

Pictou County Forest School - Grade 3 Lesson Plans

Physical Science: Structures

Activity: Bridge Builders (suggested time: 120 minutes)

Overall Curriculum Outcome: Learners will construct a structure in response to a design challenge.

Specific Curriculum connections:

- Structural materials and their properties
 - How does the choice of materials affect the properties of the structure?
- Structural shapes and their strength and stability
 - How do the shapes used in construction affect the properties of the structure?
- Ways to join materials
 - How does the way of joining materials in construction affect the properties of the structure?
- Structure design
 - How can I solve a design challenge? ▪ How can I tell if the structure I constructed met the design challenge?

Materials:

- rope

Intro/Activation:

Scenario: The Grade threes from _____ Elementary School have just completed a long, arduous, exhausting, life-changing hike around PCFS and they are now HUNGRY!! Luckily, Scott has been busy making pancakes over the fire pit at Base Camp for his hungry trekkers. But there's a problem! The bridge over the brook has been washed away!!!

The Task:

1. We smell pancakes.
2. The bridge is out.
3. We have a length of rope.
4. We must build a bridge.

Steps:

- In groups, students are tasked with building a bridge with found natural materials that is strong enough to hold the weight of their classmates.
- Once bridges are complete, groups are instructed to test out another group's bridge and report back to with possible suggestions¹:
 - Does the bridge carry weight?
 - Does it keep travelers dry?

¹ This instructional move seeks to engage students in the following Learning Skills: Construct - Identify a purpose; brainstorm ideas; identify a plan; gather and select information to support plan; build a model; test and revise, modify as necessary; reflect on the results Investigate Ask questions; locate several details to support an answer; organize and compare details; communicate findings. Evaluate Review steps and results from an investigation or problem solving. Reflect on and communicate alternative solutions or findings. Begin to identify potential new problems or issues.

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- Is the bridge safe?
- Adults are present to offer safety supports where necessary (e.g., lifting, sawing, cutting, chopping) as well as offering on-the-fly skill building as well (e.g., knots, lashing).

Now let's eat some pancakes. 😊

The bridge building activity is seasonal and weather dependent as sometimes the brook is running too high and fast and/or there is concern about getting wet etc. Other options could include:

- Build the highest tower with found objects
- Scott's favourite toque is stuck in a tree at base camp: design a tower/hook to free his toque
- Survival shelters

Another option would be to build bridges in the AM and choose one of the above options for PM.