Canada 150
Mathematics for all!

Prepared by the Mathematics Leadership Community of Practice
Featured

✓ Mathematical tasks created for educators, students, and parents

✓ Results of the whole school inquiry about the effects of the whole month of mathematics, situated around Canada 150 Math Challenge, on the productive disposition among elementary school students.
Celebrate Canada’s 150th Birthday With a Month of Math

Through the work of the Greater Essex County District School Board’s (GECDSB) Math Strategy Team, the invitation was sent across Canada to educators, students and their families to celebrate Canada’s 150th Birthday since confederation, by doing mathematics.
How it Worked

› Each school day during the month of June, the team posted a math question/task/provocation related to Canada via their Twitter account.

› Many others joined to share their tasks or to contribute their solutions.

› Check out the task, resources, and solutions at Kyle Pearce’s website: https://tapintoteenminds.com/canada150math/#150tasks
HOW TALL IS THE GREAT CANADIAN FLAG?

This 3 Act Math Task that focuses on ratio, rate, and proportional reasoning, was used to kick-off the Canada 150 Math Challenge at Dr. David Suzuki Public School on May 31st.
STUDENTS ARE CHALLENGED TO PREDICT

How many Mr. Pearces tall is The Great Canadian Flag?
SEQUEL #1: WHICH IS TALLER?

Once students finish determining how many Mr. Pearces tall The Great Canadian Flag is, they are given this image to ponder:

How much taller is the Renaissance Center?
SEQUEL #2: HOW MANY BEACH TOWELS?

How many beach towels would it take to cover the Great Canadian Flag?
BIG NICKEL:

How many nickels would it take to make The Big Nickel in Sudbury?

How much would it cost to make the Big Nickel out of actual nickels?

How big would the Big Nickel be if we used all of the nickels in circulation?
THE #CANADA150 LOGO

How many kites are in the Canada 150 logo?

What fraction of the Canada 150 logo is red?

What is the interior/exterior angle sum of the Canada 150 logo?

What interesting art can you create with parts/pieces of the Canada 150 logo?
How many kites are in the Canada 150 symbol?

There are 12 kites in the Canada 150 symbol.

Remember:
A kite has 2 pairs of lines that are the same length and touch at a vertex.
GIANT RUBBER DUCK

How many Giant Rubber Ducks tall is the CN Tower?

How many Giant Rubber Ducks will fit in the Western Channel?
SEQUEL: GIANT RUBBER DUCK

After predictions are made, have students calculate how many people it would take using their own assumptions (are these people adults? students? etc.).
HOW MANY MOUNTIES?

Mathematize the Canada 150 Mountie salute on the Capilano Suspension Bridge by asking: *How many mounties is that?*
What is the area of Saskatchewan?

What percentage of Canada does Saskatchewan represent?

How many “Saskatchewans” would it take to cover all of Canada?

Which has a greater area? Your province or Saskatchewan?

Which has a greater population density? Your province or Saskatchewan?
SEQUEL: SASKATCHEWAN

What percentage of Canadian land is protected for FNMI peoples?

How many FNMI people are in Canada? What proportion of the Canadian population does this represent?

Is that percentage in line with the percentage of land dedicated for the FNMI peoples?

If not, what area of land should be reserved for FNMI people?
PEOPLE IN CANADA

Where is the largest area of Canada with the fewest people?

Where is the smallest area of Canada with the most people?

Where is the widest and thinnest rectangular area that has the least people in Canada?
NUMBER FLEXIBILITY WITH “150”

How many tens are in 150?

How many twenties are in 150?

If 150 cupcakes, to celebrate Canada’s birthday, are to be split amongst your class, how many would each of you get?

If 10,000 pyrotechnic effects are used during the fireworks, how many pyrotechnic effects are used to represent each of Canada’s 150 years?
CANADIAN FLAGS

Do you know where each flag comes from?

Which one doesn’t belong?
CANADA 150 MOSAIC PROJECT

How many individual tiles make up this mosaic?

How much area does this mosaic cover?

How many copies of the mosaic to cover the Great Canadian Flag?
HOW MANY PEOPLE?

Today, we’re throwing a Canada150 Math Party! There are enough cups for each person to take one home.

How many people were at the party? What strategy did you use to find your answer?
HOW MANY PADDLERS?

Celebrating Canada’s birthday, kayakers from Peterborough, ON, broke a record. *How many paddlers are there?*
HOW MANY WINNING RIMS ARE THERE?

As I was sipping on a hot Tim Horton’s Dark Roast coffee this morning during a meeting, I happened to notice a big “150” on my cup with that familiar yellow arrow we see when it is Roll Up The Rim to Win time here in Canada. How could I not go with something related to roll up the rim?

How many winning rims are there?
Mathematics Tasks - During the Canada150 Math Challenge event, careful attention was paid to the tasks used in classes. The tasks modeled by the team were open, used technology, and were puzzling and engaging. The tasks were carefully constructed so that they would elicit multiple representations and spark conversation.

Mathematics Tools – As well, during the event attention was paid to the use of tools, specifically concrete materials to aid in learning and demonstrating learning. In general, the tools used were part of the GECDSB mathematics kit, however many other tools we brought into classrooms to support mathematics learning.

Mathematics Conversations – The tasks that were constructed during the Canada150 Math Challenge were designed to elicit conversation, discussion, and debate. Students were encouraged to share their reasoning, debate solutions and processes. The active promotion of collaboration and discussion were part of the tasks, and the general environment of the event.

Reflections from the school’s mathematics leadership team
HOW DID STUDENTS REACT?

Student interview results suggest that students who participated in the Canada150 Math were more engaged and found the mathematics that they were studying to be more interesting. They discussed how they were motivated to solve problems and work through recess or at home to find solutions or seek out new problems.

Student data demonstrate that their enjoyment of mathematics improved through these activities. They articulated that the types of problems (the tasks were authentic and the students could relate to real-world ideas and situations), collaboration, use of tools, and general environment (excitement) were all factors that contributed to their enjoyment.

Some students did report that this experience was atypical of their mathematics learning experiences and therefore was not ‘real math’ but ‘fun math’.

This is what the mathematics leadership team at Dr. David Suzuki PS found:
WHY IS THIS IMPORTANT?
All educators need to join efforts in order to improve the societal attitudes towards mathematics. This can be done by,

“engag[ing] teachers in co-designing mathematical learning experiences for students that offer surprise and conceptual insight, and opportunities to share their learning with family, their peers, and the wider community.”
(MKN principle, 2016)

› If we “are going to get breakthrough results innovation must come from teachers working in collaboration.”
(Fullan, 2011, p. 7-8)

› “seeing mathematics as useful and worthwhile helps to empower children to engage deeply in their learning. It allows students to see where and how mathematics can be applied, not only to the world around them, but in service of the intrinsic beauty of the discipline. Productive disposition is a tenacious belief that mathematics is not arbitrary or irrelevant, but understandable and worth the effort.”
(GECDSB MTF Report, p. 8)

› Our working model of mathematics leadership:
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