STEM ENGINEERING CHALLENGE · AGES 7–12

Paper Bridge Challenge

Can one sheet of paper hold a pile of coins?

Think like an engineer!

What you need



3 sheets of paper



2 piles of books

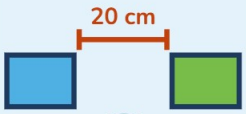


Lots of coins



A ruler

Step by step



1. Make 2 piles of books. Put them 20 cm apart.



2. Bridge A: a flat sheet. Add coins one at a time.



3. Bridge B: fold up both long sides 2 cm. Test again.



4. Bridge C: fold a zigzag, like a fan. Test it.



5. Compare! Which bridge held the most coins?

Why it works

A flat sheet is thin, so it bends easily. Folding makes the paper **deeper**. A deeper shape is much harder to bend, so it can hold more weight. Real bridges use the same idea with steel beams.

Learning outcomes

1. **I can test a design**
   Build, test, improve and test again.
2. **I can compare results**
   Count coins and find the strongest shape.
3. **I can explain**
   Use the words load, beam and structure.

Challenge yourself

- [ ] Can your best bridge hold 20 coins or more?
- [ ] Make the gap 25 cm. Which bridge is still strongest?
- [ ] Invent your own fold. Does it beat the zigzag?

Watch out

- [ ] Coins are small. Keep them away from babies and toddlers.
- [ ] Do not put coins in your mouth.
- [ ] Wash your hands after touching coins.

ENGINEERING CHALLENGE · WORK LOG

Paper Bridge Work Log

Guess first. Then test and record what happened.

Name: _____ Age: _____ Date: _____

1. My goal

What do you want to find out?

2. Materials I used

Tick what you used.

- ☐ Paper
- ☐ Books
- ☐ Coins
- ☐ A ruler
- ☐ Tape
- ☐ Other:

3. My prediction

Which bridge will hold the most coins? Why do you think so?

4. My results

Write a guess first. Then count how many coins each bridge held.

Bridge	Shape	My guess	Coins it held
A	Flat sheet		
B	Folded sides		
C	Zigzag		
My idea			

5. My drawing

Draw your strongest bridge.

6. What I learned

Why was the strongest bridge strong?

7. Next time

What would you change to make it even stronger?

You are an engineer!