

The NEWSLETTER is a publication of the Canadian Mathematics Education Study Group

CMESG is a group of mathematicians and mathematics educators who meet annually to discuss mathematics education issues at all levels of learning. The aims of the Study Group are:

- 1) *to study the theories and practices of the teaching of mathematics*
- 2) *to promote research in mathematics education*
- 3) *to exchange ideas and information about all aspects of mathematics education in Canada*
- 4) *to disseminate the results of its work.*

Ce BULLETIN est une publication du Groupe canadien d'étude en didactique des mathématiques

Le GCEDM est composé de personnes oeuvrant en mathématiques et en didactique des mathématiques et qui se réunissent une fois par année pour étudier diverses questions relatives à l'enseignement des mathématiques à tous les niveaux. Les buts du Groupe sont les suivants:

- 1) *susciter une réflexion critique sur la théorie et la pratique de l'enseignement des mathématiques*
- 2) *encourager la recherche en didactique des mathématiques*
- 3) *faciliter l'échange d'idées et d'information sur tous les aspects de l'éducation mathématique au Canada*
- 4) *faire connaître les résultats de ses travaux.*

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PRESIDENT'S MESSAGE DU PRÉSIDENT

Frédéric Gourdeau, Université Laval
(fredg@mat.ulaval.ca)

Dear friends,

It is with great pleasure and a good dose of humility that I am writing these words as president of CMESG/GCEDM. My pleasure is evident, being revealed by the first words I wrote: *dear friends*. Outsiders may wonder at this: a group of intellectuals discussing mathematics education... pleasure and friendship!

At ICME-10, during a wonderful plenary interview session brilliantly led by Michèle Artigue, Gila Hanna said with great conviction that our group was *the best mathematics education organization in the world*. From her words, I remember the idea that the friendly atmosphere which is a feature of our annual meetings is remarkable because it enables true exchanges of ideas, true reflection. I will do all I can to contribute to the unique atmosphere of this exceptional group. If nothing else, that certainly explains how humbled I feel when thinking about what has been achieved.

The high point of the year to come will certainly be our annual meeting, to be held for the first time in Ottawa, May 27-31 2005. Chris Suurtam and her team will welcome us in Ottawa. I hope to see you there!

Planning our annual meetings

The planning of our annual meeting is usually done as follows. Immediately after the annual meeting, the executive meets and plans the following annual meeting. This way, newly elected members of the executive are fully involved in the planning of the following meeting.

However, this sometimes causes some difficulties. When inviting plenary speakers, it would sometimes be easier to make invitations more than a year ahead of time as some speakers have very full agendas. It

Chers amis,

C'est avec beaucoup d'humilité et un grand plaisir que je vous écris en tant que président du GCEDM/CMESG. Le plaisir que j'éprouve est certainement évident puisqu'il est révélé d'entrée de jeu par les premiers mots que j'ai écrits : *chers amis*. Quelle drôle d'idée pour un groupe d'intellectuels qui se penchent sur l'apprentissage des mathématiques... plaisir et amitié!

Lors d'une séance plénière à ICME-10, brillamment animée par Michèle Artigue, Gila Hanna a affirmé avec conviction que le groupe était *la meilleure organisation en enseignement des mathématiques au monde*. De ses propos, je retiens l'idée que l'esprit cordial qui anime nos échanges est remarquable en ce qu'il permet de véritables échanges, une véritable réflexion. J'essaierai donc de contribuer au maintien de cet esprit remarquable, de cette organisation exceptionnelle. Voilà qui explique l'humilité face à ce que des merveilleux éducateurs ont bâti.

Le point culminant de l'année qui approche à grands pas sera certainement la rencontre 2005 qui aura lieu à Ottawa du 27 au 31 mai 2005. Chris Suurtam et son équipe nous y accueilleront. J'espère vous y rencontrer!

La planification des rencontres annuelles

La planification des rencontres annuelles par l'exécutif suit un rituel assez stable depuis plusieurs années. À la suite de la rencontre annuelle, les membres de l'exécutif se réunissent et planifient la rencontre de l'année suivante. Les membres nouvellement élus à l'exécutif participent donc pleinement à l'élaboration de la rencontre de l'année suivante.

Cela pose parfois des problèmes. Ainsi, pour les invitations de certains conférenciers plénières dont l'agenda est très chargé, il serait parfois préférable

would also be nice to feel able to plan more than a year ahead of time.

What do you think? Do you think it is preferable to maintain our tradition in this respect, or should the executive start planning ahead of time for some aspects of the program, mainly plenary speakers? We are listening to you...

Recognition of our exceptional members

CMESG is maturing nicely, and with this maturity comes retirement for some of the members who have played a key role in its history. The group has already recognized the exceptional contributions made by David Wheeler and Tom Kieren by awarding them special titles which they certainly fully deserved.

More recently, a plaque was given to Zoltan Dienes in recognition of his work in mathematics education. These varied recognitions have led to questions at our annual general meeting regarding the criteria for these. This question becomes more acute when considering for a minute the great number of key members who have retired or will retire soon.

As president, I went on a little tour consulting some of our long standing members about recognition. Once again, the words of Gila Hanna echoed loud and clear: these people, who were themselves amply deserving of recognition, plaques, and all that goes with it, insisted on the contrary that informal recognition, a few words in the newsletter or at our annual meeting, were more in keeping with the spirit of CMESG.

The executive, instead of coming up with criteria and precise guidelines for official recognition, is

de faire les invitations plus d'un an à l'avance. De même, il pourrait être intéressant de planifier plus d'un an à l'avance pour certains autres éléments du programme.

Qu'en pensez-vous? Souhaitez vous que nous maintenions assez strictement la planification telle qu'elle est faite présentement (moins d'un an à l'avance) ou croyez-vous que nous pourrions nous aventurer vers une planification plus hâtive, principalement pour les conférences plénières? Nous sommes à votre écoute...

Comment exprimer notre reconnaissance?

Le GCEDM atteint une belle maturité, et avec celle-ci arrive le départ à la retraite de membres importants depuis ses débuts. Ainsi le groupe a déjà reconnu le travail exceptionnel de David Wheeler et de Tom Kieren par des titres spéciaux et amplement mérités.

Plus récemment, une plaque a été remise à Zoltan Dienes afin de l'honorer pour son travail en didactique des mathématiques. Ces marques de reconnaissances ont amené l'assemblée générale à exprimer des questions quant aux critères justifiant que l'on reconnaisse une personne plutôt qu'une autre. Ces questions se posent avec beaucoup d'acuité lorsque l'on songe pour un instant aux membres qui ont pris leur retraite récemment ou la prendront sous peu!

En tant que président, j'ai donc pris mon baluchon et je suis allé voir quelques membres émérites du GCEDM pour discuter reconnaissance. Une fois de plus, les mots de Gila Hanna me sont apparus percutants de vérité : ceux-là mêmes qui mériteraient toute notre reconnaissance, exprimée avec plaque, fanfares et trompettes, préfèrent au contraire que le GCEDM demeure informel et souligne plutôt avec chaleur humaine et un bon mot la prise de retraite de l'un ou de l'autre, les coups d'éclats et la reconnaissance due.

therefore heading for informal recognition in a friendly atmosphere. You are now informed of our intentions, which you can obviously discuss with us: and if our analysis is off the mark, well, let us know.

L'exécutif, au lieu de recommander des critères précis pour des statuts honorifiques, se dirige donc plutôt vers une absence de tels titres dans l'avenir prévisible. Voilà qui vous informe, tout en vous laissant libre de nous communiquer vos réflexions si tant est que vous le souhaitiez : et si notre analyse ne tient pas la route, diantre, faites-nous le comprendre!



OTHER CMESG NEWS/AUTRES NOUVELLES DU GCEDM Announcements/ Annonces

Elections 2005 CMESG Executive – Call for Nominations

The two year terms of Olive Chapman (Treasurer) and Ralph Mason on the Executive Committee will be ending May 31st, 2005. You are invited to submit names of candidates for the two positions to Malgorzata Dubiel, dubiel@cs.sfu.ca, the chair of the Nomination Committee, no later than January 1, 2005 or to Elaine Simmt, elaine.simmt@ualberta.ca, member of the Nomination Committee. Please note that under the CMESG constitution, Olive Chapman is not eligible for nomination as she has been a member of the Executive for six consecutive years.

For each nomination, please indicate whether it is for the position of treasurer or as a member of the Executive. It is not necessary to verify if the individuals you wish to nominate are willing to run for the office.

Élections 2005 GCEDM Exécutif – Appel de Candidatures

Les mandats de deux ans de Olive Chapman (Trésorière) et de Ralph Mason (Membre) au sein de l'Exécutif viennent à échéance le 31 mai 2005. Vous êtes invités à soumettre des candidatures pour ces deux postes à Malgorzata Dubiel, dubiel@cs.sfu.ca, présidente du Comité de nominations, d'ici au 1 janvier 2005, ou à Elaine Simmt, elaine.simmt@ualberta.ca, membre du Comité de nomination. Veuillez prendre note que selon les nos statuts, Olive Chapman ne peut être mise en nomination ayant été membre de l'Exécutif pour six années consécutives.

Pour chaque personne que vous désirez mettre en nomination, vous devez indiquer s'il s'agit d'une mise en nomination pour le poste de trésorier ou en tant que membre de l'exécutif. Il n'est pas nécessaire de vérifier si une personne dont vous proposez la nomination accepte de se présenter.



Editor: CMESG Proceedings

Elaine and Brent have done an excellent job in the past few years looking after the CMESG Proceedings. As of this year, the University of Alberta is the new home of FLM, and Brent and Elaine have taken on major commitments in running the journal (as co-editor, and the business manager) so it's time to look for a new editor for the Proceedings. The CMESG executive would like to hear from a person (or persons) who is interested in taking on the job of editing the Proceedings for the 2005 meeting. We would appreciate hearing from you by December 1, 2004.

Contact person: Joel, jhillel@mathstat.concordia.ca

CMESG Annual Meeting – New PhD Graduates

It is a tradition at CMESG that members who have completed their PhD are invited to present their scholarly work at the next year's conference. Have you completed, or are you completing, your doctorate this year? Do you know someone in mathematics education or mathematics who may be completing their doctorate? If so, please contact Ralph Mason, masonrt@ms.umanitoba.ca as soon as possible.

Éditeurs des Actes du GCEDM

Elaine et Brent ont accompli un travail remarquable en tant qu'éditeurs des Actes du GCEDM. À partir de cette année, l'Université de l'Alberta est l'hôte de FLM : Elaine et Brent ont chacun accepté des responsabilités importantes pour FLM (responsable de la production et éditeur adjoint respectivement) et il est temps de trouver un nouvel éditeur pour les Actes. L'Exécutif du GCEDM est donc à la recherche d'une personne ou d'une petite équipe qui pourrait prendre le relais comme éditeur des Actes. Nous aimerions que vous nous fassiez part de votre intérêt d'ici au 1^{er} décembre 2004.

Contactez Joel à jhillel@mathstat.concordia.ca

Recontre Annuelle du GCEDM – Thèses de doctorat récentes

Selon la tradition du GCEDM, nous souhaitons inviter les personnes qui ont terminé ou termineront cette année une thèse doctorale en didactique des mathématiques à venir nous faire part de leurs travaux. Avez-vous ou allez-vous compléter votre thèse cette année ? Connaissez-vous quelqu'un qui a terminé ou terminera cette année ? Si oui, veuillez contacter Ralph Mason, masonrt@ms.umanitoba.ca, dès que possible.



WHAT'S HAPPENING IN MATH EDUCATION / CE QUI SE PASSE EN DIDACTIQUE DES MATHÉMATIQUES

Members' Activities

Dear Enrico: Why do We Call Them Fermi Questions?

Ralph Mason, University of Manitoba

In October, about 1000 Manitoba teachers attended the Manitoba Association of Mathematics Teachers (MAMT) Special Activity Group (SAG) Day. I'm in the business of replacing math teachers, so the number of

new math teachers the province needs matters more than the number who attend SAG Day. How many new math teachers are there in a year? I don't want to go look it up when I could just think about it.

Well, since teachers retire after about 30 years, then we could assume that $1/30$ of those thousand teachers will retire this year. That's 33 new math teachers we'll need. And some teachers quit. That might be (I wonder how we could estimate this proportion more accurately) another $1/30$, or maybe another $1/10$ of those teachers. I think I'll go with $2/30$, to split the difference, so that's another 67 math teachers. So far, so good.

What other factors might affect the number of new math teachers we hire? Teachers go on parental leave, or study leave, too; but others will return from parental leave or study leave, so let's call that a draw. Temporary leaves aren't going to make a large difference to the numbers of math teachers we need from year to year. Maybe if there are more students per class, there would be fewer classes and we'd need fewer teachers. Or maybe if more students chose to take more math (repeating their grade 12 course, maybe, or taking two different math classes in grade 11) than last year, we'd need more teachers. But I can't predict changes to those factors, so I'll assume that the total number of math teachers we need won't change.

Here's a possibility. Some teachers who teach math this year might switch to other subjects. But wait a minute. Other teachers might switch from other subjects into math, and I can't think of a reason that more would switch one way compared to the other. So that's another factor that won't affect the number I'm counting, but I'm glad I considered it.

I know. What about math teachers who move "up" to roles as vice-principals or consultants? Not many teachers will move in the reverse direction, so this will mean there will be vacancies. Let's see: how many teachers might move up? If we think that there is one fulltime administrator or consultant for every 10 teachers, then there would be 100 administrators for those 1000 math teachers. (There would be 100 administrators for every 1000 teachers of other subjects, too, presumably, but we'll only look at the ones that were math teachers.) If people are administrators or consultants for, say, 10 years each on average, then $1/10$ of those positions will be filled each year. One tenth of 100 new administrators and consultants will mean 10 vacancies for new math teachers to fill. How are we doing? $33 + 67 + 10 = 110$ new math teachers.

This kind of thinking is called Fermi thinking, because (it is said) the famous physicist liked to ask questions like, "How many piano tuners would you think are needed in New York City?" Such questions give people a chance to exercise their quantitative reasoning, and to communicate their mathematical reasoning in convincing ways. In effect, it's a chance to practice proportional reasoning and mathematical justifications. And if I wanted to direct higher-grade students' engagement with a Fermi question, I could encourage them to think about upper and lower limits for each element of their thinking, and estimate a confidence interval. But in the thinking I shared above, I wasn't very fancy in my work. It generated a reasonable answer with a justification quickly. If you found yourself wanting to make suggestions to my line of reasoning or tighten up my communication of that reasoning, you are recognizing the interactive potential of Fermi thinking for classrooms.

It would be a different kind of task, if someone really needed to accurately predict the number of new math teachers that Manitoba needs. We'd have to find more information, and accurate information, before drawing our conclusions. (For example, the people who are deciding whether to use generalists or math specialists to teach grade 7 and 8 math are going to affect that number, so they would need more accurate information than this.) That would be a worthwhile task, but it's not Fermi thinking. Fermi thinking isn't interested in accurate numbers; it's interested in first-quality mathematical reasoning.

How bad was my reasoning? I think my biggest error was in relying on that 1000 number. The number of math teachers in Manitoba isn't going to be equal to the number of teachers who attend the MAMT SAG Day. It's much higher, for a variety of reasons we don't need to consider. Here's a different number to use as a starting point.

The Winnipeg Free Press (2004 September 30, page A2) stated that the population of Manitoba on July 1, 2004 was 1 170 268 people. If you figure out how many of them are students, and how many math teachers we need for those students, you can use Fermi thinking to figure out how many math teachers there are in Manitoba. (No, I'm not going to define 'math teacher' for you. Fermi thinking is more like real life than the well-defined questions one only finds in math texts and math tests.)

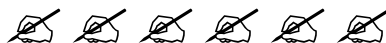
How can Fermi questions be used in math classrooms? I have found that teachers are quite capable of answering that question. The hard part is for them to resist turning Fermi questions into traditional story questions or word problems. Fermi questions give students opportunities to engage in quantitative reasoning and mathematical communication without significant concern for arithmetic precision. Fermi questions are *open problems*, with *multiple answers* and *multiple strategies* available to the problem solvers. That's why they provide opportunities for students to discuss different qualities of problem solutions, other than the qualities of accuracy and the correct application of a prescribed method. Fermi questions are not for practicing specific arithmetic techniques, even when it's hard to resist the temptation to turn them into content-specific practice opportunities. For instance, because Fermi questions often involve big numbers, teachers are tempted to require the use of scientific notation and management of numbers of significant digits. I recommend resisting that temptation: teachers have other kinds of tasks available for when they want to direct students' thinking.

I'd be very interested in hearing from my CMESG colleagues about their experiences with Fermi questions, either in their teaching or in encouraging teachers to use them. But I have a more focused interest. Below you will see two references to Fermi questions. The internet has many more, if you search for "Fermi problems". What I'd really like to do is reconstruct the history of these gems, and I'd be especially interested in references that establish the link to the famous physicist, rather than simply express it. Either way, I look forward to hearing from you.

My email is masonrt@ms.umanitoba.ca.

Dirks, Michael K. & Edge, Douglas R. M. (1999). Problem solving: Enrico Fermi and the bull moose. *Vector*. 40(3) Fall, 25-28.

Kelly, Brendan. (2000). *Authentic learning activities in middle school mathematics: Number and operation*. Brendan Kelly Publishing.



York Research Project

Margaret Sinclair, York University

Over the past year I have been working with Dr. Ron Owston of the IRLT (Institute for Research on Learning Technologies) at York on a research project. The project involves evaluating a blended online learning model for teacher professional growth in mathematics and science developed by TLP (The Learning Partnership).

Last year's focus was on mathematics and our report can be found at--<http://www.yorku.ca/irlt/reports.html> (click on Technical Report 2004-2.)

Regards,
Margaret



News, Reports and Reflections

Reflections of a First Timer at CMESG

Natasha Davidson
Douglas College

In the past I have attended conferences and workshops of variable duration and found that in the vast majority of cases I left feeling that the experience, though refreshing, was either not germane or not complete. I left the 2004 annual meeting of the CMESG/GCEDM (my first) feeling rather wonderful – not only refreshed but inspired and validated, feeling that the experience had been both germane (to my interests – fully fixated on Mathematics Education) and complete (it was a dialogue which was very open to those present, very purposeful and with some concrete results and directions for the future). This was like being on a committee where things actually get done and, moreover, those things are that which the committee desired to effect. So, thank you to all the attendees and organizers both past, present and future for this being such a healthy and fecund forum for ideas on Mathematics Education in Canada.



Impressions of an ICME "Newby"

Stewart Craven
Toronto District School Board

No one would be surprised that my first impressions of the International Congress of Mathematics Education in Copenhagen, Denmark were those of awe and excitement. Registration took place in a grand hall of the Danish University where Niels Bohr studied that is situated in a city steeped in centuries of history. Even the opening ceremonies were more than just a series of welcoming speeches as we were treated to the sublime music of the Royal Danish Brass Ensemble. Perhaps the most impressive aspect of the opening was the audience itself. Nearly 2000 delegates representing every corner of the Earth were assembled in one place at one time. I observed many poignant scenes of old colleagues and friends normally separated by hundreds if not thousands of kilometres embracing each other before and after the ceremonies.

This conference spanned one week and was comprised of numerous elements including plenary speeches/panels, lectures, working groups, thematic presentations/discussions, poster sessions, and national presentations. Hyman Bass from the University of Michigan gave the first plenary. He stated that mathematicians are now paying greater heed to how young people acquire mathematical understanding, intuition, imagination, and creativity. In particular, he related stories about how Felix Klein and Hans Freudenthal took an active interest in mathematics education. The stage for a great conference was set!

It would be impossible to go into any detail about all of the sessions that I attended so I will provide some rather general impressions. It was difficult to discern the overriding theme of the discussion group in which I participated. Each day that we convened, a set of three or four researchers from countries all over the world took turns making timed presentations. There was very little time for questions let alone fulsome discussions. On the positive side, the fact that these researchers represented many parts of the world helped me begin to realize that although the problems in mathematics education were very similar, the approaches to solving them certainly varied.

The working group in which I took part focused on how the public views mathematics and mathematics education. Once again, all agreed that there was a problem of public perception regardless of where you reside. Solutions were offered but consensus was difficult. It will interesting to see if a paper will come out of this session or whether this issue will warrant further discussion in Monterey in 2008.

The lectures covered the gamut from simply interesting to highly controversial. When the lecture was presented by a researcher that I was familiar with and who is highly respected, it was usually a real treat. Liping Ma was just such a presenter. Tony Gardner, on the other hand, was highly controversial. It was important for me to listen carefully to and then think about his point of view. This is where I began to think that there were two major camps in the world, those that believe in mathematics education "for all" children for as long as possible - the egalitarian approach - and those that believe in mathematics for those children that "can" - the elitist approach. This has certainly become a source of "food for thought" for me.

By far and away the best parts of this conference were the before, after, and between sessions bits. These were the times when conversations flourished. For example, conversations with teachers from Iceland or the Seychelles, and conversations with researchers from New Zealand or Poland, or conversations with colleagues from across Canada all happened in abundance. This conference was very well planned because it allowed for many opportunities for folks to get together for lunch or over a beer.

I will conclude by stating unequivocally that ICME 10 in Copenhagen is a place where I opened my eyes to the world of mathematics education far beyond my backyard. Most of the presentations were thought provoking but it was clearly the people that you meet and talk to that makes the ICME experience. All mathematics educators should have an opportunity to participate in an ICME at least once in their careers. For me I'll go for seconds - see you in Monterey in 2008!



**Imperial Oil Academy for the Learning of Mathematics, Science and Technology
Faculty of Education, University of Manitoba**

Ralph Mason, University of Manitoba

The University of Manitoba Faculty of Education has received a substantial grant from the Imperial Oil Foundation to establish a centre to foster and support research related to the teaching and learning of mathematics and science. The centre has been named the Imperial Oil Academy for the Learning of Mathematics, Science and Technology.

The Academy is organized as a collaborative endeavor of the members of the Curriculum, Teaching, and Learning Department of the Faculty of Education whose research interests include a focus on the learning of mathematics, science, and/or technology. The Academy is especially interested in supporting and researching collaborative efforts to foster greater success by a greater proportion of students and teachers in mathematics, science, and technology. On November 1, about 20 requests for research funding were received in response to our first call for proposals. Projects will begin as soon as possible in the new year.

A priority of the Academy is the establishment of communication channels and collaborative activity with other groups whose interests overlap with those of the Academy. Please contact

Dr. Ralph T. Mason, Executive Director, Imperial Oil Academy

Faculty of Education, University of Manitoba,

masonrt@ms.umanitoba.ca



UPCOMING PROFESSIONAL MEETINGS / RENCONTRES À VENIR

The 2005 Canadian Mathematics Education Forum

Frédéric Gourdeau

The 2005 Mathematics Education Forum will be held May 6 – 8, 2005 on the campus of the University of Toronto, with some events happening at either the Fields Institute or other nearby locations. We hope that approximately 200 people will be able to attend and it is our hope that these will come in roughly equal numbers from K-12 teaching, from mathematics education research and from mathematics itself (as represented by the CMS). We are also trying to balance the participation by region. This description is not meant to limit the type of participant but rather to give some idea of the nature of this meeting.

The overall theme of the forum will be “Why Teach Mathematics?” The format of the forum will consist

Forum canadien sur l’enseignement des mathématiques 2005

Frédéric Gourdeau

Le Forum canadien sur l’enseignement des mathématiques 2005 (FCEM2005) se tiendra du 6 au 8 mai 2005 à l’Université de Toronto. Le Forum se déroulera principalement sur le campus de l’université de Toronto, certaines activités étant prévues à l’Institut Fields ou à proximité. Le Forum regroupera quelque 200 participantes et participants, et il est souhaité que ceux-ci proviennent en nombre relativement égaux des trois secteurs suivants : le monde scolaire ; la formation à l’enseignement et de la recherche en didactique ; et la recherche en mathématiques (tel que représentée par la SMC). Nous désirons aussi assurer la participation de personnes de toutes les régions du pays. Cette description ne se veut cependant pas limitative et d’autres acteurs importants seront représentés. Le thème du Forum est « Pourquoi enseigner les maths ? » Le Forum comprendra des séances

of plenary or key note sessions and working group sessions. Some of the discussion and working group themes that have been identified so far include: approaches to early numeracy and age-appropriate mathematics education; strategies for increasing the number of highly qualified students in mathematically intense programs in science and engineering; mathematics education for students at risk; effective approaches to the education of all mathematics educators; and mathematics education and the aboriginal community.

The purpose of this invitational forum is to develop a national on-going conversation, among educators at all levels of schooling, about important issues and concerns in the development and future of mathematics education in Canada. It is the intent that groups working together in this forum will develop *projects, initiatives, and statements* that will outline ways in which Canadians may address these issues and concerns. The projects, initiatives, and statements developed during this forum will be shared widely with policy makers, school divisions, universities, colleges, parents, students, and the general public in a variety of ways.

We hope that many members of CMESG will take part in the 2005 Forum. It is important to stress that the Forum is a **working meeting** and that because of its nature, participation is by invitation only. We encourage you to let one of the three chairs know of your interest in taking part in the Forum, if you have not done so already, by sending an e-mail to either Florence Glanfield (florence.glanfield@usask.ca), Frédéric Gourdeau (fredg@mat.ulaval.ca) or Bradd Hart (hartb@mcmaster.ca).

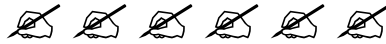
Please review the website at www.cms.math.ca/Events/CSMF2003 for a historical perspective on the 2003 national forum. The web site for the 2005 Forum should be available soon.

plénières ainsi que des groupes de travail. Les thèmes suivants figurent au nombre des thèmes identifiés pour les groupes de travail : approches novatrices pour l'apprentissage des mathématiques dans les premières années d'étude; l'enseignement des mathématiques pour les jeunes à risque; un regard critique sur l'utilisation des nouvelles technologies dans l'enseignement des mathématiques; stratégies pour augmenter le nombre d'étudiantes et d'étudiants dans les programmes demandant beaucoup de mathématiques, tels le génie et les sciences; approches efficaces pour la formation des enseignantes et enseignants de mathématiques; l'enseignement des mathématiques et les communautés autochtones. L'objectif du Forum est de promouvoir une discussion portant sur des enjeux fondamentaux quant au développement et à l'avenir de l'enseignement des mathématiques à l'échelle nationale. Cette discussion, dont nous souhaitons qu'elle se poursuive au-delà du Forum, doit avoir lieu entre les intervenants de tous les niveaux d'enseignements.

Lors du Forum, les groupes travailleront à l'élaboration de *projets, d'initiatives*, ou encore à la rédaction d'*énoncés* qui permettront de répondre (en partie) aux enjeux soulevés. Ces projets, initiatives et énoncés seront diffusés de diverses manières auprès des ministères, des commissions scolaires, des universités et collèges, des parents, des étudiantes et étudiants, ainsi que du grand public.

Nous espérons que plusieurs membres du GCEDM voudront prendre part au Forum 2005. Il est très important de signaler que le Forum est **une rencontre de travail** et qu'étant donné la nature de cette rencontre, la participation se fait sur invitation uniquement. Nous vous encourageons à faire connaître votre intérêt à prendre part au Forum, si ce n'est déjà fait, en écrivant à l'un des présidents par courriel. Ces présidents sont Florence Glanfield (florence.glanfield@usask.ca), Frédéric Gourdeau (fredg@mat.ulaval.ca) et Bradd Hart (hartb@mcmaster.ca).

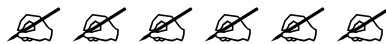
Note : Vous pouvez consulter le site www.smc.math.ca/Reunions/FCM2003 pour des renseignements sur le Forum 2003. Le site pour le Forum 2005 sera en fonction sous peu.



8th International Conference of The Mathematics Education into the 21st Century Project

The Mathematics Education into the 21st Century Project eighth international conference will be in Johor Bharu, in the very south of Malaysia, and very close to Singapore which will be the entry port for most participants. The conference will open with an evening Welcome Reception on November 25th and conclude on December 1st, 2005.

The title of the conference is “Reform, Revolution and Paradigm Shifts in Mathematics Education”. Papers are invited on all innovative aspects of evolutionary/revolutionary changes in Mathematics Education, past and future. For further conference details please email arogerson@vsg.edu.au.



CMS: December 11 – 13, 2004. McGill University.

SMC: Du 11 au 13 décembre 2004. Université McGill.

PME 29: July 10-15, 2005 Melbourne Australia. **PME**

29: Du 10 au 15 juillet 2005. Melbourne Australia.

SMC: Du 4 au 6 juin 2005. Université de Waterloo.

CMS: June 4 – 6, 2005. University of Waterloo.

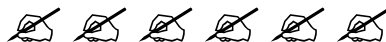
PME 30: 2006 Czech Republic.



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I would like to thank Frédéric Gourdeau for his major contribution as translator, reviewer, and editor of all French language text. - Doug Franks

CMESG EXECUTIVE/L'EXÉCUTIF DU GCEDM 2004-2005

The members of the executive extend an invitation to you to contact us about any item of interest. If you have something you want to suggest, if you have a concern you wish to raise, if you want more information, etc., please let one of us know. In order to be of service to the membership, we need to be aware of what your interests are.

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Les membres du Comité exécutif vous invitent à leur faire part de votre point de vue concernant n'importe quel aspect de la vie du GCEDM. Que ce soit pour transmettre suggestions ou commentaires, ou encore pour être mieux informé, n'hésitez pas à entrer en contact avec l'un d'entre nous. En nous faisant connaître vos intérêts, vous nous aidez à mieux vous servir.

Olive Chapman, Treasurer & Membership Secretary

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