You now have available to you the two important resources for improving the teaching and learning of mathematics in the 1990s. The two-document set will help you chart programs that will increase the mathematical power of all students.

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