

# Knowledge Organiser

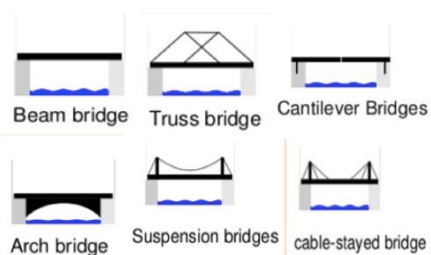
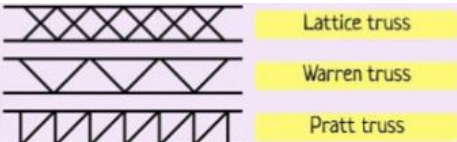
## Subject: D&T

### Topic: Building bridges

#### Key Knowledge

**What knowledge do I need to know by the end of this topic?**

1. Bridges are structures that cover roads, river or an obstacle, to provide a form of passage.
2. There are many types of bridges: (See below).
3. Trusses and arches are used to strengthen bridges.



#### Key Vocabulary **What vocabulary do I need to know and be able to use?**

Word	Definition
Bridge	A structure across a river, road, or other obstacle.
Span	The distance between two bridge supports.
Abutments	Supports that carry the load of the bridge.
Truss	A truss is an assembly of beams or other elements that creates a rigid structure.
Suspension	Supported by attachment from above; hanging.
Tension	What happens to a rope during a game of tug-of-war? - It undergoes tension from the two teams pulling on it.
Compression	What happens when you push down on a spring and collapse it? - You compress it, and shorten its length.
Scale	The ratio of the length of any object on a model to the actual length of the same object in the real world.
Prototype	A product built to test ideas and changes until it looks like the final product.

**What skills do I need to show by the end of this topic?**

#### Key Skills

- To explore ways in which pillars and beams are used to span gap.
- To explore ways in which trusses and arches can be used to strengthen bridges.
- To understand how suspension bridges are able to span long distances.
- To develop criteria and design a prototype bridge (using a 100:1 scale) for a purpose.

#### Key Questions

**What questions do I need to be able to answer by the end of this topic?**

- What is the purpose of a bridge?
- Can I name more than 1 type of bridge?.
- How can you strengthen a bridge?
- I can explain how I can designed my bridge for strength?

#### Curriculum Links

Speaking and listening.

**What links will this topic have with other areas of the curriculum?**

Potential to explore historical bridges/ designers/ local history, suspension bridge in guided reading.

#### Wider Reading

Internet: History, visit suspension bridge

#### Where might I find out more about this topic?

**Tower Bridge**  
It was built between 1886-1894  
The bridge crosses the River Thames  
The bridge is 800 feet in length  
It took thousands of stone and brick to build it

#### Example bridges



**Sydney Harbour Bridge**  
It measures 143 m (440) from top to water level  
It is double hinged with reinforced concrete pylons