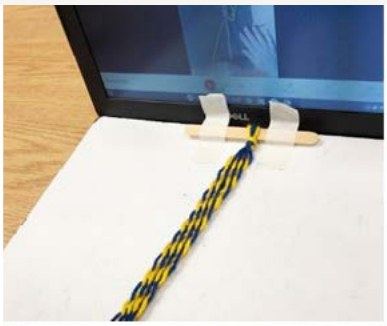
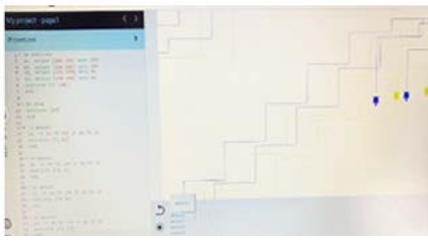
Indigenous Knowledge and Code

Upper Grand Team Members: Anna Dolson, Mary Leach, and Bonnie Sears

Métis Community Partners: Leslie Ann Muma and Jennifer Parkinson

School District: Upper Grand DSB





What We Did

Inspired by the work of Dr. Ruth Beatty (Prof. Lakehead University) and Colinda Clyne (First Nations, Métis and Inuit Lead UGDSB) our Willow Road school team partnered with local community partners, Leslie Muma (Senator) and Jennifer Parkinson (President) of the Grand River Métis Council. We began our work exploring the ethnomathematics in traditional finger weaving and later used LYNX to help students analyze the structure of the weave, communicate this structure through code and then used the code to create new and unique weaving designs.

Due to COVID restrictions, our team had to shift our project vision to embrace a more remote learning experience with our Métis partners. Through the use of Google Meets and document cameras we busted through roadblocks to bring this learning to our classroom.

Project roll out:

1. Co-Learning/ Co-Planning: Early in October, our school team participated in an online learning session with Leslie Muma and Jennifer Parkinson to learn about the Métis sash and the art and culture of finger weaving. We engaged in creating the 3-dimensional design and then spent some time learning to code using the LYNX platform. Finally, we committed to a plan to co-teach alongside our community partners to engage 25 grade 8 students in this important learning.
2. Co-Teaching: Our in-class component involved approximately 4 sessions of pre-learning with LYNX. Using the web based resources, our team engaged students in innovating in a variety of ways to build knowledge, comfort and familiarity with the program. Our grade 8 students then had the opportunity to learn from Leslie and Jennifer multiple times with remote sessions such as Métis 101 (learning about the sash) and Learning to Finger Weave with two colours. Following this learning, students then applied their knowledge of LYNX to digitally represent the process of weaving and unpack the inherent mathematics. We had planned a January session with our partners where students would then learn to finger weave with three colours followed by more coding representations, but COVID restrictions prevented that from occurring as we had to pivot to remote learning.
3. Co-Reflecting/ Co-analyzing: Due to our remote teaching in January/February our team was robbed of the opportunity to reflect deeply on our process as a group. Our project was cut short and it was over before we wanted to be done. We all reflected as individuals, but I feel that COVID restrictions impacted our ability to release our minds from the stress of managing to really appreciate the opportunity we were given with this funding. It is never too late, and sometime in the near future I hope we get the chance as a team to reflect on our journey and analyze the data collected about the connections between the activity, coding, math thinking and math instruction.

What We Learned

Willow Road PS has one of the highest Indigenous populations in the Guelph area. We invited all self-identified grade 8 students into this project. We learned that when students see themselves (culture and identity) represented in the classroom space it can make a difference in their self-esteem and academic engagement.

Reflecting on our Success Criteria:

- Our students and teaching team have built lasting relationships with our Indigenous community members
- Our students and teaching team can finger weave
- Our students and teaching team can use LYNX coding to replicate, design and analyze an Indigenous art piece
- Our students and teaching team have created an artifact (finger weaving) and can speak to the mathematics inherent in its design

How We Shared Our Learning With Others

- Twitter
- Sharing within our school
- Presenting our work at the final reflection session in March with OTF

Links to Our Work

Coding Métis Finger Weaving

UGDSB Blogs about Willow Road Projects