2-DAY SUMMER CONFERENCE for
GRADE 7 and 8
TEACHERS OF MATHEMATICS

The Centre for Education in Mathematics and Computing provides professional development opportunities for mathematics teachers. Our programs respond to the need for practical and enrichment information that can be implemented immediately in the classroom.

Problem solving forms the basis of effective mathematics programs. The sessions on curriculum will focus on problem solving. This conference will increase your tools and skills and enhance your teaching of mathematics. Teachers from any province or country will benefit. Teachers should have some previous teaching experience in an elementary or high school.

Whatever your personal, professional or mathematical goals, our conference can give you the edge you want.

Wednesday, August 21 to Thursday August 22, 2019
(Registration Deadline: Monday, June 17, 2019)

Participant cost of $120 includes meals, conference fee materials, and harmonized sales tax (HST)

A limited number of rooms (double occupancy) are available in a nearby hotel with no additional cost

Registration Now Open!
Follow the link http://www.cemc.uwaterloo.ca/events/mathteachers-winnipeg.html to register
**Grades 7 and 8 Program**

**Dates:** Starting Wednesday, August 21 at 8:00 a.m., ending Thursday, August 22 at 3:30 p.m.

**Location:** St. John’s Ravenscourt School, Winnipeg, MB

**Program:** The focus is on presentations as well as attendee participation in mathematical activities and problem solving. These resources are intended to supplement your teaching program.

<table>
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<tr>
<th>Wednesday, Aug. 21</th>
<th>Activity</th>
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<tr>
<td>8:00 am – 9:00 am</td>
<td>Registration, coffee &amp; networking</td>
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<tr>
<td>9:00 am – 10:15 am</td>
<td><strong>Plenary Session:</strong> Judith Koeller – What can the CEMC offer teachers?</td>
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<td>10:15 am – 10:30 am</td>
<td>BREAK</td>
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| 10:30 am – 11:45 am| **Session 1:** Grade 7/8 – Cara Butler – Cryptography  
Grade 9-12 – Lam Nguyen – Mathematical Surprise |
| 11:45 am – 12:30 pm| LUNCH |
| 12:30 pm – 1:45 pm | **Session 2:** Grade 7/8 – Tricia Perry – Tool Kit for Mathematics  
Grade 9-12 – Blaine MacIntosh – Visual Patterns & Difference Tables |
| 1:45 pm – 2:00 pm  | BREAK |
| 2:00 pm – 3:15 pm  | **Plenary Session:** Carole Bilyk – Games for the Classroom and Beyond |
| 5:00 pm – 10:00 pm | Evening Activity – Across the Board (games and dinner) |

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<th>Thursday, Aug. 22</th>
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<td><strong>Plenary Session:</strong> Jerrold Weibe – How can we be less helpful?</td>
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| 10:30 am – 11:45 am| **Grade 7-10** – Carole Bilyk – Centers in Math Class  
**Grade 9-12** – Nathalie Houle – Promouvoir la pensée critique |
| 11:45 am – 12:30 pm| LUNCH |
| 12:30 pm – 1:45 pm | **Grade 7/8** – Peter Andres/David Wall – CT + Mathematics = Opportunities for increasing Cognitive Demand and Engagement  
**Grade 9-12** – Blaine Macintosh – Imaginary Tale – The Story of i. |
| 1:45 pm – 2:00 pm | BREAK |
| 2:00 pm – 3:15 pm | **Plenary Session:** Judith Koeller – Ten Ways that your Middle/High School Math Curriculum Save the Smartphone |

Register, view program online, by visiting [http://www.cemc.uwaterloo.ca/events/mathteachers-winnipeg.html](http://www.cemc.uwaterloo.ca/events/mathteachers-winnipeg.html)

**Registration Fee:** $120 per registrant
Synopses of Sessions for Math Teachers’ Conference – Grade 7 and 8 Teachers

**Plenary:**
What Can the CEMC offer teachers?
*Judith Koeller*

The Centre for Education in Mathematics and Computing offers contests, courseware, problem of the week and more, reaching hundreds of thousands of math students and teachers every year. In this CEMC Sampler Platter, we’ll sample some of the CEMC’s offerings and solve some interesting, accessible and challenging problems that we find on along the way.

**Session 1:**
Cryptography
*Cara Butler*

Curious about code-making and code-breaking? Learn about some basic cryptography methods that you can share with your students. We'll also build a (simplified) working model of an Enigma machine as well as understand some cryptography basics. We'll also talk about decryption techniques and the Navajo Code Talkers from World War II.

**Session 2:**
Tool Kit for Mathematics
*Tricia Perry*

In this session, we will explore many "tools" (manipulatives/resources) you and your students can use in a "tool kit" that aim to help students develop their conceptual understanding and support students when solving problems. We will also look at some daily routines or different challenges to use throughout the year.

**Plenary:**
Games for the Classroom and Beyond
*Carole Bilyk*

We will explore several games that promote logical thinking, looking for patterns and planning ahead. Games may include SET, QUARTTO, PRIME CLIMB, LABRYNTH and ULTIMATE TIC TAC TOE depending on interest and familiarity of the group.
Plenary:
How can we be less helpful?
Jerrold Wiebe

If one of our goals is to help students become life-long learners, how can we be less helpful in order to have students become more independent? What techniques help to build discourse and ignite curiosity? This session will tackle these questions and much more.

Session 3:
Centers in Math Class
Carole Bilyk

Ever wonder how to organize your class to allow for some small group work? Interested in games for the math class? Do you want to improve your student’s use of math vocabulary? Wondering how to fit in everything you value into the mathematics classroom? This session is relate the experiences of one teacher who incorporates math centers into Senior Years Mathematics classes.

Session 4:
CT + Mathematics = Opportunities for Increasing Cognitive Demand and Engagement
Peter Andres/David Wall

We will practice strategies for selecting/creating problem solving questions using Big Ideas and examine how Computational Thinking and Coding incorporate Mathematical Processes to increase levels of cognitive demand and improve engagement.

Plenary:
Ten Ways that your Middle/High School Math Curriculum Saved the Smartphone
Judith Koeller

How did the world’s first smartphones escape being hacked beyond usefulness? The security is due in part to the beautiful mathematics of elliptic curves. Your middle/high school math curriculum connects to this mathematics in at least ten ways. We’ll explore how these skills lay a foundation for elliptic curve cryptography.