

It all Began with a Quill Box



- Dr. Lisa Lunney Borden
- John Jerome Paul Chair for Equity in Mathematics Education
 - St. Francis Xavier University
 - Bridges 2023, Kijipuktuk (Halifax)

Beginning in a good way...

- Mekite'temek Wskijinuk, Maqamikew, Wksitqamuk, Msit Nokmaq
- Let us honour the people, the land, the earth, all my relations
- Whose territory do you live on? What do you know about the history of the treaties that made this possible?



National Council of American Indians
Mikmaq Language Program

MI'KMA'KI

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Tami Wejien...

- What do we know about the ongoing story of the lands we live on?



A disclaimer...

In this talk I will share my own stories of coming to know and transforming my pedagogical practice to align with the ways of knowing, being and doing of my students

I am NOT an expert on Indigenous knowledges; I speak as a Settler who is journeying alongside Indigenous Peoples and communities to unlearn colonialism

Mi'kmaw Kina'matnewey





My students, my teachers...
Always a learner



Framing

- Netukulimk
- <https://youtu.be/NmBmcJwYzXk>
- Tepiaq

Dianne's Quill Boxes

- The late Dianne Toney was a Mi'kmaw elder who made quill boxes like the one in the picture. She always made them by starting with a circle of bark for the top on which she made her pattern. She would always start at the centre of the circle to make her pattern. After that she would make the ring for the top from strips of wood. To ensure the ring was the right size, Dianne said she would measure three times across and add a thumb. She claimed this would make a perfect ring every time.
- Does this always work?
- <https://teacher.desmos.com/activitybuilder/custom/563159e8adf49b1e06d63c4a>





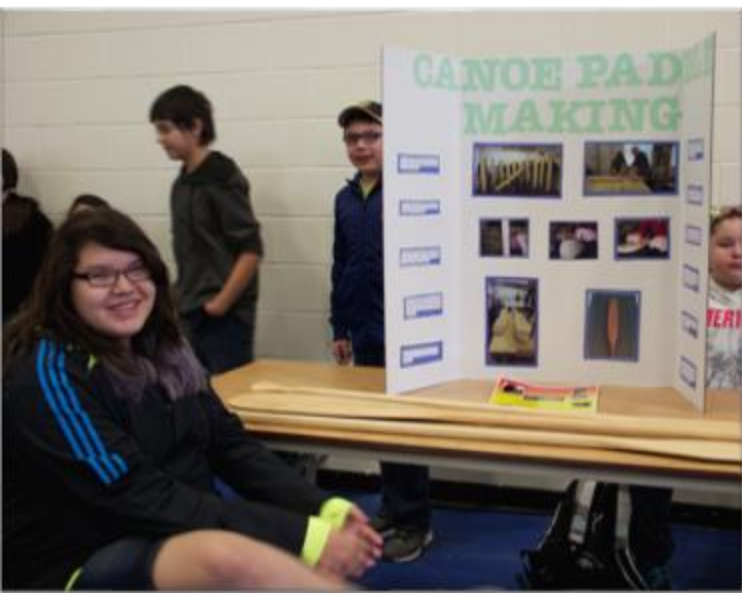
Let's try it!



Show Me Your Math!

- Began in **2007**
- Inviting Children to be the mathematics researchers
- Where is the math in your community?
- Local Math Fairs
- Annual Regional Math Fair





Waltzes



MAKING A
CANOE
PADDLE... "IT
MADE ME FEEL
REAL MI'KMAQ
MAKING MY
OWN PADDLE."



Paddle Making with
Grade 8s

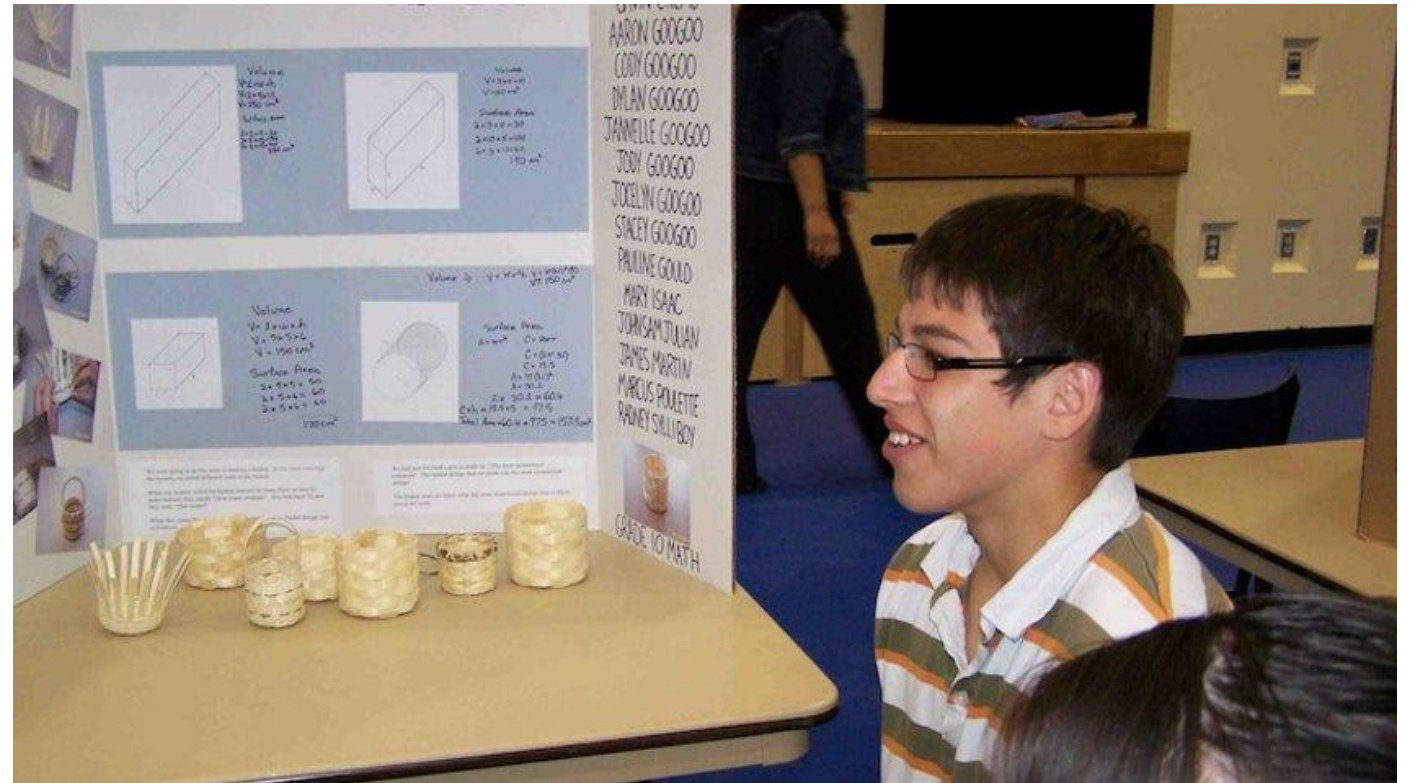
Reconciliation

Goal is to “restore what must be restored, repair what must be repaired, and return what must be returned” (Truth and Reconciliation Commission of Canada, 2015, p. 6).



Space is for Survival; Number is for Play!

- Complexity of Number in Mi'kmaw language
- Tepiaq – Enough
- What do we value in mathematics teaching and learning? Why are the goals of mathematics learning?



Making Basket Strips

- <http://wisqoq.ca/>



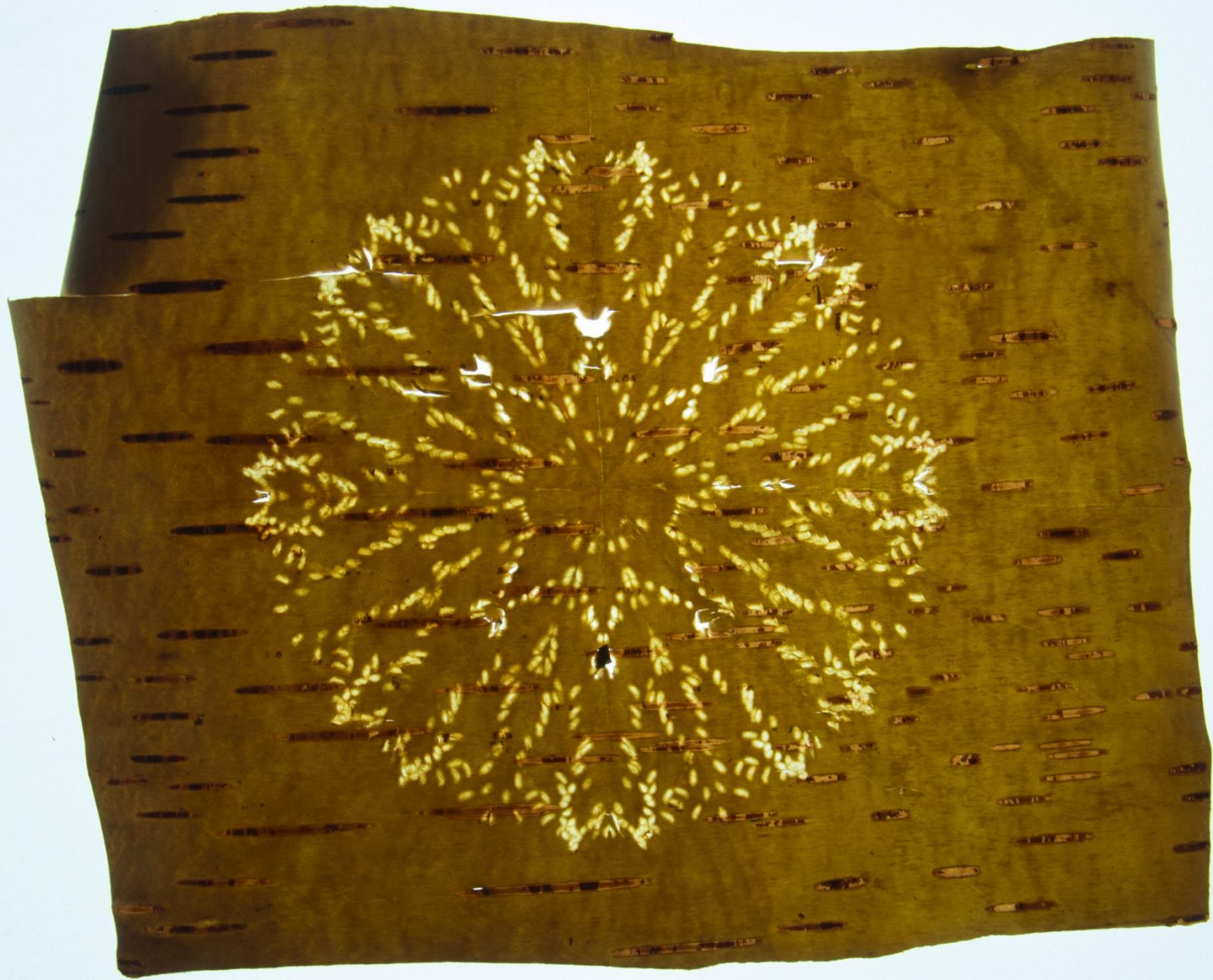
“I’m the last one who
can do this...”

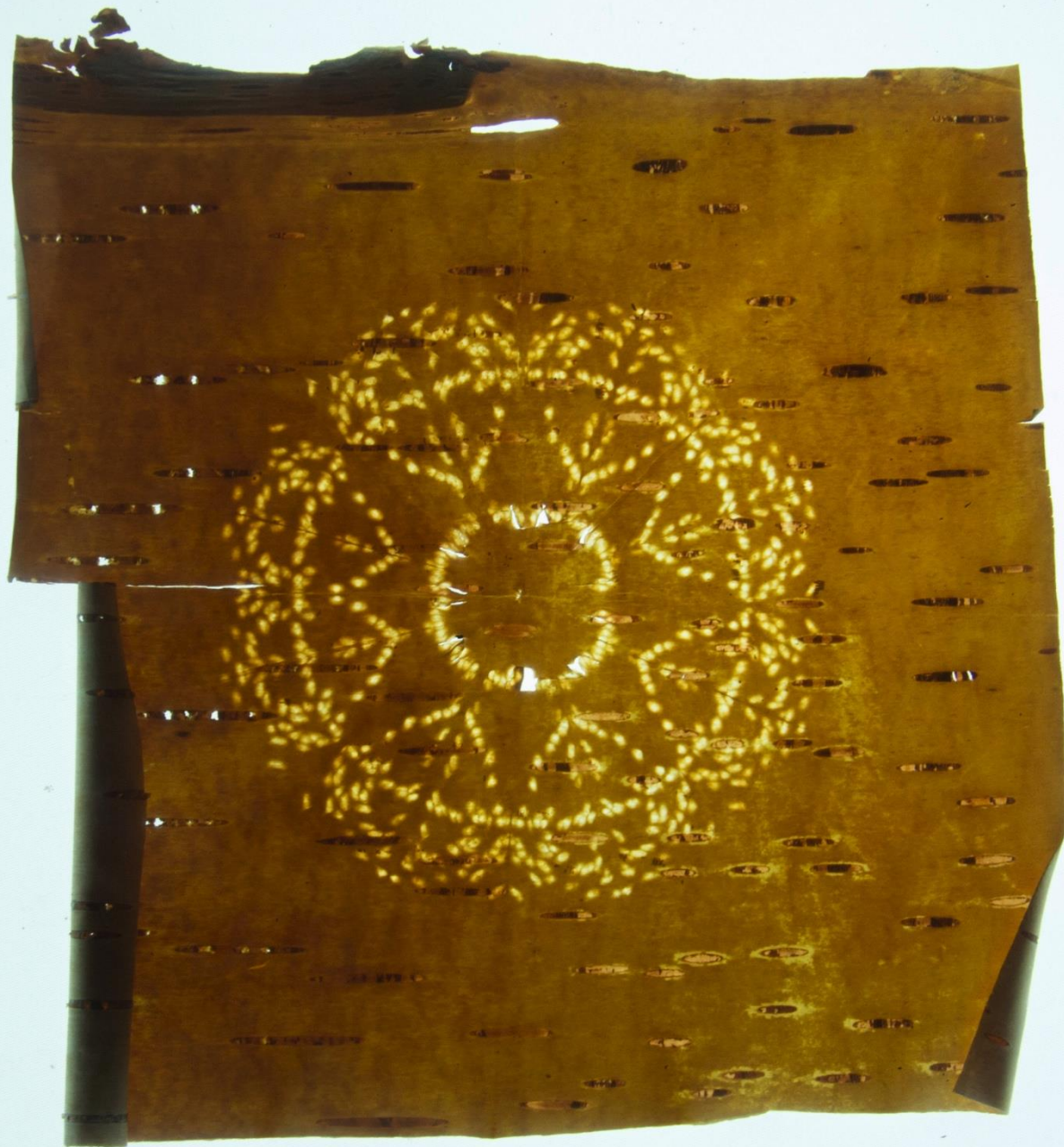
- Dr. Margaret “Granny” Johnson & Caroline Gould
- Birch Bark Biters
- Picture from:
<http://www.danielnpaul.com/MargaretGrannyJohnson.html>

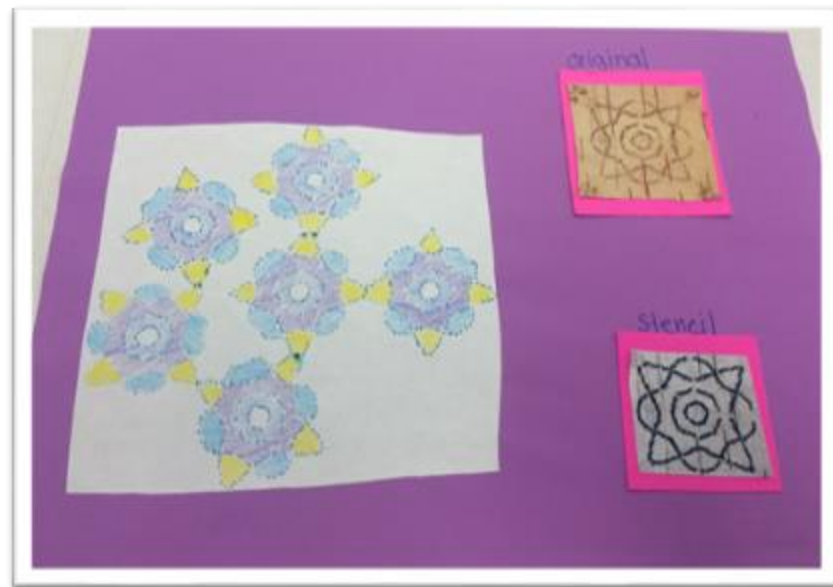
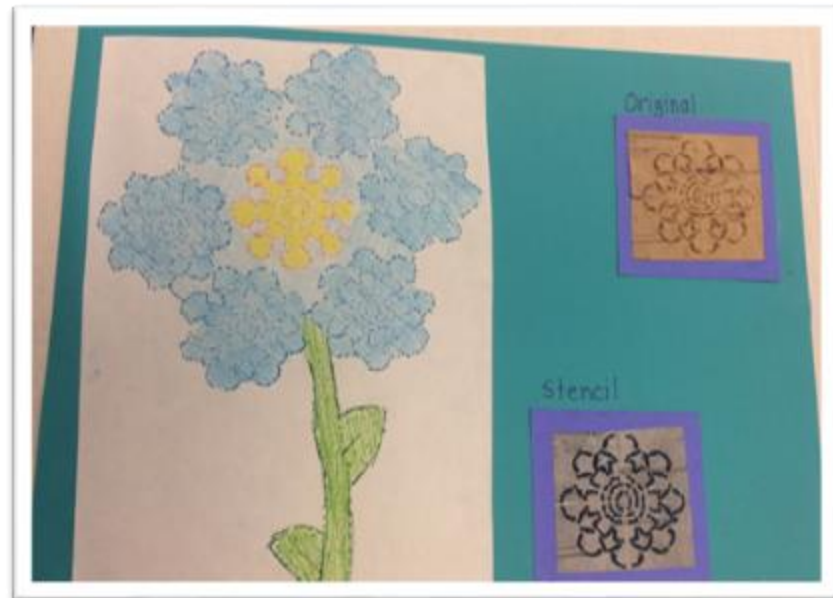
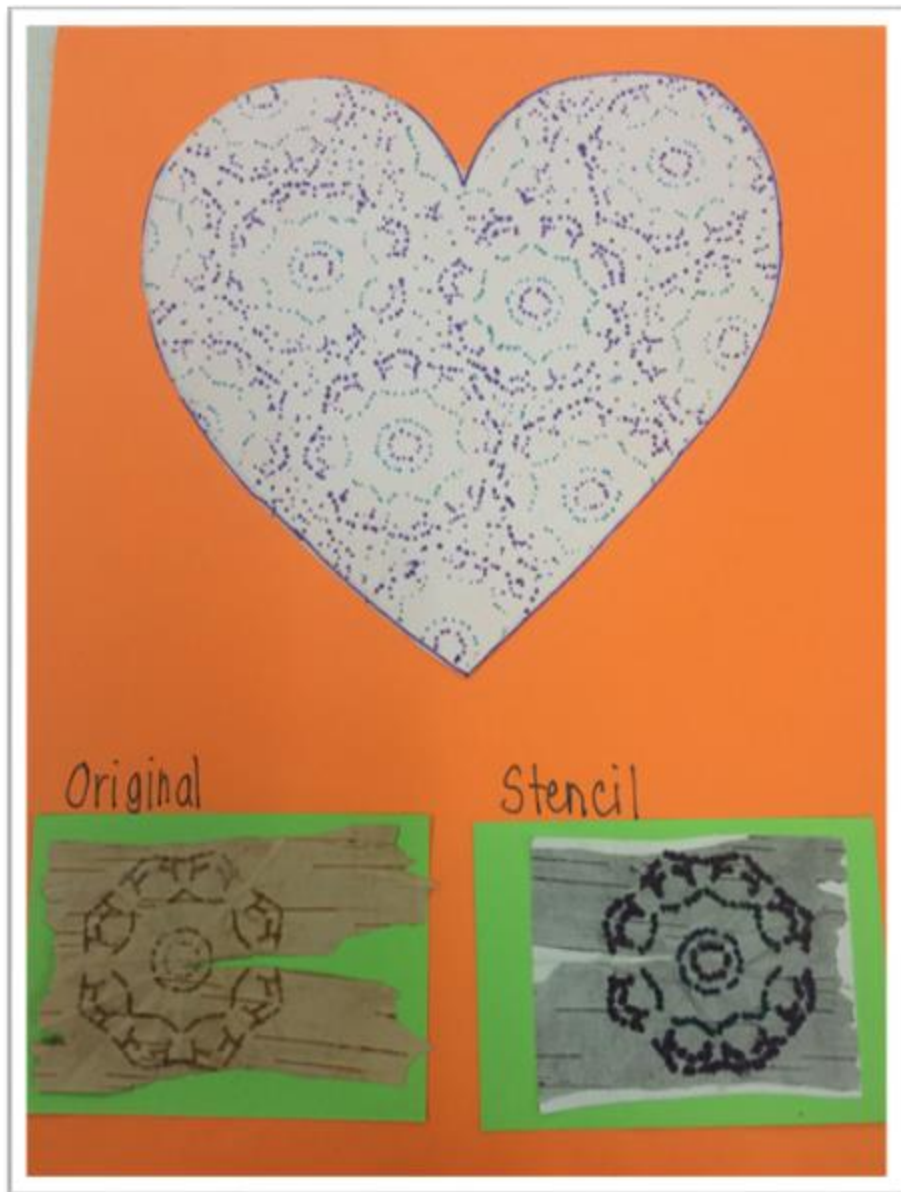












Cash Back

Yellowhead Institute Red Paper

2021

Cash Back is about the value of Indigenous lands. It picks up from *Land Back*, the first Red Paper by the Yellowhead Institute about the project of land reclamation, *Cash Back* looks at how the dispossession of Indigenous lands has destroyed Indigenous economic livelihoods.

Cash Back is about restitution from the perspective of Indigenous wealth.

DOWNLOAD THE REPORT HERE



Making Math Matter

- Combining good rich mathematics with intentional identity work
- How can math help us to understand complex issues?
- Mathematics has been used as a tool of oppression and it needs to be used as a tool to challenge oppression
- More on this Tuesday...

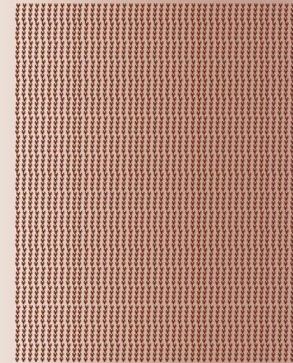
It is the scale of the Sipekne'katik fishery

Look at kind of what the commercial effort is normally in that area - hundreds of thousands of traps, the 250 traps going in right now negligible impact on the stock and I don't think it's a conservation concern at this scale" - Dr. Megan Bailey, Dalhousie University

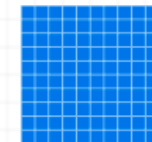
Non-Indigenous commercial fishery
390,000 traps²

Sipekne'katik fishery
150 traps¹

Each lobster = 100 traps



The 10 by 10 grid represents the population of Canada and the squares of the grid represent the wealth distribution in Canada (1 square = 1% of the total wealth), place the squares on the grid that you believe to be the wealth distribution in Canada.



When you have a grid that your group believes is accurate, take a screenshot and paste it in a document.

See what the data says. The first link will take you to a report by the parliamentary budget officer on the Government of Canada site with similar information. Use this information to adjust your grid if needed. If you have a grid that reflects the information in the report, add a screenshot to your document.

Relationships first!

- What are your relationships in your own territories?
- Who are your Elders and Knowledge Keepers?
- How do you nourish these relationships through respect, reciprocity, responsibility, and reverence?
- How do you honour the knowledges that are and have always been rooted in your territory?





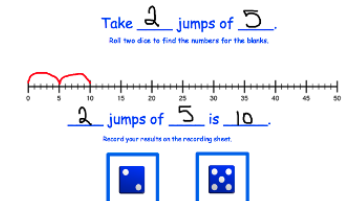
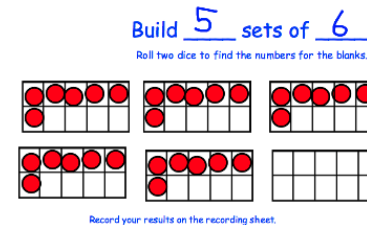
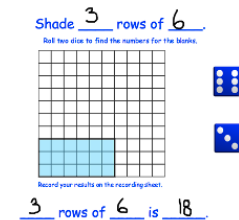
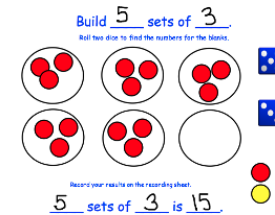
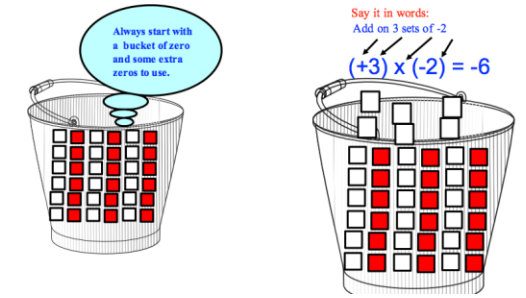
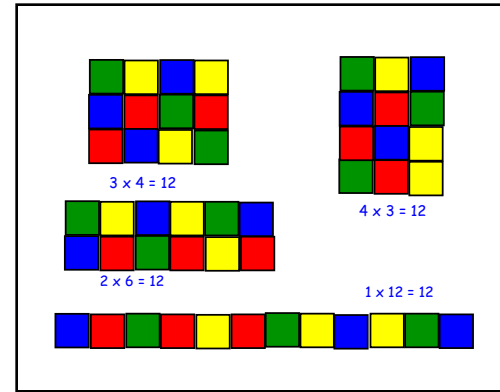
Emergent from Place

Our intent in teaching and learning is not to begin with STEM expectations or outcomes but rather to begin in a place we knew had the potential to teach. Though we cannot guarantee that STEM will emerge, we know the potential is in place. In each of our stories, the activities opened up spaces from which explorations, questions, and conversations could emerge and live for a while. When these spaces open up, what we find is important is taking the time to be with what they teach, to pay keen attention to the possibilities for teaching and learning. In this way, we see STEM as an artifact of teaching and learning, not a framework imposed upon it. (Lunney Borden & Wiseman, 2016, p. 150)

What stories, practices, traditions, places, hold promise for mathematics to emerge?

But perhaps not enough...

- Moving Achievement Together Holistically (MATH) focuses on exploring intersections of Indigenous languages and values with pedagogical approaches to teaching mathematics
- Focus on verbing mathematics and spatial reasoning
- Aligning pedagogy with L'nui'ta'simk (Ways of knowing, being, and doing)
- But that's a topic for another day...





Questions?

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Showmeyourmath.ca