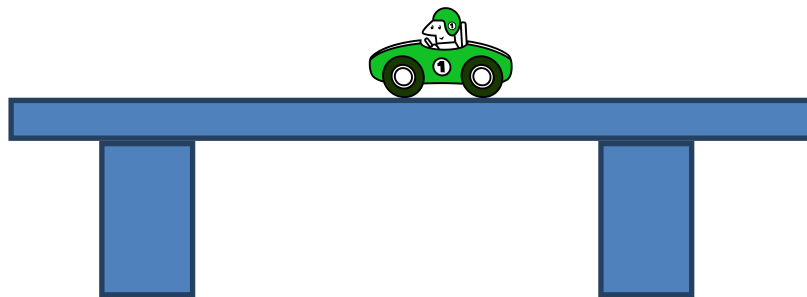




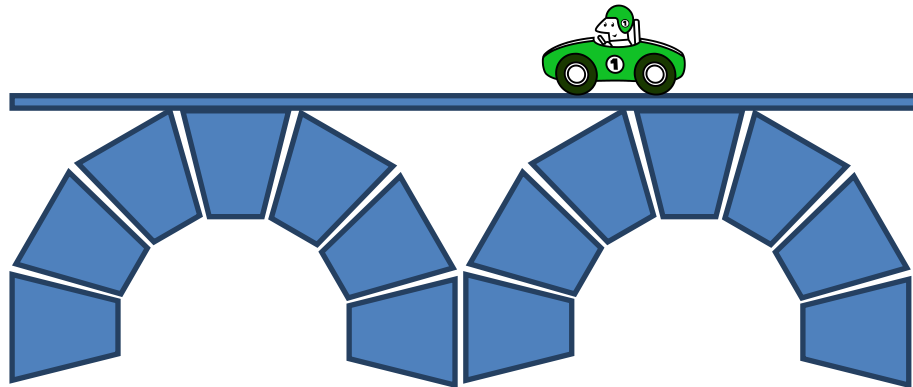
Beam Bridge

A beam bridge is the simplest and least expensive kind of bridge. It consists of a length of material (normally a steel girder or reinforced concrete beams) held up by supports. Each span of a beam bridge will typically measure between 10 metres and 200 metres. The further apart its supports, the weaker a beam bridge gets.

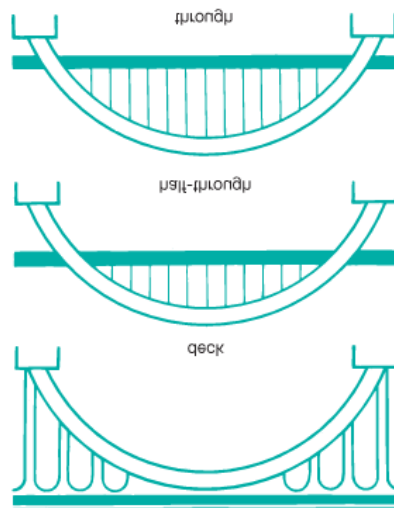


Arch

Arch bridges are one of the oldest types of bridges. Traditionally made from stone, longer and lower spans can now be made using reinforced concrete or steel. A typical span might measure 40 – 100 metres.



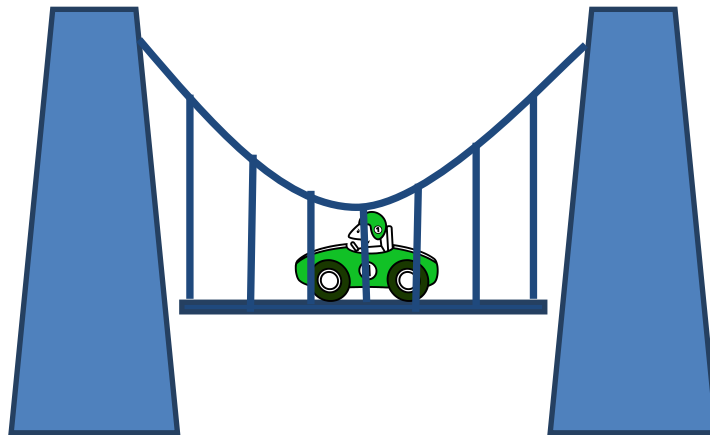
The deck of an arch bridge may go over, half through, or through the arch.



Suspension

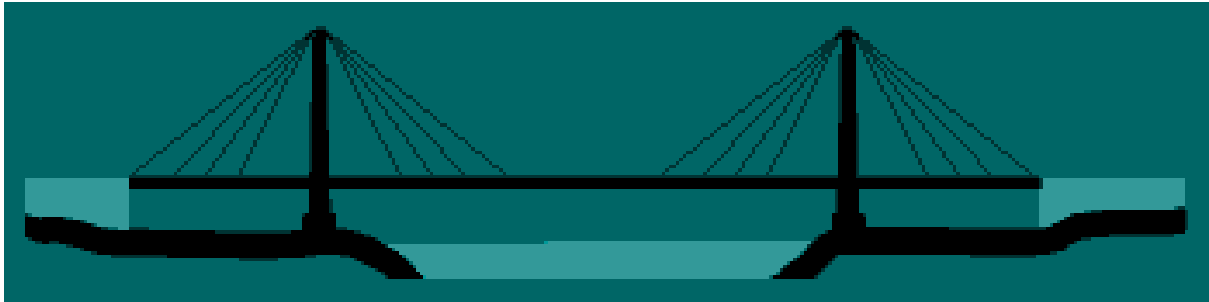
Suspension bridges are light and strong and have the longest span of any type of bridge. Most modern suspension bridges are supported with steel cables made from thousands of steel wires tightly bound together.

Suspension bridges are expensive to build as their cables have to be supported by tall towers and securely anchored into the rock.

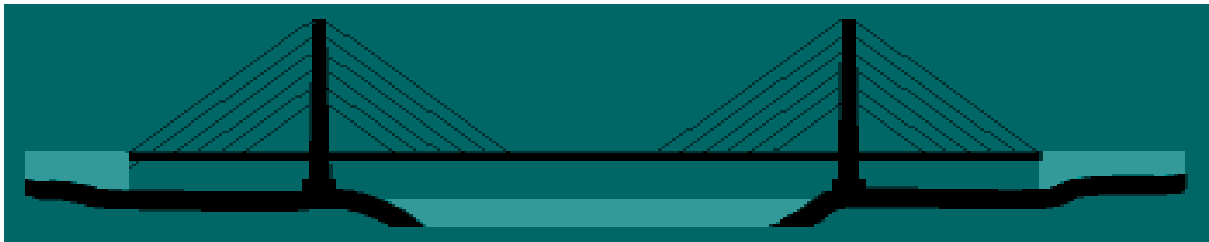


Cable-Stay

A cable-stay bridge has one or more towers from which cables are hung to support the bridge deck. Cable-stay bridges are light, strong and quick to build. They can typically span 110 to 480 metres.



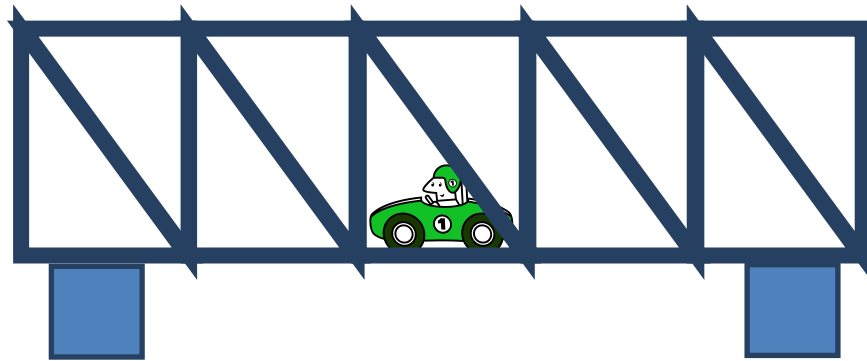
Fan or Radial design



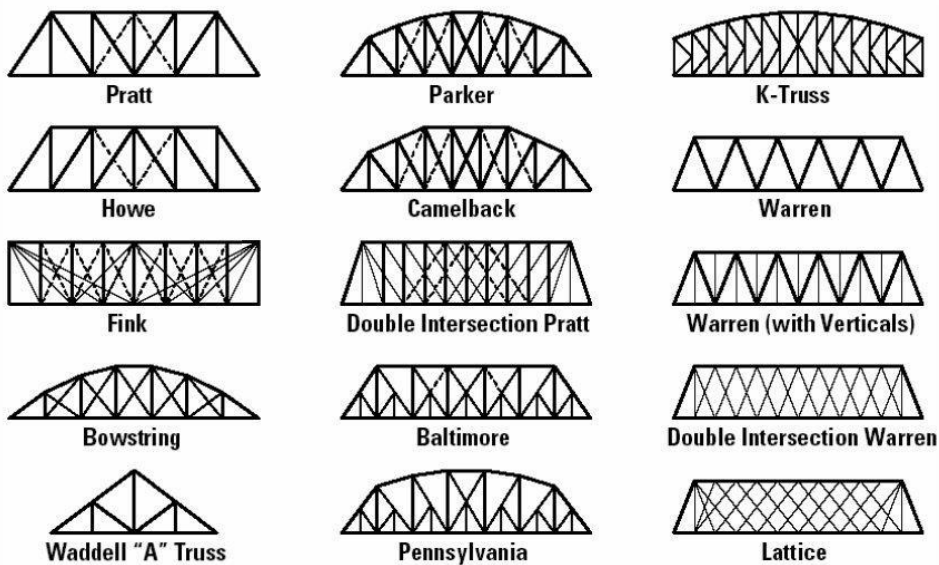
Harp or Parallel design

Truss

Truss bridges have a strong but simple skeletal structure which can be placed above, below or through the deck.



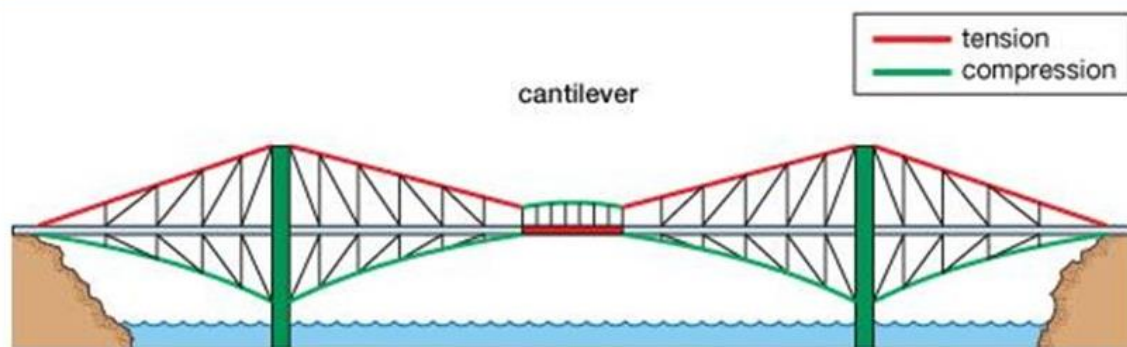
Trusses are normally made from triangular units which have been joined together to create a strong, load bearing structure. There are many different design variations, each with its own name. Most designs can be fitted between straight or curved members.



Cantilever

A cantilever bridge is made from cantilevers – structures like diving boards or balconies which are only supported at one end. These beams normally do not meet in the centre but have a central truss placed on top of them.

Cantilever bridges are lightweight and can carry heavy loads. They typically span gaps of 150 metres to 500 metres.



Worksheet 1: Types of Bridges

Are these bridges Beam, Arch, Truss, Suspension, Cantilever or Cable-Stayed?

Think carefully and look for the structurally important parts!



Shuanghekou Bridge
China



Trinity River Bridge
Texas, USA



Forth Bridge
Scotland



Millau Viaduct
France



Chesapeake Bay Bridge

America



Clifton Bridge

UK



Sidney Lanier Bridge

America



Arakawa Bridge

Japan



Hulme Bridge

UK



Alexandra Bridge

Canada



Turtle Bay Bridge

California, USA



Maza Bridge, San Vicente

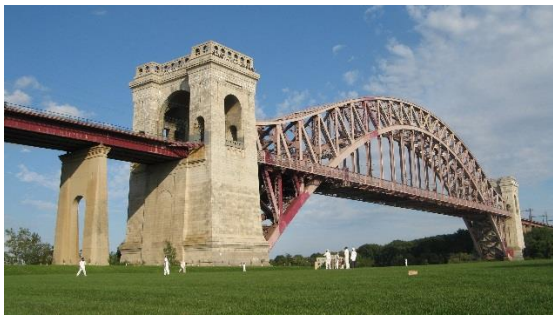
Spain

Ready for a challenge?

These bridges might be a combination of two types. If a truss has been incorporated, can you work out which type it is? Is the arch under, over or through?



Identify the arch and truss types



Hell Gate Bridge
Identify the arch and truss types



Gatton Railway Bridge
Identify the truss type



Lowry Avenue Bridge
Identify the two type of bridges which have been combined

Picture credits:

Alexandra Bridge, Dave Doe – creative commons images BY 2.0

Arakawa Bridge – Ignat Gorazd – creative commons images BY – SA 2.0

Chesapeake Bay Bridge Tunnel – Navin75 - creative commons images BY –SA 2.0

Forth Bridge – Tony Rodrigo - creative commons images BY 2.0

Gatton Railway Bridge – Kgbo - creative commons images BY –SA 3.0

Hell Gate Bridge – Rob Zand - creative commons images BY –SA 2.0

Hulme Bridge – Stuart Grout - creative commons images BY 2.0

Lowry Avenue Bridge – Tony Webster - creative commons images BY 2.0

Lupu River – Kimon Berlin - creative commons images BY –SA 2.0

Maza River San Vicente – Jose Manuel Mota - creative commons images BY 2.0

Millau Viaduct – Ruben Holthuijsen - creative commons images BY 2.0

Ponte Costa e Silva – Agencia Brasilia - creative commons images BY 2.0

Route 66, Lake Overholser – NicholasHenderson - creative commons images BY 2.0

Shuanghekou Bridge – Glabb - creative commons images BY –SA 3.0

Sidney Lanier Bridge – Josh Hallett - creative commons images BY 2.0

Sutong Yangtze River – ANZ2008 - creative commons images BY 2.0

Taylor South Gate Bridge Cincinatti – Chris Light - creative commons images BY –SA 3.0

Trinity River, Romayor, Texas – Patrick Feller - creative commons images BY 2.0

Turtle Bay Bridge, California – Doug Kerr, creative commons images BY –SA 2.0

Clifton Suspension Bridge Trust
Bridge Road
Leigh Woods
Bristol
BS8 3PA
Tel: 0117 974 4664
Email: getinvolved@cliftonbridge.org.uk