

Pictou County Forest School - Grade 7 Post-Lesson Plans
Engineering Structures

Activity: Popsicle stick bridges

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:

- 100 popsicle sticks per group
- White glue
- Paper clips to help hold joints together

Activity: 100 stick popsicle bridges

This activity takes 3-5 days to complete: research; building; allowing time for glue to set; testing the bridges etc.

Students are divided into pairs/small groups and given the following prompts and materials:

- Each group gets 100 popsicle sticks.
- Each group must build a bridge to span a 30cm gap between two desks
- The bridge that can hold the most textbooks wins!

Instructional moves:

Think back to your visit to PCFS.

- What design elements worked well?
- How did experimentation and risk taking play a role in building a successful bridge?
- How did teamwork and communication play a role in building a successful bridge?

Pre-lessons on the merits of various shapes and bridge designs can be done, focussing on the truss-bridge design.

Take your class on a structure hunt around your school: triangle truss supports in the gym ceiling; triangle brackets on the coat racks; basketball supports in the gym...