

Max's Structural Engineering Challenge

Learning objective: To understand how to strengthen structures by reinforcing joints and choosing appropriate materials.

Max the monkey is planning to build a new treetop lookout! Use this design template to plan your own stable structure. Think about which materials are strong and how you will join them together to make sure your structure is sturdy and does not collapse.

Word bank: triangulation · reinforcement · stability · joint · tensile strength · compression · materials · base

1. Project Goal: What is the purpose of your structure and where will it be located? (2 marks)

2. Material Selection: Which materials have you chosen and why are they suitable for this structure? (3 marks)

3. Structural Stability: Describe how you will use shapes (like triangles) or extra supports to make your structure strong. (3 marks)

4. Joining Techniques: How will you connect your materials together safely and securely? (2 marks)

5. Refinement: If your structure began to wobble during testing, what changes would you make to fix it? (3 marks)

Extension challenge: Max has a budget of £10.00 for his building materials. If a pack of dowels costs £2.50 and a roll of strong tape costs £1.25, how many of each could he buy to stay within his budget? Show your calculations.