Preston Primary School Knowledge Organiser

Preston Primary School

Design and Technology- How can we use strengthening and joining techniques to build a strong, stable bridge?	Term: Autumn 1	Unit 4 – Year 5 & 6	Duration: 7 Weeks

A bridge is a structure that is built to cross an obstacle, making it easier for people and vehicles to travel from one place to another. Bridges can cross over many different obstacles; here are some examples:


estuaries


roads

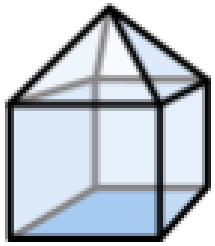

rivers


streams


valleys


railways

Joining Techniques:



There are four main types of bridge construction:

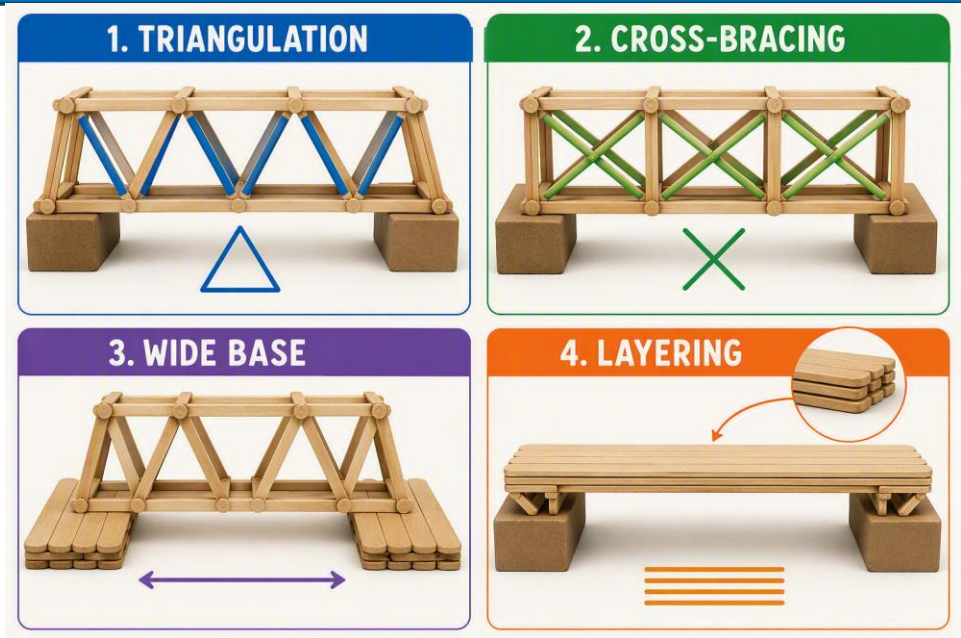
Arch Bridge – A bridge which is built with a curved arch.

Truss Bridge – A bridge which is built from a series of triangular beams.

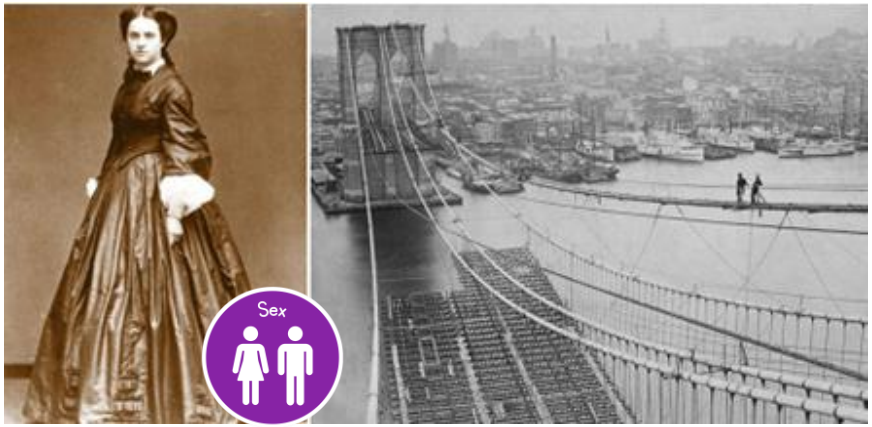
Beam Bridge – A bridge which is built with horizontal beams and vertical pillars.

Suspension Bridge – A bridge which is supported by vertical cable sand suspended by cables which run between pillars that are connected onto either end of the bridge.

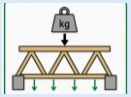
Bridges can be made stronger and more stable by different strengthening techniques.



Emily Roebling helped lead the construction of the Brooklyn Bridge when its chief engineer became ill. At a time when very few women worked in engineering, she showed great determination and leadership, making her an inspiring example of the protected characteristic 'sex', linking to gender.



Key Vocabulary

Structures		A structure is a 3D shape made from different materials and parts.
Span		The distance a bridge crosses between two supports.
Structural engineer		A person who designs structures, such as bridges and buildings, to make sure they are safe and strong.
Load-bearing		Able to support and carry weight without breaking.
Triangulation		Using triangles in a structure to make it stronger and more stable.
Cross-Bracing		Diagonal supports that cross over each other to stop a structure from wobbling or twisting.
Layering		Sticking or joining several layers of material together to make a stronger structure
Joining Techniques		Different ways of connecting materials together, such as gluing, taping, tying, or using fasteners.