



Year 1 Design and Technology: Freestanding Structures

How can we create a stable bridge for the Billy Goats to cross?

Prior Learning



- I have used different construction kits to build walls and towers.
- I have used basic tools (such as scissors and hole punches) with construction materials (such as paper and card).
- I have used different methods to join paper and card.

Sticky Knowledge

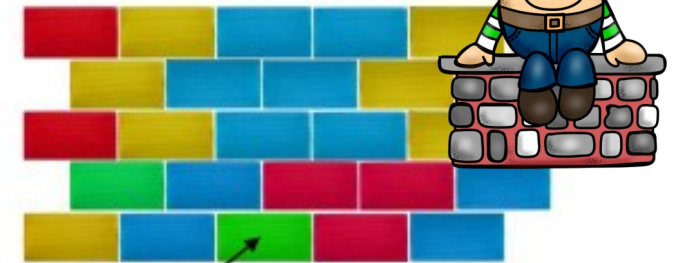
- I can explore a range of freestanding structures in the school and local environment.
- I know how to make a freestanding structure stronger, stiffer and more stable.
- I can develop and show my ideas through talking, mock-ups and drawings.
- I can plan by suggesting what to do next.
- I can use tools, skills and techniques and explain why I have chosen them.
- I can select new and reclaimed materials to build a structure and use simple finishing techniques.
- I can evaluate my product and how well it meets the need of the user and meets the design criteria.

Which wall would be safer for Humpty Dumpty to sit on? Can you explore this?

Build walls with these different patterns. Tap away the centre brick in the bottom row of each wall in turn. What happens? Which wall is the strongest?



Tap here



Tap here

Vocabulary

Product	The item or object that is being made.
User	The person or people who will use the product.
Purpose	What the product is used for.
Function	What the product should be able to do to work/
Design	A plan or idea of what the product will be like and how it will work.
Freestanding Structure	A structure that stands on its own foundation or base without being attached to anything else.
Mock-up	A 3D representation of a product using construction kits.



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Vocabulary

Stability	How likely a structure is to fall over if a force is applied.
Buttress	A structure added to a wall or tower to make it more stable or to reinforce it.
Brick Patterns	Arranging bricks in a wall in a certain way to make it stronger.



Which joining techniques could I use?

What do you like about these famous bridge designs?



Chongyang Bridge
Liuzhou, China



Tower Bridge
London, England



Clifton Suspension Bridge
Bristol, England

How can I add a buttress to make my bridge more stable?

