

Make a snow structure- Quinzhee style

What if we could see snow as a strong and durable winter material?

Setup

In the philosophy of outdoor learning, interest is often captured by storytelling. Go outside, explore spaces, write or draw possibilities in your nature journal, read a story about snow and start exploring the possibilities with students. Make sure the location where you choose to build your structures does not impede traffic or wildlife.

Content

Here is an example of a design thinking process for the creation of snow structures. At each step, ask your students these questions and build the path with them.

Call to make

Winter can seem long when you don't see the potential it can bring. What do you need in winter to play or learn outside? What would you build? What if we could create a strong snow structure?

Empathy

Every time we make something, we use materials that belong to nature or that have been manufactured in a factory. What materials can we use that are less harmful to the environment? Some First Nations constructed temporary Quinzees by piling snow into a large mound, allowing it to set and then scooping out a chamber big enough for one or several people. These structures provided insulation against extreme outdoor temperatures.” information from the educational resource The Learning Circle.

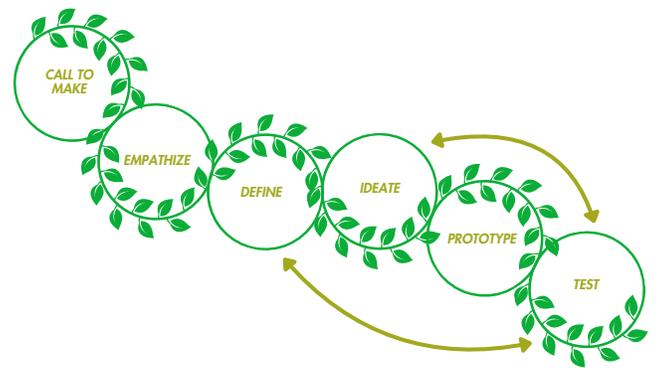


Skills

- Make a structure out of snow
- Collaboration

Materials

- Snow
- Shovel





Define

How much snow does your city receive each year? What could you do with all this free material? What are the characteristics of snow that make it a construction material to prioritize in cold weather?

Ideate

Where did you ever see snow structures? What do they look like? What do they have in common? Why do people make snow structures?



Prototype

What characteristics are essential to ensure a solid and safe structure? Is snow sufficient or do you have to use other materials? Which ones? Where will you build your structure? How much space do you need? How does the temperature affect your structure? How will you keep track of the temperature to keep your structure safe? If you are building a Quinzhee, don't forget to allow 30 cm of snow depth (it shrinks a space when you forget)



Test

Once your structure is complete, how can you customize it? How can you solidify it?

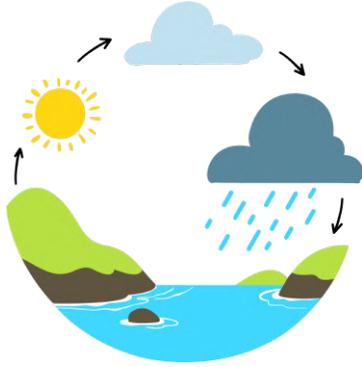
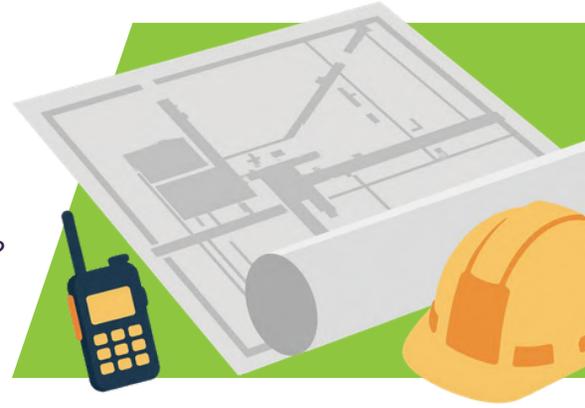
As you use your structure this winter, how can you improve it? Use your journal to track the temperature. How are you going to use the new snow?



Teachable Moments

Math

How much space do you need for your project? In your exploration journal, make a scale plan of your construction project. What tools will you use to measure the space required?



Science

What states of matter can you observe with snow? What is the water cycle? Make a diagram in your winter exploration journal? How can different forces be applied to your structure? How simple machines could help you in your construction project? How will temperature affect the efficiency of your structure? Record your weather observations in your exploration journal.



Visual Arts

Transform your Quinzhee into a unique and artistic structure, what will you add?

Language Arts

Edit a video or instruction manual to explain the steps involved in building your snow structure. First Nations people used to get together to read stories in the Winter. What tales, legends or stories would you like to share with your friends? Since all good things must come to an end, how are you going to make sure no one uses your structure if it is no longer safe?

Music

How do you perceive sounds differently inside your snow structure? Why do you perceive sounds differently?



Physical Education

For any large-scale project, such as a Quinzhee, make sure you have the collaboration of friends or family members. It's a sport!

Social Studies

Research the use of snow by First Nations and life in winter. What discoveries can you share with your friends and family? Share your discoveries with your friends and family.

Health

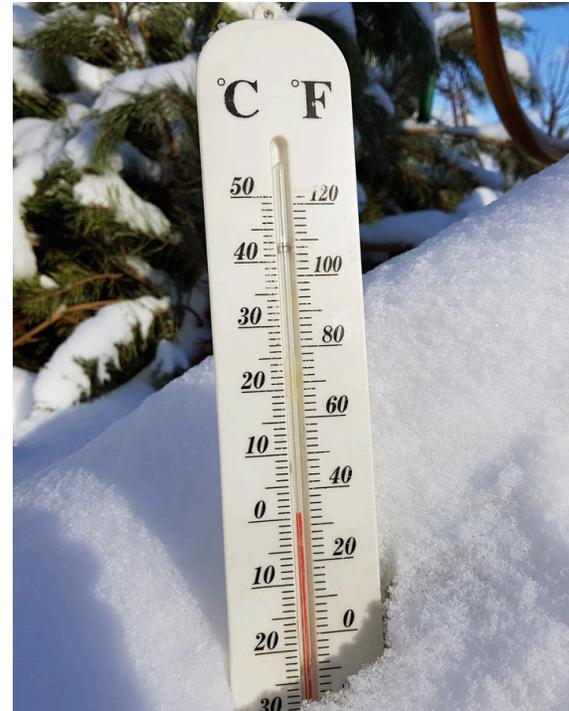
Did you know that in Scandinavian countries (Northern Europe) where the climate is similar to Canada, children, even babies, often sleep outside? Would you like to sleep outside this winter? Why would you like to do so? Write an article explaining your decision.

Technology, Education, and Engineering

What are the elements, components of your structure that ensure its solidity and stability? Knowing that snow is a good insulator, compare the temperature inside and outside using a microbit.

Take it Further

Who is in charge of clearing the snow from the streets near your home? Where does all that snow go? What other things are in the snow that has piled up? When the weather warms up in the spring and the snow melts, what are the risks associated with dirty snow? Put on your science goggles and make sure the snow is disposed of in an environmentally safe way in your neighbourhood. Don't be afraid to propose solutions to the leaders, they try to implement the best solutions but details can escape them... Your community needs your expertise.



Glossary

Structure

A structure is a system that allows the transfer of the various forces applied to the building to the ground where they are balanced. It ensures that the construction is dimensionally stable and therefore solid and stable. (Wikipedia)

Quinzee (Laval University definition)

The etymology of the word quinzhee allows us to represent the Amerindian origin of the shelter. Indeed, the word, which comes from the Slavic dialect, is pronounced "kǒžhii" and means "bed or in the shelter". It is not a Slavic language of Eastern Europe, but rather, one of the Amerindian nations that belonged to the Athapaskan linguistic group living in North America. The people of the Northwest Territories were trappers and hunters. One can imagine that the quinzhee served as a temporary snow shelter during their numerous travels and that this technique is among the essential survival skills that the Amerindians transmitted to the coureurs des bois and settlers of North America, to be perpetuated in the 21st century to us in a playful context.

Resources

How to safely build a Quinzhee?

Tutorial video



https://www.youtube.com/watch?v=Dp71Ps6_df0

Winter Shelter

How warm can it get

Natural Maker Exploration Journal

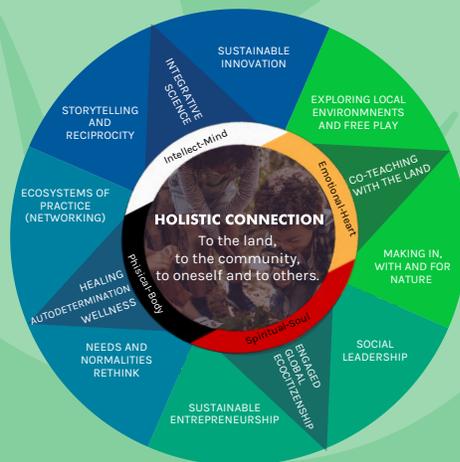
On page 10, there is a great activity about shelter building.



Learning continuum: Sustainable Innovation Through Holistic Connection

Based on three emerging pedagogies* and in recognition of indigenous knowledge, the natural maker educational continuum aims to support the learner through a holistic journey of connection to the earth, the community, oneself and others, in order to evolve globally towards a more open, humble, democratic and decolonized way of thinking, learning and living.

* wild pedagogies, conscious pedagogies and decolonization of education



#EarthDayInNature

#ActForEarth #ClimateAction

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