

NEWSLETTER / BULLETIN

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

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

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:

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) 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.

- 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

Elaine Simmt

With the term break quickly approaching I am surprised to realize how it is almost six months since we were in St. John's for our annual conference. A flood of memories come to mind as I write this note, from making mathematics / making art to our first ever Gallery Walk and of course the "screeching in" ceremony for those first timers to Newfoundland. Deep felt thanks to Mary Stordy and Margo Kondratieva for all of the work they did to ensure that we had a great meeting at Memorial University and wonderful visit to St. John's.

The executive stayed on after the conference to prepare for next year's meeting at Laval. Mark your calendar for May 25 – 29, 2012 and join us in Quebec. Laurent Theis, Peter Liljedahl, Viktor Freiman, Lucie DeBlois, Miroslav Lovric and I continue to work on the scientific program for next year. Frédéric Gourdeau is making the local arrangements. A few people made suggestions for working groups and plenary speakers. With those suggestions and ones that we had on our list from previous years we are attempting to create a range of WG that will interest and challenge our members.

At this time I must send thanks out once again to Doug Franks for his six year term as treasurer. Like the treasurers that preceded him, Doug was incredibly generous with his time and patience. Not only did he spend hours looking after all of the money and membership matters but he provided wise counsel to the executive over the course of three presidents. Thank you Doug.

As always, you are invited to share your comments and concerns with any member of the executive. We speak among ourselves frequently and promise to work on matters that you would like to bring forth to our attention.

With best wishes for a peaceful holiday season,
Elaine Simmt, President

Avec le temps des Fêtes qui s'approche rapidement, je suis surprise de réaliser qu'il y est près de 6 mois depuis que nous étions à St. John's pour la conférence annuelle. Des souvenirs me reviennent pendant que j'écris ces mots, comme le «faire des mathématiques / faire des arts», notre première Galerie mathématique, et évidemment, la cérémonie durant laquelle les nouveaux venus à Terre-Neuve doivent embrasser une morue. Des remerciements sincères à Mary Stordy et Margo Kondratieva pour tout le travail fait de manière à ce que nous puissions tenir une rencontre intéressante et enrichissante à l'université Memorial et une magnifique visite de St. John's.

L'exécutif est resté après la conférence pour préparer la prochaine réunion annuelle à l'Université Laval. Inscrivez à votre agenda les dates du 25 au 29 mai 2012 pour nous rejoindre à Québec. Laurent Theis, Peter Liljedahl, Viktor Freiman, Lucie DeBlois, Miroslav Lovric et moi-même continuons de travailler sur le programme scientifique. Frédéric Gourdeau prépare les arrangements locaux. Plusieurs personnes ont fait des suggestions pour les groupes de travail et les plénières. Avec ces suggestions, et celle que nous avons déjà des années précédentes, nous souhaitons créer un ensemble de groupes de travail intéressants et stimulants pour nos membres.

Je voudrais aussi remercier à nouveau Doug Franks pour les six années passées à assurer la trésorerie. Comme les trésoriers précédents, Doug a été incroyablement patient et généreux de son temps. Il a non seulement donné des heures innombrables mais il a proposé plusieurs suggestions au comité exécutif et, bien sûr, aux trois présidents qui se sont succédés. Merci beaucoup Doug.

Comme toujours, vous êtes invités à partager vos commentaires et vos préoccupations avec les membres du comité exécutif. Nous communiquons fréquemment entre nous et voulons travailler sur les sujets que vous souhaitez porter à notre attention. Avec nos meilleurs vœux pour une période de vacances paisibles,
Élaine Simmt, présidente

NOTICES / AVIS

Laurels

Hearty congratulations to our colleague Malgorzata Dubiel.

This summer Malgorzata was honoured by the Metro Vancouver YWCA with their Woman of Distinction Award in the Education, Training and Development category. As many of you know Malgorzata is a tireless promoter of mathematics in the community. From the successful “Math in the Mall” sessions to the annual “Changing the Culture Series” Malgorzata’s dedication to the popularization of mathematics is second to none in Canada. For more information about the recipients of the 2011 Women of Distinction please visit: http://www.ywcavan.org/content/About_the_2011_Women_of_Distinction_Recipients/1412

Malgorzata’s dedication to teaching is also being recognized by the Canadian Mathematical Society as the recipient of this year’s Adrien Pouliot Award. At this winter’s CMS meeting, Malgorzata will discuss her reflections on the evolution of SFU’s course Mathematics for Elementary Teachers and how such courses can influence future generations of mathematics learners. The Adrien Pouliot Award Lecture is scheduled for Saturday, December 10, 2011, 11:30am EST at the Delta Chelsea Hotel, Toronto. Congratulations Malgorzata!

Canadian Mathematical Society Upcoming Events

This year’s CMS Winter meeting is being hosted jointly by CMS, Ryerson University and York University on December 9 – 12, 2011 at the Delta Chelsea Hotel in Toronto. The focus of the Mathematics Education session is on supporting and promoting thinking around “big ideas” in mathematics and statistics, organized by Walter Whiteley (York U.). Speakers include Chris Wild (U. of Auckland), who will also give a public lecture on Friday, December 9 that explores a “rippled glass” view on Statistics. For more information on the 2011 CMS Winter meeting, please visit: <http://cms.math.ca/Events/winter11/>.

Call for Proposals:

The Canadian Mathematical Society’s Summer Meeting in Regina, Saskatchewan (June 2 - 4, 2012) will have a session entitled *Connections in Mathematics Education*.

Organized by Roberta La Haye (Mount Royal), Patrick Maidorn (Regina), and Kathy Nolan (Regina), the focus of this session will be on ideas and innovations relevant to elementary and secondary mathematics teachers. The purpose of the session is to provide a venue for mathematics education researchers, mathematics teachers and mathematicians to share their expertise, experience and insights into how to encourage students to better appreciate mathematics and its numerous connections at the primary and secondary levels.

If you have discovered ways to enhance mathematics education through connections - such as connections between teaching or learning methods, connections between disciplines, or connections with the community, we invite you to submit a proposal for a short talk. We especially encourage topics relevant to mathematics teachers.

More information on the 2012 CMS Summer Meeting can be found at: <http://math.ca/Events/summer12/>

-Roberta La Haye

MEMBERS' ACTIVITIES / ACTIVITÉS DES MEMBERS

Free Trade

David Wagner
Faculty of Education
University of New Brunswick

At this year's CMESG conference in St. John's, I described for my working group a game I invented. It seemed that some of the group found it interesting enough to use in their teaching, so I will share it here. Anyone is welcome to use the game and I don't expect it to be attributed to me. Here are the rules, followed by some comments on my experiences with the game.

Materials: a lot of dice (hopefully at least 5 times the number of players)

To set up: Distribute the dice evenly amongst the players. Then decide who will go first and the order of play (e.g. clockwise around the circle of players).

To play: On your turn, roll all the dice you have, and count the number of sixes that appear. Every player must then give you this number of dice.

For example, if you have 7 dice, and on your roll you get 2 sixes, then each of the other players has to give you 2 of their dice. If there were 4 other players, you would receive 8 dice to combine with the 7 you had before your turn.

I have played this game with pre-service mathematics teachers (elementary- and secondary-focused), with my family and with my extended family. Usually I don't say that the game is designed to simulate free-market economics, but the name of the game generally gives players this impression. In a classroom, I typically put students in groups of six, giving each group 36 dice. One group plays a few rounds of the game with everyone else watching to ensure that everyone understands the rules.

Some observations:

- 1) How is Free Trade like free-market economics? The more wealth one has, the easier it is to attain more wealth. The rich get richer, generally, and the poor get poorer because access to resources (capital) is necessary for most profitable ventures. For each of the following observations, it is interesting to think of it in relation to free-market economics.
- 2) When you have lots of dice, it's hard to roll them all on your turn. You might have to roll them in shifts. I've even seen people with lots of dice enlist others to help with the rolling.
- 3) I never say that the winner is the one who ends up with all the dice. Invariably, someone celebrates his/her win, to which I enquire, "How do you know you've won? I've said nothing about how the winner is decided."
- 4) When a class plays the game, there are multiple groups playing and every group plays multiple times. Thus, it is not uncommon for there to be a 'rags-to-riches' story, in which someone with one or two dice ends up with lots of dice. The excitement that is associated with such a story and the reporting of the story drowns out the many defeats and suggests that perhaps the game is fair – anyone can make it big.
- 5) One time the player with the second most dice gave some dice to a player who ended up losing all his dice before getting a chance to role. The player with the most dice complained saying, "Sure, it's not fair

that he had no chance, but if we just shared our dice all the time, what would be the point of playing the game?”

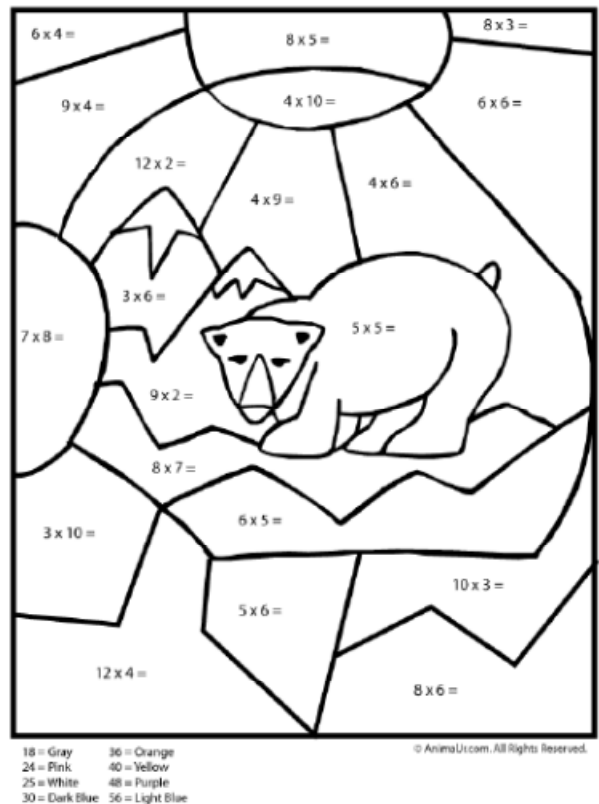
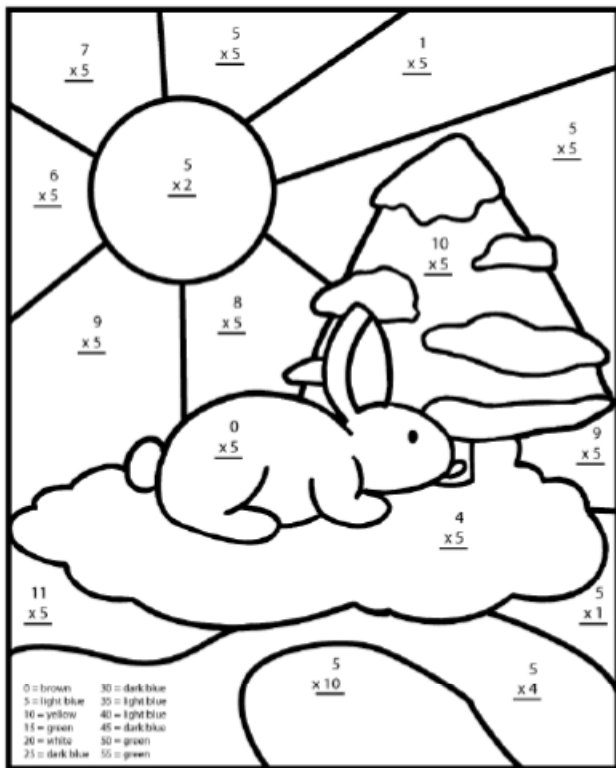
- 6) I can feel myself get greedier when I have lots of dice. And I feel like a failure when I have few dice. (I would have thought that I'd be immune to such feelings because I invented the game and because I've played it often.)
- 7) No one makes any choices in the game (except for the influential choices of who starts and the order of play). Usually I don't like playing games that involve no choices, but I do enjoy playing this game.

The game could be a rich context for posing probability questions. I will leave it to you to pose such questions if you are interested in doing so. I think the game is appropriate to play in mathematics classrooms whether or not we pose explicit probability questions because playing the game raises other important questions about mathematics, including:

- 1) What are the similarities and differences between a mathematical model such as this and real life?
- 2) How appropriate is it to use flawed mathematical models to understand real life phenomena?
- 3) Are any mathematical models without flaw in relation to the phenomenon they model?
- 4) Is the Free Trade game fair? (Are free-market economies fair? What is fairness?)

If you play this game with friends, family or your classes, I would love to hear your reflections on it; email me at dwagner@unb.ca.

Winter Math Fun



Printable versions available at

<http://www.animaljr.com/winter-themed-printable-multiplication-worksheets/>

Towards improving teacher preparation for teaching K-8 mathematics

Jerry Ameis
Faculty of Education
University of Winnipeg

An area of concern in a number of mathematics departments across Canada is the quality of the mathematical understandings and skills that they encounter in their students. This concern is related to the quality of mathematics instruction and the nature of mathematics curricula in schools.

A few months ago some members of the University of Winnipeg Mathematics Department and some members of the Faculty of Education had a meeting about improving the preparation of K-8 pre-service teachers for teaching mathematics. One result of that meeting was a petition to the Manitoba Government from the Mathematics Department requesting the removal of Essential Mathematics as an acceptable prerequisite for becoming a K-8 teacher.

'Essential Mathematics' is one of three mathematics streams in the high school curriculum in Manitoba. The course focuses on consumer mathematics content with a bit of "other". While the course content is certainly acceptable for the everyday mathematical needs of high school graduates, it does not prepare them sufficiently for teaching K-8 mathematics or for taking the typical mathematics courses offered at university.

Removing Essential Mathematics as an allowable mathematics prerequisite for entering the Faculty of Education is not sellable in Manitoba for a variety of reasons that I will not dwell on here. Members of the Mathematics Department were understandably upset about this reality. In response, I decided to enter into substantial conversation with Anna Stokke, a member of the Mathematics Department who is dedicated to seeking ways to improve the quality of mathematics instruction. Out of this intense conversation, a plan emerged that would hopefully lead to improved preparation for teaching K-8 mathematics.

The plan is aligned with the University of Winnipeg Faculty of Education's 5-year integrated program. Years 1, 2, and 3 involve acquiring a BA/BSc (this also involves a small number of education courses as well as some contact with schools). Years 4 and 5 are spent in the Faculty of Education. K-8 pre-service teachers take methods courses in mathematics, science, social studies, Language Arts, art, etc. and have two 5-week practicum blocks per year.

In year 2 of the integrated program, we would generate a list of at most 40 K-8 education-bound students (the maximum because of resource issues). The students on this list would be part of a mathematics and science special focus cohort that would form at the start of year 4. Becoming a member of the cohort requires taking three mathematics courses and likely three science courses designed to extend and deepen understandings of the concepts and skills in the Manitoba K-8 mathematics and science curricula. In effect, this means that there would be a reasonable number of K-8 pre-service teachers that would have a major/minor in mathematics and science as part of their BA/BSc. While this may not seem earth shaking at first glance, one must remember that the courses involved are primarily designed for the needs of teachers, not the needs of mathematicians and scientists.

The science courses are not yet established as science has just recently come onboard. The mathematics courses have been established to a preliminary degree. Each course will address different areas of the K-8 curriculum, with a small amount of overlap in the sense of continuing in depth on what might have been introduced in another course. One course mostly develops number sense and patterning. A second course focuses on set theory, introductory algebra, and deductive reasoning. The third course focuses on geometry.

At the start of year 4, in order to gain entry into the special cohort, the students on the list from year 2 would need a minimum of a B grade in each of the special mathematics and science courses. Once in years 4 and 5, the

special cohort would take the same methods courses that the other K-8 pre-service teachers take. [Education is currently investigating if wiggle room is possible in years 4 and 5 that could be used to enhance the mathematics and science methods courses for the special cohort.] When the special cohort graduates, they would have better preparation for teaching K-8 mathematics and science (largely because of the special mathematics and science courses in their BA/BSc) than a typical K-8 graduate but they would have similar preparation in the other curricular areas. As well, some kind of acknowledgement would be attached to their BEd. It could take the form of a letter or diploma.

Besides beginning a journey that has larger possibilities in terms of improving teacher preparation for teaching mathematics and thereby the quality of mathematics teaching in Manitoba schools, the Mathematics Department and the Faculty of Education have avoided an impasse that too easily occurs between jurisdictions. Why has it been avoided? Both sides realized that a problem needs fixing, and that entrenchment behind ideological barricades would be counterproductive, while collaboration toward a common goal may forge the way.

NEWS FROM THE EXECUTIVE / DES NOUVELLES DE L'EXÉCUTIF

CMESG elections 2012: Call for nominations

The two-year terms of Elaine Simmt (President) and Laurent Theis (Member) on the Executive Committee will be ending May 30, 2012. You are invited to submit names of candidates for the two positions to Julie Long (julie.long@ualberta.ca), chair of the Nomination Committee, or Dave Wagner (dwagner@unb.ca), member of the Nomination Committee, no later than January 4, 2012.

For each nomination, please indicate whether it is for the position of president 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.

FLM Board of Directors: Call for nominations

The four-year terms of Nathalie Sinclair and David Pimm on the Board of Directors of FLM will be ending May 30, 2012. The 2012 elections for FLM Board of Directors will be for two positions for 4-year terms. You are invited to submit names of candidates for the two positions to Julie Long (julie.long@ualberta.ca), chair of the Nomination

Élection 2012 pour GCEDM: Appel de candidatures

Les mandats de deux ans de Elaine Simmt (Présidente) et de Laurent Theis (Membre) au sein de l'Exécutif viennent à échéance le 30 mai 2012. Vous êtes invités à soumettre des candidatures pour ces deux postes à Julie Long (julie.long@ualberta.ca), présidente du Comité de nominations, ou à Dave Wagner (dwagner@unb.ca), membre du Comité de nomination, d'ici au 4 janvier 2012.

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 président 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.

Conseil d'administration de FLM : Appel de candidatures

Les mandats de quatre ans de Nathalie Sinclair et David Pimm au sein du Conseil d'administration de FLM viennent à échéance le 30 mai 2012. Vous êtes invités à soumettre des candidatures pour ces deux postes de 4ans à Julie Long (julie.long@ualberta.ca), présidente du Comité de nominations, ou à Dave Wagner (dwagner@unb.ca), membre du Comité de

Committee, or Dave Wagner, member of the Nomination Committee (dwagner@unb.ca), no later than January 4, 2012.

It is not necessary to verify if the individuals you wish to nominate are willing to run for the office.

Call for the identification of prospective Ph.D. presenters

Each year at the CMESG meeting, individuals who have recently completed their Ph.D. degrees in mathematics education are showcased. They are given an opportunity to present their work and share their results with colleagues from across Canada and around the world who are in attendance at the meeting.

To be eligible to present at the meeting, individuals must have successfully defended their dissertations no later than December 31, 2011. Presenters must have completed their Ph.D. programs at a Canadian institution, or be a Canadian who has completed her/his doctorate at a foreign institution. If you know of such a person (whether you are her/his supervisor or not), please forward the following information to me by email (Laurent.Theis@USherbrooke.ca) as soon as possible. I will then contact that individual to ascertain his/her willingness to attend and present at the Québec meeting, May 25 - 29. If you are yourself a person who is eligible for a new Ph.D. presentation, you may also contact me directly to inform me that you wish to present at the 2012 Québec meeting.

Information needed:

Name:
Email address:
Snail mail address:
Name of Institution where degree completed:
Senior supervisor:
Title of the Dissertation:

Thank you for your assistance in identifying this year's addition to the community of mathematics educators in Canada.

Laurent Theis (on behalf of the CMESG executive)

nomination, d'ici au 4 janvier 2012.

Il n'est pas nécessaire de vérifier si une personne dont vous proposez la nomination accepte de se présenter.

Appel de présentateurs / présentatrices d'une thèse doctorale

Chaque année, à la réunion du GCEDM, les individus qui ont récemment complété leur thèse doctorale en didactique des mathématiques ont l'occasion de présenter leur travail et d'en partager les résultats avec des collègues à travers le Canada et autour du monde qui assistent à la réunion.

Pour avoir le droit de présenter à la réunion, les individus doivent avoir soutenu leur thèse avant le 31 décembre 2011. Tout présentateur/présentatrice doit avoir complété son doctorat à une université canadienne, ou doit être un(e) canadien(ne) qui a complété son doctorat à une université étrangère. Si vous connaissez quelqu'un qui remplit ces conditions (que vous soyez le directeur de thèse de cette personne ou non), veuillez m'envoyer l'information ci-dessous par courriel (Laurent.Theis@USherbrooke.ca) aussitôt que possible. Ensuite, j'écrirai à cet individu pour m'assurer qu'il/elle veuille assister et présenter à la réunion à Québec, du 25 au 29 mai 2012. Si vous remplissez vous-mêmes les critères pour présenter votre thèse à la rencontre de Québec, vous pouvez également me contacter directement pour me faire part de votre intérêt.

Renseignements nécessaires:

Nom :
Adresses de courrier électronique :
Adresse postale :
Nom de l'université où le doctorat a été complété :
Superviseur principal :
Titre de la dissertation :

Je vous remercie d'avance de nous aider à ajouter des noms à la communauté des didacticiens des mathématiques au Canada.

Laurent Theis (pour l'exécutif du GCEDM)

CMESG Editors / Les Éditeurs du GCEDM

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CMESG EXECUTIVE / L'EXÉCUTIF DU GCEDM

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.

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.

Elaine Simmt, President / Président
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