

STEM Challenge: Paper Bridges

Could you pupils build a bridge strong enough to support weight, using nothing but paper?

This quick, low-prep activity works with any year group from Y1 to Y6, and it's a brilliant way to get children thinking like engineers: designing, testing, improving and having fun along the way!

What You'll Need (per group of 3-4)

- Sheets of paper (A4 works best)
- Two supports e.g. pile of books
- Small weights e.g. cubes, counters, coins, stones
- Glue sticks

Set Up

- Place two supports about 15cm apart – could be set up in advance or can require children to measure.
- Give each group 1 sheet of paper.
- Explain the challenge: **Build a bridge to span the gap that can hold as much weight as possible.**

Video

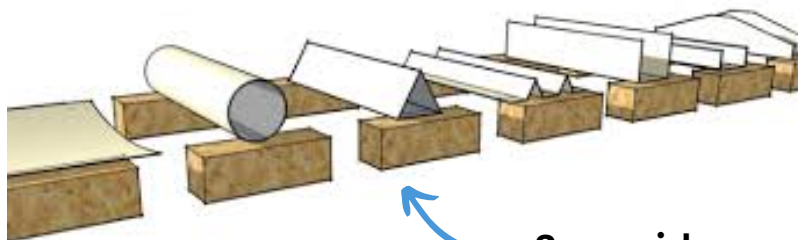
You can run this activity yourself, or you can watch our video explanation and delivery – either as prep or with your children. Watch using the QR code or [this link](#).

The video includes other teaching points and the demo of the paper bridges activity starts from 07:16.



Instructions & Key Questions

- Make this activity as open-ended as you like. The steps below will help for a younger class or to discuss together after initial exploration time.
- Start by placing a single flat sheet of paper across the gap. How many weights will it hold?
- Next try folding, rolling or layering the paper. What changes the strength of the bridge?
- Encourage testing and retesting (giving paper to start again if needed): **What could you change to make it stronger?**



Learning Outcomes & Skills Developed

Through this challenge, children will:

- Think like engineers: testing ideas, spotting problems, and improving designs.
- Develop problem-solving skills: experimenting with different approaches to strengthen their bridge.
- Work collaboratively: sharing ideas, negotiating choices, and testing together.
- Apply maths and science concepts: exploring forces, weight distribution, and the strength of shapes.
- Build resilience: discovering that “failures” are just steps towards a better solution.



Testing a folded bridge

Extend the Activity

- Predictions & Testing: Ask children to predict how many weights each design will hold before testing.
- Design Challenge: Give groups more paper and ask them to design the strongest bridge they can.
- Cross-Curricular Links:
 - Maths – record results in a table or graph.
 - Literacy – write instructions for “How to Build a Strong Bridge.”
 - History/Geography – look at famous bridges around the world.

Like this activity?

This is just one small taste of the kinds of hands-on challenges our Inventioneers run with children every week. If you enjoyed seeing your pupils get creative, and collaborative, while solving problems you might love Inventioneer life too.

👉 Scan the QR code or [click here](#) to book a friendly chat with me and find out more.

Happy engineering!

- Laura

