

Structures

KS2 Dt · Follows the national curriculum

Name _____ Class _____ Date _____

1. Worked example

Why do bridges and towers often use triangle shapes in their frameworks?

Step 1 · Think about how a triangle resists pushing/pulling forces

A triangle's shape can't change without a side actually breaking or bending

Answer: Triangles are naturally rigid and resist collapsing under force, unlike squares which can wobble into a different shape (like a parallelogram)

Check: This is why you see triangle shapes in cranes, bridges, and roof frames.

2. Now try one with the steps

Why might a tall tower need a wide base rather than being the same width all the way up?

Step 1 · Think about stability and balance

Answer:

3. Practice

Have a go at each one. There is space underneath to work it out.

1. Which shape is stronger against collapsing: a square or a triangle?

2. Why might a tall structure need a wide base?

3. What do we call the strength of a structure to resist being pushed or pulled out of shape?

4. Name a real-world structure that uses lots of triangle shapes.

5. You're building a tall tower out of straws. Explain two design choices that would make it stronger.

6. Why might adding a diagonal strut (brace) across a square frame make it stronger, without changing the overall square shape?

4. Before you hand it in

Assuming a taller, narrower structure is automatically stronger than a shorter, wider one.

Consider both height AND base width/shape when judging a structure's strength.

Building a frame entirely from squares/rectangles and being surprised when it wobbles.

Add diagonal braces or use triangles to make a frame rigid.