



<b>Prior Learning</b>	
Children may have previously looked at bridges if they have studied the Victorians. Children may have made bridge structures during DT in 3/4.	
<b>Key vocabulary for this unit</b>	
Beams Pillars Piers Forces Construction Tension Arch bridges Suspension bridges	
<b>Learning Sequence</b>	
To explore ways in which pillars and beams are used to span gaps.	Children will learn about how simple bridges are constructed using beams, pillars or piers, then make and test beam bridge designs.
To explore ways in which trusses can be used to strengthen bridges.	Children will learn how trusses are used in bridge design to spread out compression forces. They may then either build and test model truss bridges, or use software to explore how truss bridges may be constructed.

To explore ways in which arches are used to strengthen bridges.	Children will learn how arches are used to spread and redirect compression forces acting on bridges. They will then build and test model arch bridges.
To understand how suspension bridges are able to span long distances.	Children will learn about how suspension bridges use tension to support bridge decks spanning large distances. They may then either build and test model suspension bridges, or research and write about iconic suspension bridges.
To develop criteria and design a prototype bridge for a purpose.	Having been presented with a design brief, children must develop criteria for a bridge design that will meet the terms of the brief. They will then either design a bridge according to their criteria, or generate more criteria for a range of given design briefs.
To analyse and evaluate products according to design criteria.	Following on from the previous lesson, children will consider ways in which they might test their bridge design once constructed. They will then build and test their designs.

### Assessment milestones

#### **Thinking constructively:**

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups
- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
- apply their understanding of how to strengthen, stiffen and reinforce more complex structures