

Lollipop Stick Bridge Challenge

A free STEM building challenge · Educational

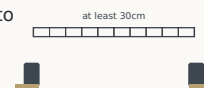
Ahead of summer you can begin saving leftover lollipop sticks so they can be repurposed for this bridge-building challenge. This is a brilliant rainy-afternoon or holiday-club activity that mixes creativity with a bit of hands-on engineering — and it's just as fun to test the bridges to breaking point as it is to build them.

The rules

- Each child or team gets **50 lollipop sticks** — no more, no less.
- **Unlimited PVA glue** may be used to join the sticks together.
- The finished bridge must **span a gap of at least 30cm** between two supports (two books, boxes, or chairs work well).
- Allow the glue to dry fully — ideally overnight — before testing.

Measuring the span

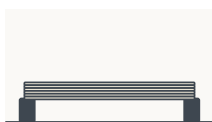
Set up two supports of equal height with a gap of at least 30cm between them — a tape measure or ruler helps here. Your bridge needs to rest on both supports without any extra props in the middle.



Ways to structure your bridge

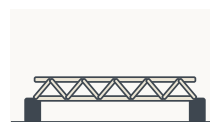
There's no single right answer — here are four different approaches to get you started. Real bridge engineers use all of these shapes for good reasons!

A. Simple beam



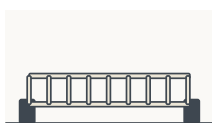
A bundle of sticks glued flat, side by side, spanning the gap directly. Quick to build, but usually the weakest option on its own.

B. Truss bridge



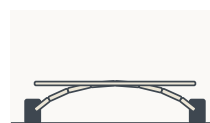
Two rails connected by a zigzag of diagonal struts, forming triangles. Triangles don't easily change shape under load, so this is usually much stronger than a simple beam.

C. Box beam



Sticks glued into a rectangular tube shape. The enclosed box shape resists twisting and bending well for the amount of material used.

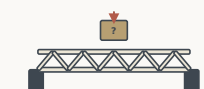
D. Arch bridge



A curved arch built from short stick segments, with a flat deck glued on top. Arches spread weight outward into the supports at each end.

Test it to breaking point

Once the glue has fully dried, rest the bridge across the two supports and gradually add weight to the centre — small weights, coins in a cup, or bags of rice or pasta all work well. Add a little at a time and keep a running note of the total weight. Keep going until the bridge finally gives way, and record how much it held. Which design held the most? Which snapped first, and why do you think that happened?



Safety note: Keep hands, fingers, and toes well clear of the bridge and supports while testing — it can give way suddenly. An adult should supervise the weight test, and safety glasses are a sensible precaution if you're adding weight quickly. Broken sticks can be sharp, so clear away carefully afterwards.