CEMC
SUMMER CONFERENCE
FOR COMPUTER STUDIES AND MATHEMATICS EDUCATORS

August 18 to 20, 2026

UNIVERSITY OF WATERLOO

The CENTRE for EDUCATION in MATHEMATICS and COMPUTING

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Schedule

Time	Activity	Location
Monday, August 17		
3:00 p.m. - 8:00 p.m.	Early registration	St. Jerome's Parking Lot
5:00 p.m. - 6:00 p.m.	Dinner	St. Jerome's Cafeteria
8:00 p.m. - 10:30 p.m.	Games, pizza and refreshments	SJ2 Atrium
Tuesday, August 18		
7:30 a.m. - 8:30 a.m.	Registration Breakfast	SJ2 Atrium St. Jerome's Cafeteria
9:00 a.m. - 10:30 a.m.	Welcome address	SJ2 1004
10:45 a.m. - 12:15 p.m.	Session 1	MC
12:15 p.m. - 1:15 p.m.	Lunch	MC
1:15 p.m. - 2:45 p.m.	Session 2	MC
3:00 p.m. - 4:30 p.m.	Session 3	MC
5:30 p.m. - 9:00 p.m.	Dinner (served at 6:00 p.m.) and social time	Fed Hall
Wednesday, August 19		
7:30 a.m. - 8:30 a.m.	Breakfast	St. Jerome's Cafeteria
9:00 a.m. - 10:30 a.m.	Session 4	MC
10:45 a.m. - 12:15 p.m.	Session 5	MC
12:15 p.m. - 1:15 p.m.	Lunch	MC
1:15 p.m. - 2:45 p.m.	Session 6	MC
3:00 p.m. - 4:30 p.m.	Session 7	MC
5:15 p.m. - 6:30 pm	Dinner	St. Jerome's Cafeteria
6:30 p.m. - 7:30 p.m.	Campus tour	SJ2 Atrium
7:30 p.m. - 10:00 p.m.	Social time	SJ2 Atrium
9:00 p.m. - 10:00 p.m.	Observatory tour (weather permitting)	Walk from SJ2 Atrium
Thursday, August 20		
7:30 a.m. - 8:30 a.m.	Breakfast	St. Jerome's Cafeteria
9:00 a.m. - 10:30 a.m.	Session 8	MC
10:30 a.m. - 10:45 a.m.	Coffee available	MC
10:45 a.m. - 12:15 p.m.	Session 9	MC
12:15 p.m. - 1:15 p.m.	Lunch	MC

Icons and Abbreviations

 Timing

 Presenter

 Venue

 Session title

 Audience

 Computer Studies

 Grade 7 & 8 Mathematics

7 & 8

 Grade 7, 8 & 9 Mathematics

7,8,9

 Grade 9 to 12 Mathematics

9 to 12

**This session includes the use of software. Read the session description for more information. You may find it useful to access the software on your own device with an operating system with which you are most comfortable. If the session is scheduled in one of the labs (MC 3003, MC 2063 or MC 2062), then you can use one of the lab computers.
Participants are encouraged, as always, to follow best cybersecurity practices when deciding whether to download or use the software, among other things paying attention to the permissions that the app needs (e.g. access to GPS location, access to information about networks, open network sockets, etc.).

Please note that some sessions are 90-minute sessions and others are 3-hour sessions with a 15 minute break. We have labelled parts of these sessions as *part 1* and *part 2* in this document.

MC: Mathematics and Computing Building
SJ2: St. Jerome's University

Welcome address

Social Implications of Math

 Judith Koeller

 TBD

Many math students struggle with the question “When will we use this in the real world?”. Explore some social implications of math and computer science related to the environment (carbon tax), wealth (predatory lending), health (Body Mass Index), ethics (self-driving cars). Examine some specific implications when different identity groups are under-represented in math/CS initiatives.

Cool Ideas in Computer Science	Craig Kaplan	TBD	
History of CS and Visit to the Computer Museum	Scott Campbell	TBD	
Session name coming soon	TBD	TBD	
10 Activities for the first 10 minutes of class	Kevin Shonk	TBD	 7 & 8
Problem Solving in a Secondary Class	Ian VanderBurgh	TBD	 9 to 12
Starting a Math Club in your school	Shawn Godin	TBD	 All

Cool Ideas in Computer Science
Session description coming soon.

History of CS and Visit to the Computer Museum
Session description coming soon.

10 Activities for the first 10 minutes of class
Explore a variety of activities that will start your math class with engagement and creative thinking. I have used these activities for many years in grade 7 and 8 classes to draw in all learners, increase math communication and help to spiral curriculum concepts. Hear about the activities I have found to be the most impactful and how I organize them for ease of implementation and student engagement.

Problem Solving in a Secondary Class
In this session, we will solve a variety of problems and engage in discussions about problem solving, examining it both as an essential component of the curriculum and as a valuable tool for enrichment and extension activities. We will explore different approaches, strategies, and techniques for solving problems, while also encouraging teachers to consider how problem solving can be integrated effectively into their classroom instruction to enhance critical thinking, creativity, and deeper understanding among students.

Starting a Math Club in Your School
Interested in running a math club but don't know where to start? We will discuss ideas around setting one up, activities, and issues you are bound to face. Samples of ideas to be used with the students will be shared. There are ample resources on the CEMC website to help get your math club going, and we will also explore other resources that will be valuable. Fortunately, there are no guidelines for creating a math club, so you are free to move in directions that are of interest to you and your students. Come out to this session and get started!

Computer bot Programs to Teach Abstract Classes and Interfaces (Java) - *part 1*	Nathan Rowbottom	TBD	
Movement and Meditation in the Classroom	Roma Uniat	TBD	
Inclusive Inquiry: Empowering Neurodivergent Learners Through Knowledge Building and Micro:bit, Enhanced STEM Experiences - *part 1*	Elizabeth Gateman	TBD	
Making Math Come to Life with Coding - *part 1***	Sheri Hill and Nathan Rowbottom	TBD	 7 & 8
Building a Thinking (Calculus) Classroom	Jamie Mitchell	TBD	 9 to 12
Introduction to Generative AI	Pavol Chvala	TBD	 All

Computer bot Programs to Teach Abstract Classes and Interfaces (Java) - part 1

Session description coming soon.

Movement and Meditation in the Classroom

This talk is to show how movement can support learning. Research from brain gym on activating neurons and improving thinking will be used. Participants will engage in cross body movements and participate in different meditations that can be used in class. We will also connect movement to curricular concepts in math and CS.

Inclusive Inquiry: Empowering Neurodivergent Learners Through Knowledge Building and Micro:bit, Enhanced STEM Experiences - part 1

The purpose and overall goal of this session is to provide insights from science, technology, engineering and math (STEM) programming and learning environments which aim to create inclusive, high-engagement STEM experiences for learners with diverse strengths and support needs. This session will explore the role of Inquiry,e-Based Learning, Knowledge Building pedagogy, and Universal Design for Learning (UDL) to cultivate curiosity and increase autonomy in younger learners in technology-based learning settings.

Making Math Come to Life with Coding - part 1

In this session, participants will explore a variety of strategies, manipulative tools, and digital resources that can support student engagement, enhance understanding, and facilitate meaningful expression of their learning. Opportunity will be given to engage with hands-on activities, experiment with innovative technologies, and discuss practical applications that can be integrated into diverse learning environments. Additionally, participants will reflect on how to adapt to meet the needs of all learners, fostering a more inclusive and dynamic educational experience.

Building a Thinking (Calculus) Classroom

Are you building your own thinking classroom? Do you struggle with designing tasks or creating assessments? Participants at this session will experience first hand some of the tasks used in MCV4U to engage student thinking. Additional scripts and tasks will be shared, as well as suggestions and strategies to assess student learning in a way that aligns with the spirit of Thinking Classrooms. A major focus of this session will be on practices that centre the student as a learner, equitable classroom norms and how the Thinking Classroom can be used to disrupt traditional practices. You don't need to be a Calculus teacher to take something away from this session!

Introduction to Generative AI

Dive into the world of Generative AI with this introductory course designed to provide hands-on experience in effective AI use. Develop a solid understanding of the technologies that drive GenAI tools, explore the common risks and challenges associated with their use, and acquire the essential skills to confidently navigate and utilize today's GenAI tools.

Computer bot Programs to Teach Abstract Classes and Interfaces (Java) - *part 2*	Nathan Rowbottom	TBD	
Quantum Computing	John Donahue	TBD	
Inclusive Inquiry: Empowering Neurodivergent Learners Through Knowledge Building and Micro:bit, Enhanced STEM Experiences - *part 2*	Elizabeth Gateman	TBD	
Making Math Come to Life with Coding - *part 2***	Sheri Hill and Nathan Rowbottom	TBD	 7 & 8
Modelling Math Concepts with Polypad	Angela Kurmey	TBD	 9 to 12
UW Math Trail	Rob Gleeson	TBD	 All

Computer bot Programs to Teach Abstract Classes and Interfaces (Java) - part 2

This is a continuation of the Computer bot Programs to Teach Abstract Classes and Interfaces (Java) - part 1 and the session description can be found on page 9.

Quantum Computing

Session description coming soon.

Inclusive Inquiry: Empowering Neurodivergent Learners Through Knowledge Building and Micro:bit, Enhanced STEM Experiences - part 2

This is a continuation of the Inclusive Inquiry: Empowering Neurodivergent Learners Through Knowledge Building and Micro:bit, Enhanced STEM Experiences - part 1 and the session description can be found on page 9.

Making Math Come to Life with Coding - part 2

This is a continuation of the Making Math Come to Life with Coding - part 1 and the session description can be found on page 9.

Modelling Math Concepts with Polypad

Polypad is a suite of virtual math manipulatives connected to geometry, numbers, fractions, algebra, and probability and data. In this hands-on session, participants will be introduced to these tools and how they can be used to build models to represent abstract mathematical concepts from MTH1W, MFM2P, MPM2D, and MDM4U.

UW Math Trail

A Math trail invites students to view the world while thinking mathematically and getting a little fresh air. Students follow a planned route and answer a set of questions, create mathematical questions related to what they encounter, or capture images of mathematical concepts that could be explored later in class. Through experiences like these, students are given a chance to connect the mathematics curriculum to many subjects including art, design, architecture, science, geography and history.

Vibe Coding: When the Rubber Hits the Road	Paul King	TBD	
A Point and Click Workflow for Independently Publishing Teaching Materials - *part 1*	Grant Hutchison	TBD	
Beginner Introduction to MicroPython - *part 1*	John Rampelt	TBD	
Building Students' Mental Math Skills with Strings	Sarah Whitehouse	TBD	 7 & 8
Naming the Problem: Teaching how to solve open problems in high school math	Michael Szarka	TBD	 9 to 12
Error-Correcting Codes: Nostalgia? Museum Relics? The GOAT?	Judith Koeller	TBD	 All

Vibe Coding: When the Rubber Hits the Road
The results of an attempt to use AI (Copilot), problems encountered in a Grade 11 high school setting, and how they were addressed. Since students hadn't yet learned arrays, a teacher could also consider using this in grade 10 (ICD2O). What problems is vibe coding meant to solve? How were we using vibe coding? How uneven was the "playing ground" when AI is determining what code a student receives? This and more are discussed.

A Point and Click Workflow for Independently Publishing Teaching Materials - part 1
Who owns the valuable content that you author and publish for your students through third-party platforms? How is your content used by those platforms? Can you easily export your content if you change employers, or if your employer decides to change the content management system used by your school?
Text files are the one universal file format, and by learning Markdown and organizing files using Obsidian, you can author and publish a deeply linked, searchable website, with pages that can include “pretty-print” mathematical formulae and equations, code snippets, diagrams, animations, images, videos, PDF files, or any other type of document.
In this session, the presenter will share a point-and-click app that runs on Windows or macOS that makes it easy to publish modern class websites from a set of Markdown-formatted text files. No manual configuration required, no command-line work, just an app that you can install on your own computer and begin using right away. The software supports deploying your website to a variety of online hosting services.
So, who would own the content you write and publish through this system? Unambiguously – it is you. As it should be.
This is the third and final version of an idea first presented in the 2023 session titled "A Rapid Workflow for Publishing CS Teaching Materials” and updated in the 2025 session titled "An Even Faster Workflow for Publishing Teaching Materials”. Everyone knows version 3.0 is the best version of a given piece of software, so, don’t miss out!
Session is accessible for teachers with no experience in publishing online materials.

Beginner Introduction to MicroPython - part 1
Is it time to leave Arduino C code behind? The introduction of powerful and inexpensive new microcontrollers in both the Raspberry Pi Pico and ESP32 families have enabled the use of MicroPython as an easier-to-learn-programming alternative to traditional Arduino C/C++ code. In this session we’ll compare Arduino and MicroPython programs, learn the structure, syntax, and features of MicroPython programs, and build and program a range circuit examples using MicroPython, including analog sensing, driving motors, controlling NeoPixels, and even using WiFi.

Building Students' Mental Math Skills with Strings

Mental math doesn't have to be a guessing game. In this workshop, we'll explore strings as a powerful way to help students build number sense, think flexibly, and make sense of numbers—without reaching for a pencil. Through examples and discussion, educators will learn how to facilitate meaningful math conversations that encourage reasoning, justification, and multiple approaches to problem-solving that turn "I just knew it" into "Here's how I figured it out."

Naming the Problem: Teaching how to solve open problems in high school math

This session is centered around explicitly naming and teaching problem solving. The session uses a thinking classroom approach as a back drop and will have participants working together on an open math problem. The problem will include an explanation of the possible skills that could be used and will be written on magnetic whiteboard cards. Participants will be asked to drag down the skill when they think it should be used, and explicitly name what they are currently doing in their problem solving. A discussion and consolidation will center around the benefit for students in naming their strategies and how powerful teaching problem solving can be.

Error-Correcting Codes: Nostalgia? Museum Relics? The GOAT?

Error-Correcting codes use discrete mathematics to improve the quality of photos from space, playing recorded music, scanning groceries at the check-out, and watching a live sports event on TV. We'll explore the mathematics and its connection to decimals, fractions, exponents, polynomials, probability and binary numbers.

How can we train a machine learning model to recognize images and sound?	Jared Styker	TBD	
A Point and Click Workflow for Independently Publishing Teaching Materials - *part 2*	Russell Gordon	TBD	
Beginner Introduction to MicroPython - *part 2*	John Rampelt	TBD	
Building Fraction Sense: Scaffolded Thinking Through Problem Solving	Tali Amar	TBD	7 & 8
Data Management: Small Steps for Big Results	Paul Alves	TBD	9 to 12
Supporting Struggling Learners: Universal Design for Learning Principals (UDL) in Math	Erica Mark	TBD	All

How can we train a machine learning model to recognize images and sound?
How can we train a machine learning model to recognize images and sound? Using Teachable Machine, a free resource from Google, educators will learn how students can quickly and easily train a machine learning model to recognize different inputs in a safe environment - even from a school computer! Knowing that incorporating AI education into classroom policy comes with its own hurdles, we will also introduce a suite of smaller activities that teach the underlying concepts shaping modern AI in an offline and unplugged environment.

A Point and Click Workflow for Independently Publishing Teaching Materials - part 2
This is a continuation of the A Point and Click Workflow for Independently Publishing Teaching Materials - part 1 and the session description can be found on page 14.

Beginner Introduction to MicroPython - part 2
This is a continuation of the Beginner Introduction to MicroPython - part 1 and the session description can be found on page 14.

Building Fraction Sense: Scaffolded Thinking Through Problem Solving
Understanding fractions deeply is essential for mathematical flexibility, but many students struggle beyond basic procedures. This session focuses on scaffolding fractional thinking through problem-solving to build conceptual understanding. Participants will explore rich tasks, strategies to support students, and ways to connect fractions to broader concepts. Through activities and discussions, educators will gain practical approaches to help students understand fractions meaningfully.

Data Management: Small Steps for Big Results
Data management is my favourite course to teach in the high school math curriculum. My wish is that more students would enroll in the course and see the utility of the content for their post-secondary life, and to make them critical consumers of information. In this workshop, I will share activities, resources and tips that I have collected over the years teaching data management. Whether you are a data rookie or a veteran, you will walk away with content that can be integrated into your own program. Participants are also encouraged to share their best practices that make this course one of the most unique courses in high school math.

Supporting Struggling Learners: Universal Design for Learning Principals (UDL) in Math

In this session, participants will explore a variety of strategies, manipulative tools, and digital resources that can support student engagement, enhance understanding, and facilitate meaningful expression of their learning. Opportunity will be given to engage with hands-on activities, experiment with innovative technologies, and discuss practical applications that can be integrated into diverse learning environments. Additionally, participants will reflect on how to adapt to meet the needs of all learners, fostering a more inclusive and dynamic educational experience.

Combatting Academic Misconduct in the Era of AI - *part 1*	Sarah Strong	TBD	
Block Coding in Delightex - *part 1*	Sandy Graham	TBD	
RTC Shield Workshop - *part 1*	Raj Nachimuthu	TBD	
Beyond the Screen: Make the Coding Curriculum Come to Life in a Middle School Classroom - *part 1*	L. Andrea Izzo	TBD	 7 & 8
A Sprinkling of Algebra and Interleaving Homework	Lindsay Parchimowicz	TBD	 9 to 12
Moving Beyond Marks to Create a Culture of Meaningful Learning	Avinash Ghosh	TBD	 All

Combatting Academic Misconduct in the Era of AI - part 1

Generative AI tools such as ChatGPT have gained popularity among everyone, including students, in the past few years. Most high school students have been using it without being taught how to use it responsibly and what happens when you over-rely on it. Let's teach our students how to use AI to help with their learning and thinking, not replace it. Here are the topics covered in this session:

1. How to promote academic integrity in computer science courses;
2. How to design AI-resistant assignments;
3. How to address academic misconduct with students and stakeholders.

Block Coding in Delightex - part 1

Delightex (formerly CoSpaces) is a platform for creating interactive 3-D scenes. The elements of the scenes can be controlled through block coding, Python code, or JavaScript. In this session we will explore the basics of the block coding elements. The CEMC uses Delightex in its CS Escape Workshop that introduces coding concepts to Grade 8 students. You need a licence to access the full set of features available: this includes classroom management tools. Participants in the session will have a chance to see how these tools can be used and get a chance to see if the licence cost would be worth paying for their own classroom needs.

*** *Session is accessible for teachers with little or no coding experience looking for ways to integrate coding in their Math or CS classes.*

RTC Shield Workshop - part 1

This presentation focuses on building a summative, hands-on project using the familiar Arduino UNO platform. Participants will construct an Arduino RTC Shield capable of displaying the time, date, and month on a seven-segment display. As the shield is custom designed, no external wiring is required, simplifying assembly and improving classroom reliability. Participants will solder the shield components and then proceed to program and test the completed circuit.

Beyond the Screen: Make the Coding Curriculum Come to Life in a Middle School Classroom - part 1

Stop teaching coding in a vacuum. Transform abstract concepts into real-world results by bridging the gap between the screen and the physical world. Using tools like LEGO Spike Prime, Vex-VR, Micro:bits, and Google Sheets, you'll learn to weave Geometry and Data Management into your coding curriculum to skyrocket student engagement and deepen pedagogical impact.

A Sprinkling of Algebra and Interleaving Homework

The topics that often hold back students in mathematics are the algebra-heavy ones. I have worked with my colleagues to redesign the grade 9 destreamed math to try and spread out the algebra topics to allow students more time to absorb the sometimes very nuanced details of algebra, while continuously reviewing everything in the course weekly. This course redesign incorporates standards based grading, levelling questions, interleaving homework and has been carefully thought out to aid students in the destreamed math course at all levels.

Moving Beyond Marks to Create a Culture of Meaningful Learning

How can Outcomes-Based Assessment change the way we evaluate and support student learning? In this interactive session, we will walk through the implementation process - from identifying learning outcomes to designing assessment tools that align with curriculum expectations. We will learn how these practices improve consistency and support student growth. The goal is to rethink our current assessment practices and leave with the knowledge and resources needed to adapt these for your own classroom or school.

Combatting Academic Misconduct in the Era of AI - *part 2*	Sarah Strong	TBD	
Block Coding in Delightex - *part 2*	Sandy Graham	TBD	
RTC Shield Workshop - *part 2*	Raj Nachimuthu	TBD	
Beyond the Screen: Make the Coding Curriculum Come to Life in a Middle School Classroom - *part 2*	L. Andrea Izzo	TBD	 7 & 8
Engaging Students with Paradox	Rich Dlin	TBD	 9 to 12
Solving for X with AI: Transforming Your Math Classroom with Google's Gemini Suite	Robin Grondin	TBD	 All

Combatting Academic Misconduct in the Era of AI - part 2
This is a continuation of the Combatting Academic Misconduct in the Era of AI - part 1 and the session description can be found on page 20.

Block Coding in Delightex - part 2
This is a continuation of the Block Coding in Delightex - part 1 and the session description can be found on page 20.

RTC Shield Workshop - part 2
This is a continuation of the RTC Shield Workshop - part 1 and the session description can be found on page 20.

Beyond the Screen: Make the Coding Curriculum Come to Life in a Middle School Classroom - part 2
This is a continuation of the Beyond the Screen: Make the Coding Curriculum Come to Life in a Middle School Classroom - part 1 and the session description can be found on page 20.

Engaging Students with Paradox
From Ancient Greece to Lewis Carroll, intellectuals have been testing the faults in mathematics and logic for centuries, if not millenia. The very nature of paradox promotes deeper inspection, making it a valuable tool for learning. In this session, Rich will present some of the more intriguing - yet accessible - paradoxes that are embedded in the high school curriculum, and how one can use these to engage students, promote deeper understanding, and ultimately to either resolve the paradox, or else revel in the sweet logic of its existence.

Solving for X with AI: Transforming Your Math Classroom with Google's Gemini Suite
This presentation offers a practical guide for math educators on leveraging Google's powerful suite of AI tools—Gemini, NotebookLM, Gems, and Gemini in Google Classroom—to create more dynamic, differentiated, and engaging learning experiences. We'll move beyond the theoretical and dive into concrete strategies that you can implement immediately to save time, spark student curiosity, and deepen conceptual understanding. Join this session to walk away with a toolkit of AI-powered strategies that will not only enhance your math instruction but also re-energize your passion for teaching.

Teaching Debugging (Lab) - *part 1*	Carmen Bruni	TBD	
Data Visualization in p5.js - *part 1*	Andrew Seidel	TBD	
Final Project Idea for TEJ or TAS Classes - *part 1*	Rob Ceccato	TBD	
Problem Solving in Grades 7 and 8	Shawn Godin	TBD	 7 & 8
What to Expect in the First Year at the University of Waterloo	Shane Bauman and Fiona Dunbar	TBD	 9 to 12
Introducing CEMC's Grade 4 to 6 Courseware	Michaela Crowson and Ashley Sorensen	TBD	 All

Teaching Debugging (Lab) - part 1
Session description coming soon.

Data Visualization in p5.js - part 1
Use p5.js as a computational art / visualization tool in ICS4U (Grade 12 computer science). In this hands-on workshop, you can get the opportunity to practice p5.js programming for ICS4U programming topics and have a chance to test out visualizing data in a non-standard way (eg. no pie charts, bar charts, scatter plots, etc) generating artful data representations. For this session, you should have a basic idea of how p5.js works and an understanding of the ICS4U programming topics.

Final Project Idea for TEJ or TAS Classes - part 1
Creating engaging, hands-on, and budget-friendly projects that reinforce semester-long learning can be challenging for high school computer science, engineering, and technology teachers—especially when teaching multiple sections or working with returning students year after year.
In this interactive workshop, participants will actively build, wire, and program (using an Arduino) a plastic or paper-based car while working through the same process students experience in class. Teachers will leave with ready-to-use handouts, lesson materials, and practical strategies to implement the project immediately.
The project integrates electronics and programming concepts through functional features such as headlights, turn signals, reverse lights, brake lights, and an optional buzzer to simulate a burglar alarm. It has been successfully used in a Grade 9 engineering course and can be adapted for a wide range of high school computer science, engineering, and technology classes.
This culminating project emphasizes hands-on design, electronics, coding, time management, and critical thinking, while remaining engaging, flexible, and affordable for the classroom.

Problem Solving in Grades 7 and 8
Problem solving is central in the mathematics curriculum. In this session, we will explore the problem-solving process through the solutions of a variety of problems. We will investigate ways that problem-solving can be used in the classroom from introducing a topic, to deepening understanding and making connections, to extending ideas beyond the curriculum. We will also take some time discussing resources - from the CEMC website and beyond - and ways to create good problem-solving activities.

What to Expect in the First Year at the University of Waterloo

In this interactive workshop, teachers engage with pre-calculus problems that emphasize reasoning, structure, and precision. Topics include function composition and inverses, logarithms and exponentials, trigonometry, domain analysis, and introductory proof. We also discuss study strategies, perseverance, and resources that support student success in first year mathematics courses at the University of Waterloo.

Introducing CEMC's Grade 4 to 6 Courseware

The University of Waterloo is excited to announce the launch of new mathematics courseware specifically designed for students in Grades 4, 5, and 6. Building on the success and quality of resources found on the CEMC website, this courseware adapts content and presentation to suit younger learners. This initiative complements the existing CEMC offerings for Grades 7–12, which participants will explore as well. With engaging activities and clear instruction, the new materials aim to strengthen foundational math skills and inspire curiosity in elementary students.

Teaching Debugging (Lab) - *part 2*	Carmen Bruni	TBD	
Data Visualization in p5.js - *part 2*	Andrew Seidel	TBD	
Final Project Idea for TEJ or TAS Classes - *part 2*	Rob Ceccato	TBD	
Math Games and Math Talk Opportunities: How to Build Reasoning and Thinking in Learners	Nisha Patmanathan	TBD	 7 & 8
Probability, Vectors, Logic, and Cryptography in Quantum Technology	John Donohue	TBD	 9 to 12
Made in Canada, when Math comes Home	Carly Ziniuk	TBD	 All

Teaching Debugging (Lab) - part 2
This is a continuation of the Teaching Debugging (Lab) - part 1 and the session description can be found on page 25.

Data Visualization in p5.js - part 2
This is a continuation of the Data Visualization in p5.js - part 1 and the session description can be found on page 25

Final Project Idea for TEJ or TAS Classes - part 2
This is a continuation of the Final Project Idea for TEJ or TAS Classes - part 1 and the session description can be found on page 25.

Math Games and Math Talk Opportunities: How to Build Reasoning and Thinking in Learners
In this session, you will explore how games can be used to promote math talk in the classroom. You will engage in math games in randomized groups and reflect on their effectiveness. We will discuss how the games can be modified to meet the needs of learners in your class and division. Participants will receive a collection of games and ideas for gathering assessment data for classroom use. Drawing on experience in cross-divisional split classes, we have seen how math games build community, support meaningful practice, and deepen students' reasoning by providing multiple entry points and appropriate challenge.

Probability, Vectors, Logic, and Cryptography in Quantum Technology
Quantum science describes the behaviour of atoms, electrons, and photons. It is applied in many ubiquitous technologies like lasers and GPS, and is driving emerging technologies like quantum computing. The rules of quantum mechanics rely primarily on two mathematical principles: probability and linear algebra. In this workshop, we'll explore how we can model quantum bits (qubits) as two-dimensional vectors, with a physical example allowing hands-on exploration. We'll use a card game to demonstrate how probability arises in quantum systems and how binary logic can be different in these systems, and finally introduce applications of these ideas to cryptographic security protocols.

Made in Canada, when Math comes Home

Discover Canadian math resources and make students "feel at home" in their math classes right here in Canada. Explore engaging activities, including zero-waste geometric quilt patterns based on textiles from the ROM and indigenous creators, "Made in Canada" percentage questions, and Canadian Space Agency (CSA) STEM learning opportunities. Experience integrated cross-curricular Canadian resources from the Fields Institute, Let's Talk Science, Discover the Universe, and Ingenium (along with Canada Museums of Science & Technology and Canada Museum of Space and Aviation). Made right here in Canada. Math Comes Home.

The CENTRE for EDUCATION
in MATHEMATICS and COMPUTING
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