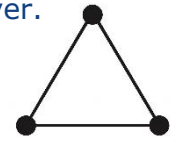
Design Technology (Y1) – Brilliant Bridges
Structures

Prior Knowledge

- A strong structure needs a good base to help it stand up (wider bottoms help stop it falling over). (Year 1, Summer Term)
- A structure is something that has been built and can stand on its own. (Year 1, Summer Term)

Key Knowledge

- A bridge is a structure that helps people or vehicles cross over something, like water or a road (e.g. Sydney Harbour Bridge crosses Sydney Harbour in Australia).
- Frame structures are made from parts that are joined together, like the skeleton of a building or bridge.
- A wide base or reinforced shapes can make a structure stronger and stop it falling over.
- Triangular shapes (triangulation) can make bridges strong and stable.
- Bridges are built using materials that are strong and sometimes flexible, like metal, wood, or stone.
- Joining methods like glue, tape, or paper fasteners can be used to connect parts in a model, but real bridges use bolts, rivets, or welding.



Triangulation

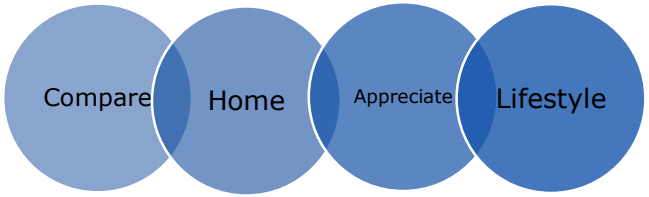
Equipment


Art straws


Scissors


Glue and tape

The Sydney Harbour Bridge was designed by British civil engineer **Ralph Freeman**. The bridge was opened in 1932.



Key Vocabulary

structure	Something that has been built and can stand on its own
base	the bottom part of a structure that helps it stand
strong/ strengthen	hard to break or knock over; making something stronger
join/ connection	how parts are fixed or held together
material	what something is made from, like metal, wood or card
frame	a shape made of parts joined together, like the skeleton of a bridge
reinforce	to make something stronger by adding extra parts or support
triangulation	using triangles or diagonal parts to make a structure stronger
span	the distance a bridge stretches across
design	a plan or drawing of what you will make

How can we design and build a strong bridge to cross over something?

Health and Safety

Walk slowly and carefully around the classroom.

If you need to move around with scissors, hold around the closed blade, face down.

Follow the teachers example of how to sensibly use scissors. Make sure you sit down to do your cutting.

Ensure you only apply glue to the area being stuck. Avoid contact with eyes and mouth.