



**25th Annual Popsicle Stick Bridge Contest
Kingston Chapter, Professional Engineers of Ontario**

**10:00 am Saturday, May 3rd, 2025
Cataragui Centre – 945 Gardiners Road
Upper Level, Outside of Starbucks**

For more information or a free kit, please contact the PEO Kingston Chapter at peobridgecomp@outlook.com.

**WE SUPPLY THE POPSICLE STICKS & GLUE
BRIDGES MUST BE CONSTRUCTED PRIOR TO THE CONTEST**

Goal: The goal of the contest is to construct the strongest bridge possible using only 100 Popsicle sticks and glue. The bridge must span a gap of 500 mm and any structure below the bridge surface must clear the supports (see sketch on next page). A Matchbox type car must be able to traverse the bridge on a construction paper deck. Subject to the detailed specifications and contest rules provided below, the design of the bridge is left up to the contestant. The sketch on the next page is intended to show the acceptable ranges for your bridge dimensions. Your bridge does not have to look like this. There are far more effective structures which you might find by browsing the internet.

A. Categories and Teams:

1. The Elementary Category is intended for students in Grades 3 to 8, while the Open Category is intended for high school students, university, adults, or mixed teams of Open and Elementary entrants. Elementary Entrants may receive an Open award in place of an Elementary award should the result warrant.
2. If some contestants choose to enter as a team and any member of the team is not eligible for the Elementary Category, that team will be placed in the Open Category.
3. All members of a team should be signed up when the bridge kits are picked up and must be signed up at final registration. Participation certificates may not be issued to team members not signed up.

B. Rules for Constructing Your Bridge:

1. Upon registration, each contestant will receive a kit consisting of about 250 Popsicle sticks, a small bottle of glue and a sheet of construction paper.
2. The bridge must be constructed using a maximum of 100 Popsicle sticks and only the glue provided in the kit. A bridge using more than 100 Popsicle sticks, or some other type of glue, will not be eligible for awards but will still be tested.
3. Sticks must be left whole and must not be painted or coated with glue. Maximum weight of a bridge should be 150 grams.
4. The bridge must span a 500 mm gap between the supports and have a minimum length of 550 mm to sit on the supports. The lower portion of the bridge should have a maximum length of 475 mm to fit between the supports. The bridge can only make contact with the top surface of the supports. See **Fig 1**.
5. The bridge must have a deck so that a Matchbox type car can be rolled across the bridge. The construction paper provided in the kit is to be used as the bridge deck. The deck must be no less than 4 cm in width. The bridge itself must no more than 7.5 cm in width. See **Fig 2**.
6. Bridge must allow for a harness to be placed at its centre at deck level, in the location shown in **Fig. 3**. There must be a 2 cm gap at deck level at the centre of the bridge to accommodate the harness.
7. Bridges will be weighed and inspected. Any not meeting the rules above will not be eligible for awards.

C. Testing the Bridges:

1. Bridges will be weighed before being loaded, and the car will be run over the deck.
2. Bridges will be loaded with a harness placed at or near the centre of the bridge at deck level.
3. The winner will be the bridge that held the largest load prior to failure. In a tie, the lighter bridge will win.
4. All bridges will be broken during testing!

D. More Rules and Building Hints:

Read these rules carefully: if you have **any questions**, please contact the organizers.

1. Your kit contains the following materials: a) approximately 250 popsicle sticks, b) 1 bottle of glue and c) 2 sheets of construction paper. Only the materials in the Bridge Kit can be used.
2. The bridge may have a **maximum of 100 Popsicle sticks**. You will be given about 250 Popsicle sticks in the kit to allow you to sort out and discard any defective sticks. **Do not try to use them all.** You may even have enough sticks to build a trial bridge. We suggest that you inspect your sticks carefully, and discard any defective sticks (bent, cracked, knots).
3. Popsicle sticks must remain whole, and may not be altered. This means that the sticks must not be cut, painted, covered with glue, drilled, notched, trimmed, shaved, etc. When sticks are glued together, the overlapping glued surfaces can be no more than 3 cm (i.e. quarter the length of stick). This limits the degree of "lamination".
4. Don't use too few sticks, because every one may make a difference in the strength of your bridge. Count the number of sticks in your bridge carefully.
5. Cut the construction paper to fit the deck of your bridge. The paper should lie flat with no folds.
6. Start building your bridge early, so you can build it in steps and let it fully dry. Glue will take a day or so to reach its full strength.
7. To improve the glue bond as the glue sets, try clamping any joints with spring paper clips or small clamps, or by placing a book or some other weight on the joints.

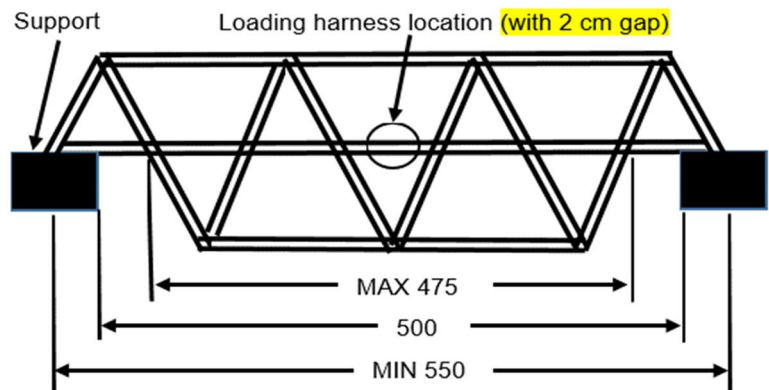


Fig. 1. Allowable dimensions, side view.

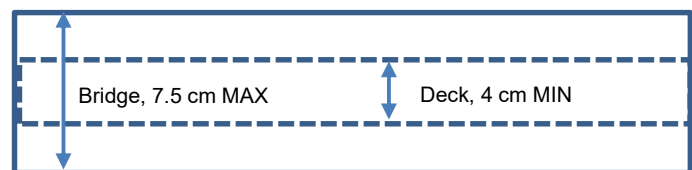


Fig. 2. Allowable dimensions, top view

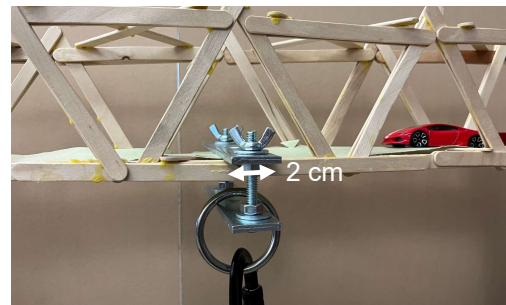


Fig.3. Details of the harness



Fig. 4. PEO Kingston bridge tester.