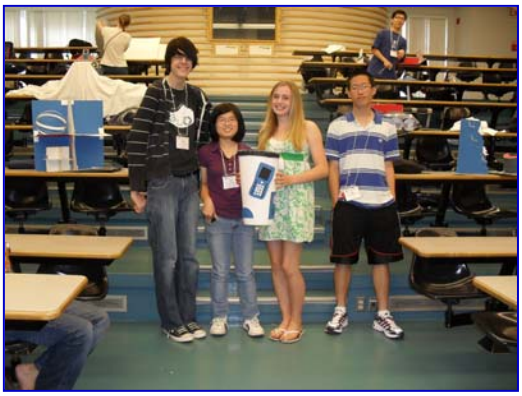
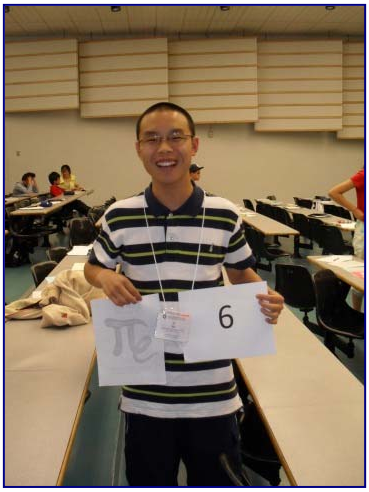


2010
MATH CAMPS

CAMPS MATHÉMATIQUES
2010



Canadian Mathematical Society
Société mathématique du Canada

2010 MATH CAMPS / CAMPS MATHÉMATIQUES 2010



2010 was another successful year for the CMS Math Camps Program. This year the CMS added two regional camps to the program and staged a national camp at the University of Windsor for a total of 17 camps across Canada with over 450 student participants. In addition, the CMS stages math camps to train Canadian student participants for the International Mathematical Olympiad.

Each year the CMS Math Camps Program reaches students all across Canada and provides them with an opportunity to experience math as they never have before. The students who attend the camps leave with new friends, new ideas, and a new outlook on mathematics.

CMS Math Camps have proven highly effective in motivating students to explore the world of mathematics and science. In surveys conducted after each camp, students consistently report a heightened interest in mathematics, science, and engineering, and a desire to pursue a career in these areas.

The CMS looks forward to further expansion and development of the Math Camps Program in 2011. A unique math camp will be piloted in Nunavut as a potential model for camps across the North. The CMS is also exploring the possibility of introducing new elements to the camps, such as statistical and actuarial models.

This report contains a summary of each math camp, select comments from the math camp participants, and a list of CMS Math Camp partners and sponsors.

About the Canadian Mathematical Society

The Canadian Mathematical Society is the national organization whose goal is to promote the advancement, discovery, learning and application of mathematics. The Society's activities cover the whole spectrum of mathematics including: scientific meetings, research publication, and the promotion of excellence in mathematics education at all levels. The CMS, in partnership with others, annually sponsors math camps and competitions across Canada.

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CMS 2010 National Math Camp

University of Windsor
Windsor, ON

This residential camp took place at the campus of the University of Windsor from July 12-17, 2010. The camp was organized by Richard Caron, a professor in the Mathematics and Statistics department. 20 students participated in the camp; 5 females and 15 males. The selection procedure was based predominantly on the results of the COMC (the Canadian Open Math Challenge) which identifies high performance students from across Canada. The organizers work hard to get female participants, particularly by emphasizing the safe environment including two female Residence Assistants (that are also instructors). The camp program included math games, problem solving sessions, a mock Olympiad, and a trip to Point Pelee. In a survey of participants at the end of the camp, 15 of the students indicated increased interest in math, science, or engineering and 15 are considering math, science, or engineering careers. The Camp will take place again in 2011 at the campus of the University of Windsor.

CBC News covered the National Math Camp on July 13, 2010. The video can be viewed at the following link:

http://www.youtube.com/watch?v=W7L9UtN1o5I&feature=related

Prince Edward Island

University of Prince Edward Island
Charlottetown

This residential camp took place at the Department of Mathematics and Statistics of the University of Prince Edward Island in Charlottetown from May 14-16, 2010. The camp was organized by Ken Sulston, a professor in the Department. 18 students participated in the camp; 8 females and 10 males. Applications were solicited through the provincial high schools and the selection was based on attaining geographical and gender balance, and on teacher recommendations. There was a larger pool of applicants than usual, and the organizers hope to accept more students in the future if funding permits. The camp program included presentations on topics such as counterintuitive mathematics, fascinating probabilities, tiling problems, and counting the elements in an infinite set. Other activities included team problem solving, sports and social activities. In a survey of the participants at the end of the camp, 15 of the students indicated increased interest in math, science, or engineering and 16 are considering math, science, or engineering careers. The Camp will take place again in 2011, in May.

Newfoundland and Labrador

Sir Wilfred Grenfell College
Corner Brook

This residential camp took place at Sir Wilfred Grenfell College Campus in Corner Brook, Newfoundland from May 3-5, 2010. The camp was organized by Aleksandrs Aleksejevs and Yevgeny Vasilyev, assistant professors with the Mathematics Department. 32 students participated in the camp; 18 females and 14 males. Selection was based on nominations coming from teachers of local schools. The camp had three sets of activities. In the first set mathematics that is based on games was introduced. The second set consisted of a series of lectures related to important topics in mathematics. The third set was in mathematics competitions. Additionally, to emphasize the importance of mathematics in the sciences, lectures were given in computer algebra and physics. A survey of the participants at the end of the camp showed that 28 students have indicated increased interest in math, science, or engineering and 24 students are considering math, science, or engineering careers.

Nova Scotia

Mathematics Camp for Black Students
Dalhousie University, Halifax

This residential camp took place at the campus of Dalhousie University in Halifax from July 11-16, 2010. The camp was organized by R. P. Gupta, a professor with the Department of Mathematics and Statistics. The camp is a joint initiative of the Department of Mathematics and Statistics at Dalhousie University and the Black Educators Association of Nova Scotia (BEA). 25 black students (Grades 6, 7 and 8) participated in the camp; 15 females and 10 males. Posters and application forms were sent to all junior high Schools in Nova Scotia in the first week of January 2010. The camp is also brought to the special attention of each school's head of the mathematics department and guidance councilor. At the camp classes are held every morning and three afternoons. A special emphasis is placed in creating an interest in mathematical sciences. Activities include calculator lessons, a visit to the local science museum and discovery centre, fun activities in mathematics at Point Pleasant Park and a career night. Students also visit the Black Cultural Centre in Dartmouth where they learn about famous people in the black community. A survey of the participants at the end of the camp showed that all the students indicated increased interest in math, science, or engineering. The Camp will take place again in 2011, in July.

Nova Scotia

Dalhousie University
Halifax

This residential camp took place at the campus of Dalhousie University in Halifax from July 4-9, 2010. The camp was organized by Suraj Sikka, an instructor with the Department of Mathematics and Statistics. 20 students (Grades 10 and 11) participated in the camp; 8 females and 12 males. The selection process attempted to ensure equity of distribution in terms of gender and geographical location, and preference was given to those who had not attended a camp in previous years. Consideration was also given to the participation in Waterloo Math Contests, grades and letters of reference. The Camp will take place again in 2011, in July.

New Brunswick

University of New Brunswick
Fredericton

This residential camp took place at the campus of the University of New Brunswick in Fredericton from April 30 - May 2, 2010. The camp was organized by Daryl Tingley, a professor with the Mathematics and Statistics Department. 23 students participated in the camp; 9 females and 14 males. Students are selected on the basis of various math competitions, particularly the New Brunswick Math Competition. The organizers try to ensure that close to half those asked are female and they encourage and support rural participation. The female participant acceptance rate was slightly lower than for males. The camp program included presentations on topics such as Fun with Logs, Instant Insanity, Unbreakable Secret Codes?, Basketball Math and Fun with pi. A survey of the participants at the end of the camp showed that 23 students have indicated increased interest in math, science, or engineering and 21 are considering math, science, or engineering careers. The Camp will take place again in 2011, in May.

Québec

Camp mathématique de l'AMQ
Sherbrooke à l'Université Bishop's

Ce camp résidential a eu lieu sur le campus de l'Université Bishop's, du 6 au 12 juin 2010, organisé par Francois Huard, directeur du département de mathématiques. Les 18 étudiants (niveau collégial) ont participés au camp, 5 filles et 13 garçons. Les participantes et participants au camp sont choisis parmi les gagnantes et gagnants du concours de l'Association mathématique du Québec. Le programme du camp incluait l'examens PUTNAM (dans le cadre d'une compétition entre les étudiants), l'exposé sur la jonglerie, le partie d'échecs simultanée contre un grand maître, et une nuit à l'observatoire. Un apperçu des participants au camp montre que tous les étudiants ont exprimés une croissance dans leurs interêts dans les mathématiques et les sciences et la moitié prévoit faire une carrière en math, science ou génie. Ce camp aura lieu de nouveau en 2011.

Québec
Concordia University
Montreal


This day camp took place at Concordia University in Montreal from June 6-12, 2010. The camp was organized by Vasek Chvatal, a professor with the Department of Computer Science and Software Engineering. 17 students participated in the camp; 7 females and 10 males. Students are selected using email and personal contacts in all Montreal CEGEPs. The camp program included presentations on topics such as modular arithmetic, solving linear congruences by the extended Euclidean algorithm, symmetry and the RSA public-key cryptosystem. A survey of the participants at the end of the camp showed that 14 students have indicated increased interest in math, science, or engineering and 14 are considering math, science, or engineering careers.

Québec
Camp mathématique de l'AMQ
Cégep de Lévis-Lauzon, Québec


Ce camp résidential a eu lieu sur le campus du Cégep de Lévis-Lauzon, du 2 au 6 août 2010, organisé par Lucie Nadeau, coordonnatrice du Département de Mathématiques. Les 23 étudiants (secondaires 4 et 5) ont participés au camp, 8 filles et 15 garçons. Les participantes et participants au camp sont choisis parmi les gagnantes et gagnants du concours de l'Association mathématique du Québec. L'organisateur dit que "le camp a été une réussite sur toute la ligne." Le programme du camp incluait des différents ateliers offerts par les professeurs de mathématiques du département, observation astronomique au Mont-Cosmos, et un tournoi de Math en jeu. Un apperçu des participants au camp montre que tous les étudiants ont exprimés une croissance dans leurs intérêts dans les mathématiques et les sciences et 16 étudiants prévoit faire une carrière en math, science ou génie. Ce camp aura lieu de nouveau en 2011.

Ontario
University of Western Ontario
London

This day camp took place at the campus of the University of Western Ontario in London from August 10-12, 2010. The camp was organized by Gord Sinnamon, a professor with the Department of Mathematics. 32 students participated in the camp; 13 females and 19 males. Grade 9 students were invited according to their results in the Pascal math competition results. The camp program included presentations on topics such as Do-It-Yourself Fractals, Jumping to Conclusions, Math Connections, and Division Rules. Other activities included problem-solving sessions, team competitions and a math relay. A survey of the participants at the end of the camp showed that 27 students have indicated increased interest in math, science, or engineering and 26 are considering math, science, or engineering careers. The Camp will take place again in 2011.

Ontario

University of Ottawa/L'université d'Ottawa
Ottawa

uOttawa

At the Campus of the University of Ottawa, the bilingual residential camp took place simultaneously, one session in English and one in French, from June 25-30, 2010. The camp was organized by Graham Wright, retired professor, and Joseph Khoury, professor with the Department of Mathematics and Statistics. 48 students participated in the camp; 12 females and 36 males. Students are selected according to their performance in national math competitions, for example Cayley and Opti-Math. The camp program included presentations on topics such as math and games, logic, and proofs. The students also completed team projects and participated in cultural and social activities. A survey of the participants at the end of the camp showed that 45 students have indicated increased interest in math, science, or engineering and 40 are considering math, science, or engineering careers. The Camp will take place again in 2011, in June.

Ontario

York University
Toronto

UNIVERSITÉ YORK UNIVERSITY

This day camp took place at the campus of York University in Toronto from August 9-13, 2010. The camp was organized by Chris Wu. 22 students (Grades 9 and 10) participated in the camp; 5 females and 17 males. Students were invited based on excellent results on math competitions, in particular the Pascal contest. Only 5 females attended the camp despite more females being invited than males. The camp program included presentations on a wide variety of mathematical topics, including an investigation of Pascal's Triangle, Topological Puzzles, the Fibonacci sequence, 3D Geometry, Graph Theory, Hadamard Matrices, Algorithms, Cryptography and Probability. Other activities included problem solving sessions and a bowling trip. A survey of the participants at the end of the camp showed that all students indicated increased interest in math, science, or engineering and are considering math, science, or engineering careers. The Camp will take place again in 2011, in August.

Manitoba

University of Manitoba
Winnipeg

UNIVERSITY OF MANITOBA

This residential camp took place at the campus of the University of Manitoba in Winnipeg from August 22-25, 2010. The camp was organized by Donald Trim, professor with the Department of Mathematics. 19 students (Grades 9 and 10) participated in the camp; 6 females and 13 males. The camp program included congruences, divisibility tests, Euclidean algorithms, 2- and 3-variable, linear Diophantine equations and financial mathematics. A survey of the participants at the end of the camp showed that 16 students have indicated increased interest in math, science, or engineering and 14 are considering math, science, or engineering careers. The Camp will take place again in 2011, in August.

Saskatchewan

University of Regina
Regina

This day camp took place at the University of Regina Campus on September 25, 2010. The camp was organized by Ara Steininger, program coordinator with the Department of Mathematics and Statistics. 53 students participated in the camp; 28 females and 25 males. Information packages were delivered to all high school mathematics teachers within the city and e-mail messages with similar information were sent to all elementary schools within the city. This camp is open to anyone who wishes to attend. This year Big Sister of Regina was contacted to offer free registration to any grades 7-12 participants of their programs. This was an attempt to bring in more Aboriginal and minority children, who were underrepresented in past camps. The majority were not able to attend without a driver in place, so next year arrangements will be made for someone to pick up the children the morning of the camp as well as dropping them off afterward. The camp program included presentations on topics such as Math Games and Puzzles, Origami Cranes (including the wiring of LED light for eyes) and Patterns in Numbers. The students also had to navigate a logic maze that was mapped on the floor. A survey of the participants at the end of the camp showed that 37 students have indicated increased interest in math, science, or engineering and 34 are considering math, science, or engineering careers. The Camp will take place again in 2011.

Alberta

University of Alberta
Edmonton

This residential camp took place at the University of Alberta in Edmonton from August 18-28, 2010. The camp was organized by Andy Liu, professor with the Department of Mathematical and Statistical Sciences. 30 students (Grades 6 to 11) participated in the camp; 5 females and 25 males. Selection was largely based on the Alberta High School Mathematics Competition, the Edmonton Junior High Mathematics Contest and Invitational, and the Calgary Junior High Mathematics Contest. One student from rural Alberta and one from the far north were invited as well as a student from Saskatchewan and a student from Atlantic Canada. The SNAP Mathematics Foundation pays for two international students, one from Taiwan and one from the United States. The camp program featured four mini-courses on the topics of Geometry, Graph Theory, Combinatorial Games and Computing Contests. Other activities included site visits to the university's engineering and computing science departments and social excursions. A survey of the participants at the end of the camp showed that 25 students have indicated increased interest in math, science, or engineering and 20 are considering math, science, or engineering careers. The Camp will take place in 2011 in Calgary.

British Columbia
Simon Fraser University
Surrey

This day camp took place at the campus of the Simon Fraser University, Surrey, from June 6-7, 2010. The camp was organized by Natalia Kouzniak, senior lecturer with the Department of Mathematics. 25 students (Grades 9 and 10) participated in the camp; 10 females and 15 males. The organizer says that "This camp was our best so far. The program was very well balanced. It included presentations about mathematics and various applications, problem solving sessions, games and various activities. Students were able to present results of their team work during the modelling part and problem solving sessions." A survey of the participants at the end of the camp showed that 23 students have indicated increased interest in math, science, or engineering and 20 are considering math, science, or engineering careers. The camp will take place again in 2010, in June.

British Columbia
Simon Fraser University
Burnaby

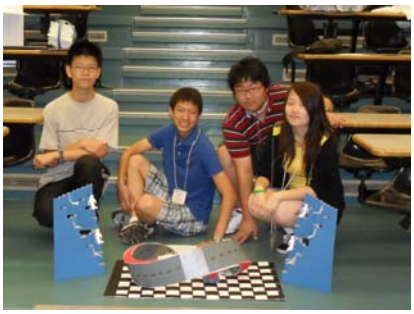
This day camp took place at the campus of the Simon Fraser University, Burnaby from July 6-10, 2010. The camp was organized by Malgorzata Dubiel, senior lecturer with the Department of Mathematics. 26 students participated in the camp; 7 females and 19 males. Invitations were mailed to schools and individual teachers about the camp and information about the camp was on the SFU website. Teachers were asked to nominate their students for the camp. The camp program included presentations on topics such as Solving the Cube, Number Shapes, Wanna Bet? Best Strategies for Games of Chance, Logic Puzzles and Origami. The camp also included a team contest and cultural and social activities. A survey of the participants at the end of the camp showed that 19 students have indicated increased interest in math, science, or engineering and 20 are considering math, science, or engineering careers. The Camp will take place again in 2011, in June.

IMO Training Camp
Wilfrid Laurier University
Waterloo, ON

The International Mathematical Olympiad (IMO) training camp took place at Wilfrid Laurier University from June 27 to July 3, 2010. The camp was organized by Edward Wang, professor with the Department of Mathematics. The six members of the 2010 IMO team attended a welcome banquet, received a written message of encouragement from Stephen Harper, and underwent training for the IMO competition in Kazakhstan. The training consisted of three daily lectures on problem-solving techniques and mock Olympiads. The 2010 IMO team placed 13th out of 96 countries and received two gold, one silver and two bronze medals.

2010 MATH CAMPS-CAMPS MATHÉMATIQUES 2010

Comments / Commenatires



- Loved the camp, had a lot more fun than I expected, and I have nothing to complain about! I wanna come back next year!
- My views on math changed, now I see it as a way of thinking rather than mindless number plugging.
- What I liked most about the camp was how the professors incorporated real life situations where math is used. This gave me a greater understanding about math and how it is connected to our every day lives.
- This camp broadened my knowledge of mathematics by a lot. I learned so many new things and I met so many other brilliant math students. I don't feel restricted by my peers because everyone else [here] is just as smart, if not smarter.
- The camp was an amazing and humbling experience for me. I had an opportunity to meet others who had a lot of talent in mathematics. (One of only 5 students who obtained a perfect score on the Pascal.)

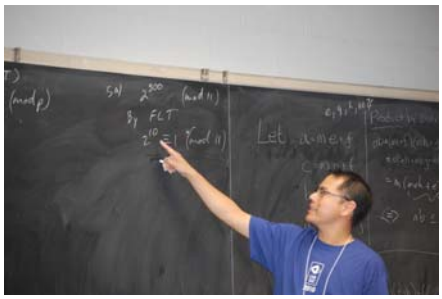
- I found the camp to be an overall great experience. I was able to be challenged in my math skills and develop them further. The problem solving abilities and much of the knowledge I acquired here were not exposed to me during school or even many extra-curricular math classes, and this was really valuable to me. I believe that this is a great experience for me and it was a pleasure to be there.
- It taught me things I had never even heard of. Also it helped me to better understand and apply things I had been taught earlier.
- This is a great camp and I truly learned a lot.
- A great learning experience. Great Camp. Awesome week! It was great meeting new people!

- Le camp est vraiment une opportunité magnifique de rencontrer des gens qui ont les mêmes affinités que nous. Nous sommes devenus amis facebook et nous organisons des activités de groupe.

- During the 10 days of the math camp, not only did I learn lots and have a great time, I was inspired by everyone around me to work harder to improve my math and problem solving skills. All the campers were so enthusiastic about everything and seemed to enjoy the programs that were offered.

- Aside from the mathematics, we also visited select sites in the University of Alberta. These included an engineering facility, a nanotechnology lab, a 3-D technology facility, as well as a mobile robotics lab. These site visits strengthened our understanding of how math and science interconnect, as well as inspired us to pursue a career in these fields.

- Thanks so much for letting me be part of the CMS 2010 camp. I really wish I could have been part of this sooner!



- Le camp a été une réussite sur toute la ligne. Les activités ont été appréciés par la grande majorité des campeurs. L'an prochain, plusieurs campeurs de cette année se sont montrés intéressés à revenir comme accompagnateurs."
  Un organisateur, le Cégep de Lévis-Lauzon.

- Two 2008 campers entered the U of A this year with big scholarships in Engineering.
  An organizer, University of Alberta

- Some students did well from undeveloped natural talent, while there were others who were really developing their skills by taking extra math classes and doing their own independent studying; these students stood out during camp.
  An organizer, York University

Math Camp Partners / Partenaires des camps mathématiques

University of Windsor

University of Prince Edward Island

Sir Wilfred Grenfell College

Dalhousie University

University of New Brunswick

Bishop's University

Concordia University

Cégep de Lévis-Lauzon

University of Western Ontario

University of Ottawa

York University

University of Manitoba

University of Regina

University of Alberta

Simon Fraser University

Wilfrid Laurier University

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