

Canada 150

Mathematics for all!

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.




CANADA 150MATH CHALLENGE




Celebrate Canada's 150th Birthday With a Month of Math

Throughout the month of June, K-12 Classrooms are invited to engage in math tasks related to Canada's 150th Birthday!

Share your learning using the hashtag **#canada150math**

 publicboard.ca/150

 [#canada150math](https://twitter.com/canada150math)

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): <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.



**CANADA150
KICK-OFF**

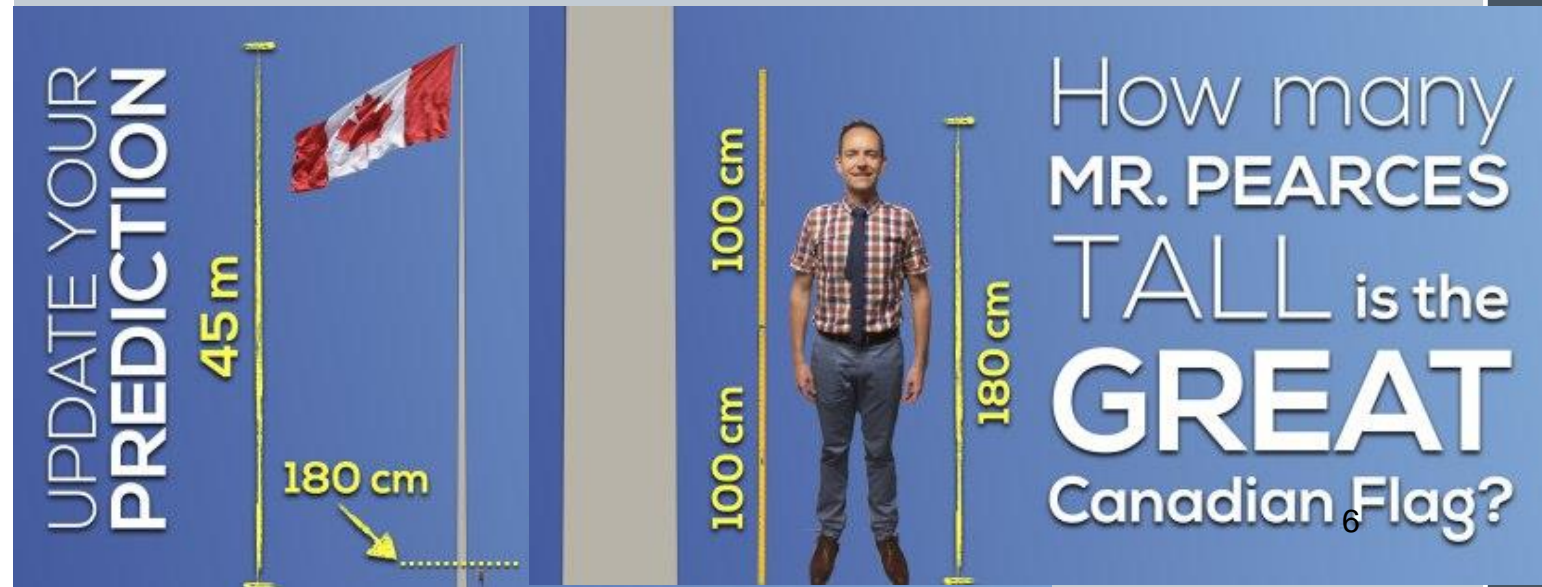
Dr. David Suzuki
PUBLIC SCHOOL

publicboard.ca/150 [#Canada150Math](https://twitter.com/Canada150Math)



STUDENTS ARE CHALLENGED TO PREDICT

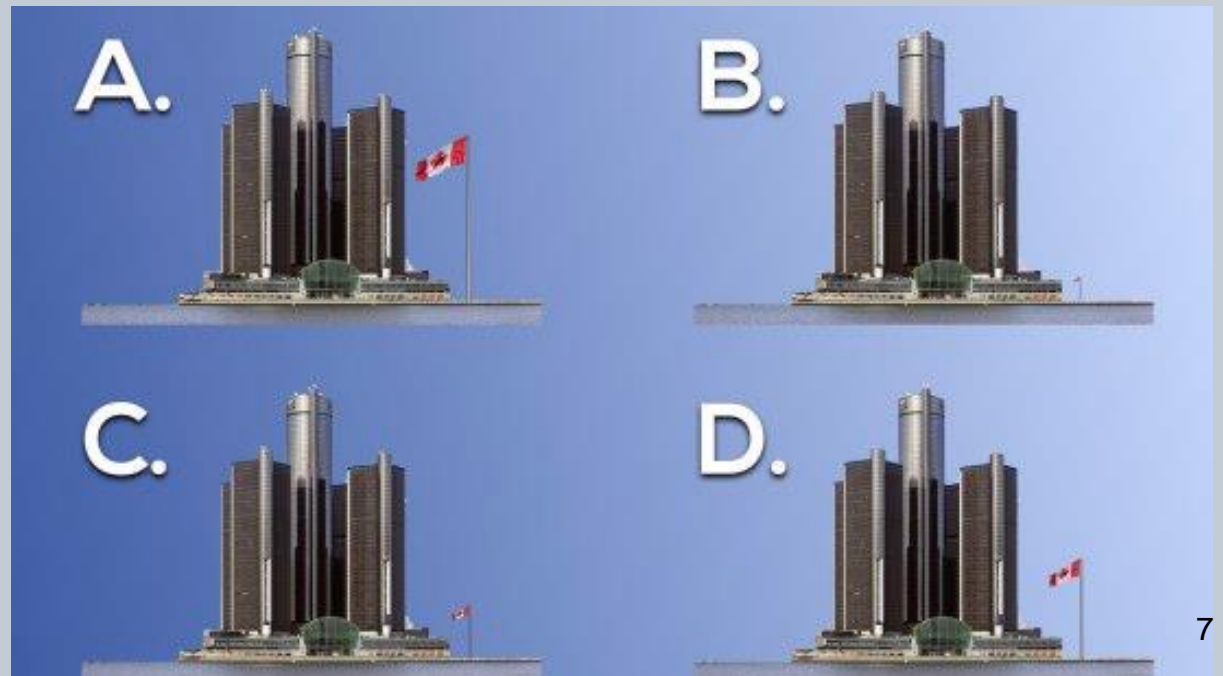
How many Mr. Pearces tall is The Great Canadian Flag?



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?*

Make a PREDICTION

CBC News Windsor

Home Opinion World Canada

Canada Windsor

Pole installed for Great Canadian Flag Project

It's five years in the making. An important step.

CBC News

How many BEACH TOWELS would it take to COVER the GREAT CANADIAN FLAG?

76 cm

178 cm

Mobile Facebook Podcasts Twitter News/905

Work crews broke ground in February for the Great Canadian Flag Project. The massive flag that will eventually fly at the city's waterfront will stretch 18 metres by nine metres.

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

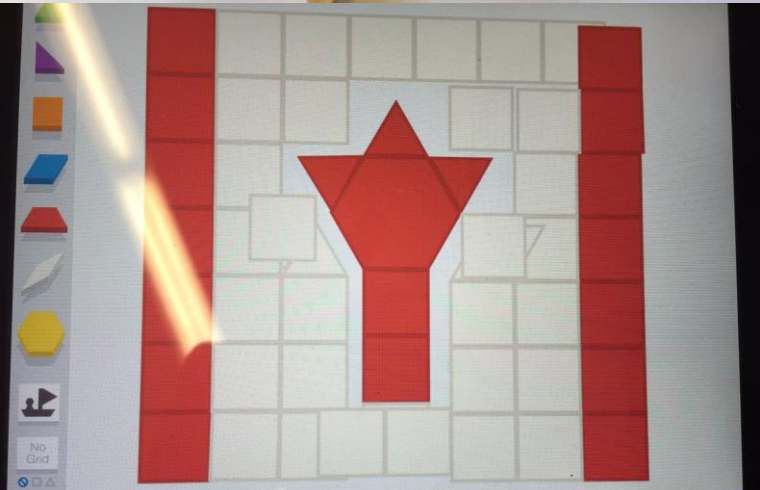
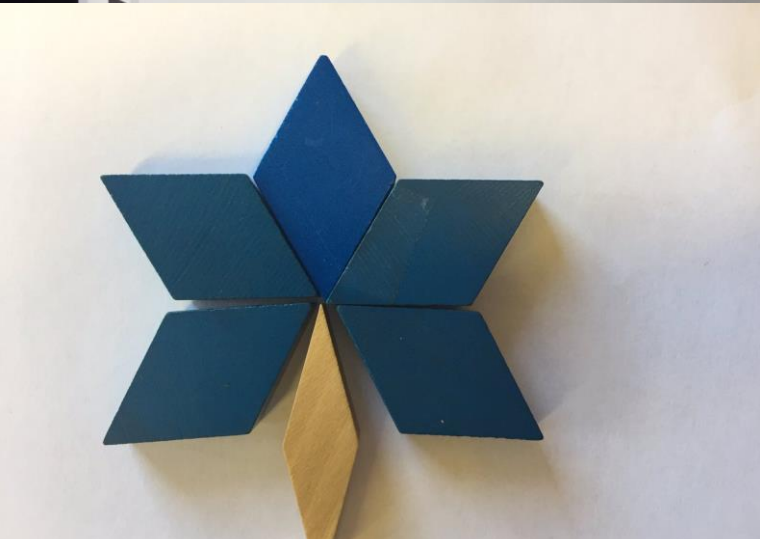
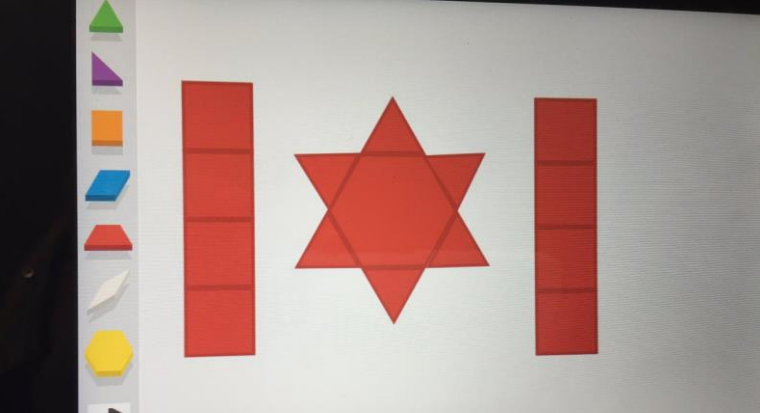
How many kites are in the
Canada 150 logo?

What fraction of the
Canada 150 logo is red?

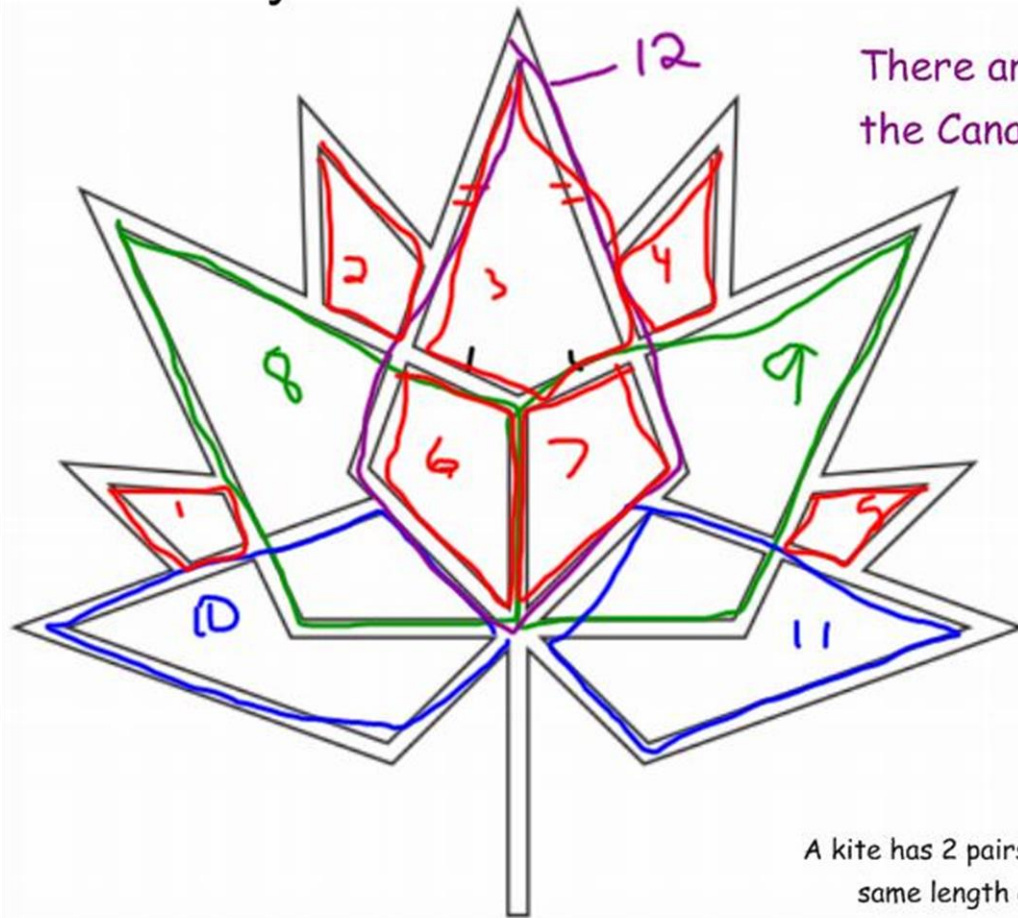
What is the interior/exterior
angle sum of the Canada
150 logo?

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?

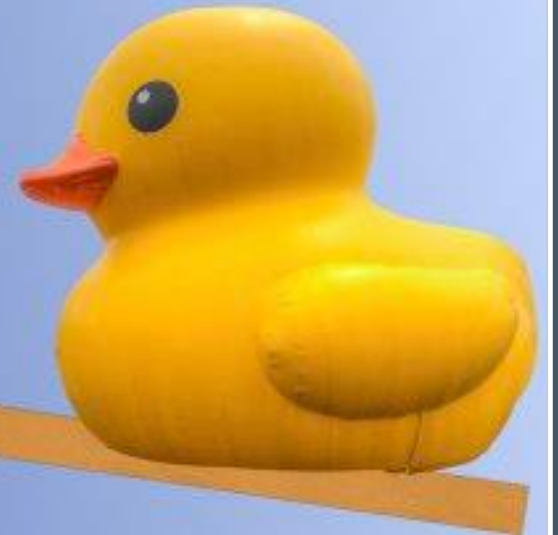
How many Giant Rubber Ducks will fit in the Western Channel?



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 **PEOPLE**
would it take to
OUTWEIGH the
GIANT rubber duck?



HOW MANY MOUNTIES?

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



SASKATCHEWAN

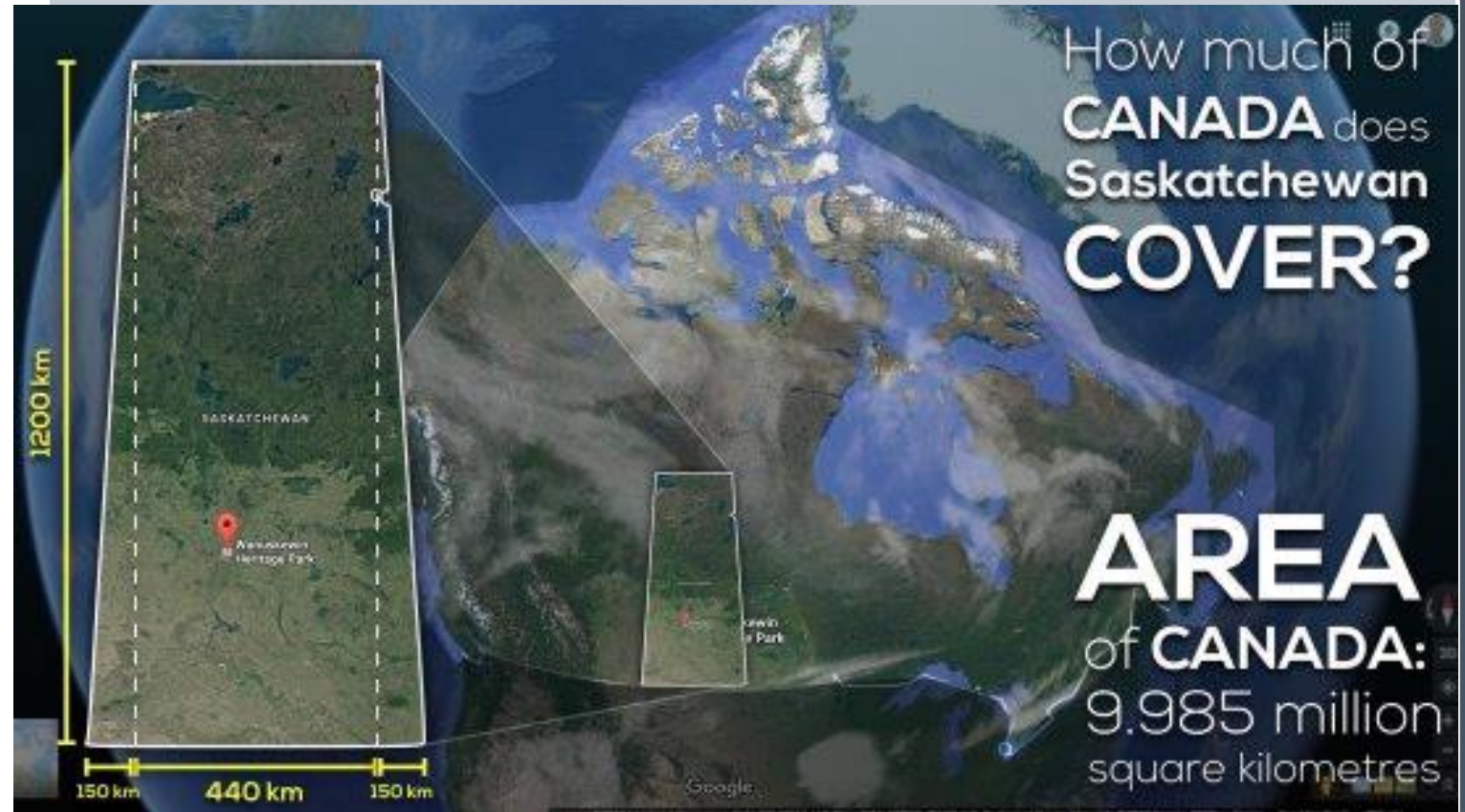
What is the area of Saskatchewan?

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?

Population Inside a Area Search Map



Enter a location

Map

YUKON TERRITORY NORTHWEST TERRITORIES NUNAVUT Northwest Passages Hudson Bay

Canada

ALBERTA BRITISH COLUMBIA SASKATCHEWAN MANITOBA ONTARIO

Google

Map data ©2017 Google, INEGI Terms of Use

DOWNLOAD

3 steps to Fast Maps & Directions

1. Click Download
2. Free Access - No Sign Up!
3. Get Free Directions & Maps

onlinemapfinder.com

Output

The estimated population in the defined area is 4,305

Options

Find Population Full Screen Zoom To Fit Reset Map

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?

<p>① </p> <p>Seul drapeau qui n'a pas de rouge ou jaune Seul drapeau qui est divisé en quarts Seul drapeau qui a juste 2 couleurs Il a 4 rectangles bleus</p>	<p>② </p> <p>Seul qui a une structure Seul drapeau qui a une étoile Nunavut est le seul territoire Seul drapeau qui n'a pas un fleur N'a pas un mini drapeau dedans</p>
<p>③ </p> <p>Le seul qui n'a pas un croix Le seul drapeau qui n'a pas de bleu Le seul qui a un animal</p>	<p>④ </p> <p>Ce n'est pas divisé également Seul drapeau qui a deux autres drapeaux C'est le seul drapeau qui a plus de croix Il a 8 triangles bleus Seul avec les triangles</p>

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 **tiles** are there in this **mosaic**?
Update Your **PREDICTION**



HOW MANY PEOPLE?

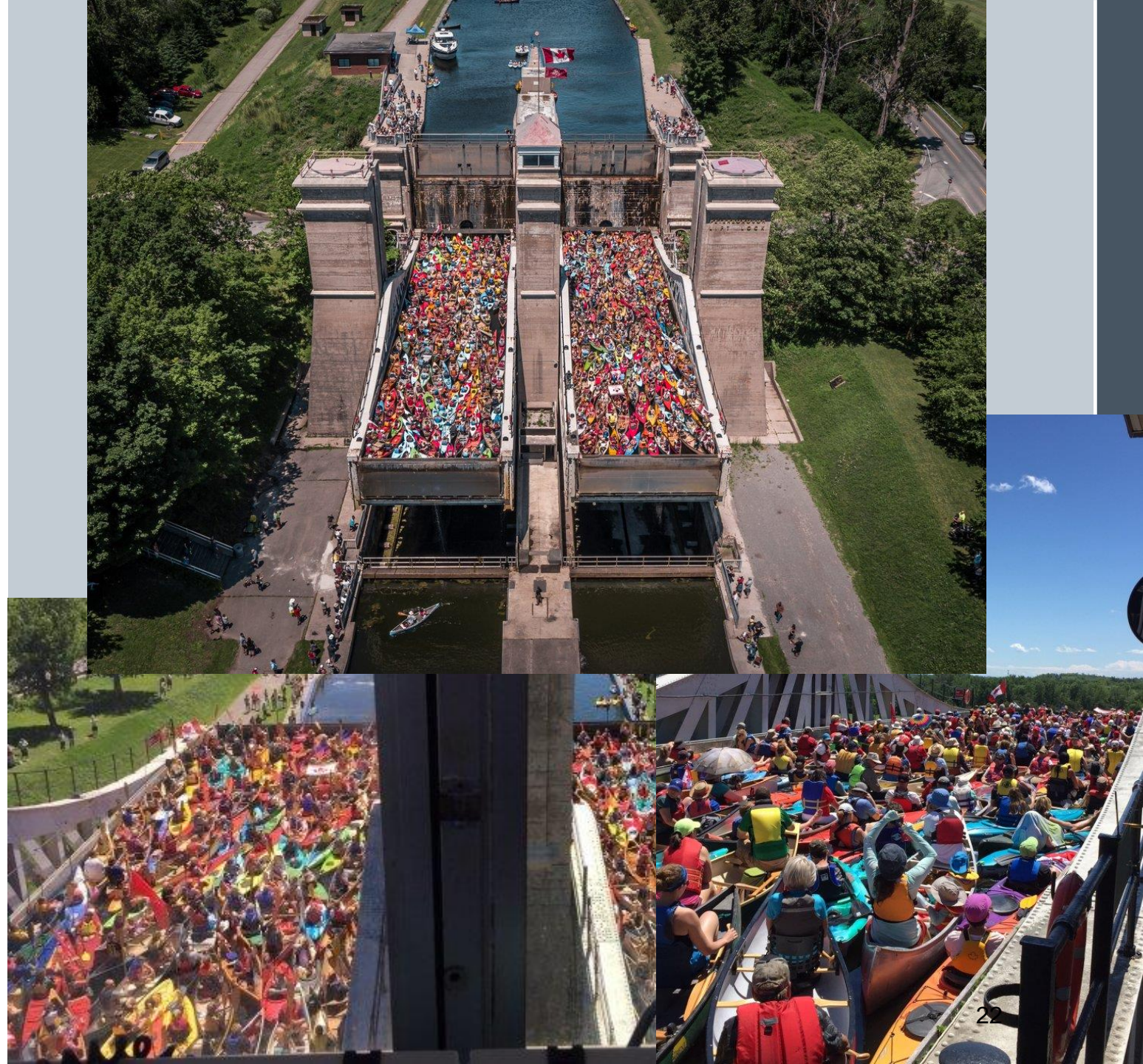
Today, we're throwing a **Canada150 Math Party!** There are enough cups for each person to take one home.

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?



WHOLE SCHOOL MATHEMATICS LEARNING

In order to reinforce in students and educators a productive disposition toward mathematics, Dr. David Suzuki PS mathematics leadership team came up with the idea of a Canada 150 challenge for the whole school board.

Thanks to the GECDSB's Math Strategy Team, this idea spread across Canada.

Throughout June, the whole-school activities at Dr. David Suzuki were constructed around the theme of Canada 150 and designed to engage and inspire mathematical thinking.

- › **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?

This is what the mathematics leadership team at Dr. David Suzuki PS found:

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'.

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.”
[\(GECD SB MTF Report, p. 8\)](#)
- › Our working model of **mathematics leadership**:



Acknowledgements

- › This mathematics activity was initiated by the staff of Dr. David Suzuki PS in Windsor, as part of their mathematics leadership project.
- › Most challenge tasks for **Canada 150** were developed by Kyle Pearce and Heidi Horn-Olivito from GECDSB, and enriched by many contributions across Canada.
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