

# Year 6 - DT Knowledge Organiser

## What I remember from Year 3 and 4...

- Pulleys and levers are mechanisms that make things move.
- A Butt joint is when two pieces of wood are joined together using an adhesive.
- A free-standing structure is a structure that stands on its own base without being attached to anything else.

## Key Knowledge...

There are many famous bridges in the UK and around the world.

Tower Bridge, London



Sydney Harbour Bridge, Australia



Sheikh Zayed Bridge, Abu Dhabi



Clifton Suspension Bridge, Bristol

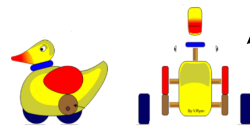


## Design...

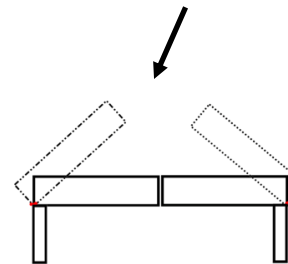
### Specification...

- Must span at least 20cm;
- Must have a moving mechanism;
- Must be free-standing;
- Must be **load bearing**.

### Exploded diagram example



### Cross-sectional diagram example



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 cables and suspended by cables which run between pillars that are connected onto either end of the bridge.

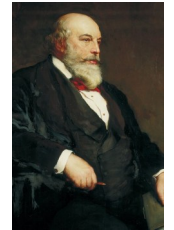
## Mechanical Components

### Bridges



### Horace Jones

Horace was an English architect surveyor to the city of London, most famous for designing Tower Bridge. The city bridges came under his control.



## Key Vocabulary...

**Exploded diagram** - Shows how a product can be assembled and how the different parts fit together.

**Cross-Sectional diagram** - Shows the view inside.

**Groove** - A cut in a surface using a tool.

**Specification** - A description of work to be done or materials to be used.

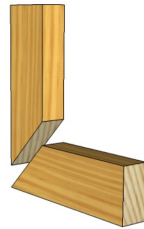
**Load Bearing** - Holding the weight that is carried by a structure.

**Hinge** - Allows movement between two linked objects.

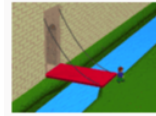
**Assembling** - Putting together.

## Key Knowledge...

A miter joint is formed when two pieces meet on a 90 degrees angle and each piece has been cut at a 45 degrees angle to be joined.



Different mechanisms can move in different ways. Let's explore moving bridges!



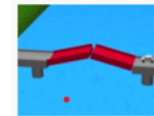
Draw



Vertical



Transporter



Bascule

## Key Skills...

Think about the materials that you could use to make your moving mechanism.



Think about the properties of different materials that you could use to build your frame.

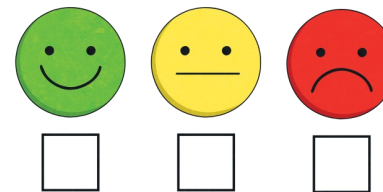
Use strengthening techniques to strengthen your bridge. Triangulation, cardboard support or a **hinge** will make it more stable.

Use finishing techniques to improve the appearance of your bridge. You could consider a road or a sign!



## Evaluation...

- Test your bridge!
- How well does your bridge work?
- Can it hold a load?
- Does your bridge stay standing?
- How did you make your frame strong and rigid?
- How does your bridge look?
- Would you change your design?



Think about which tools and techniques you will use for measuring, marking out, cutting, shaping, **assembling** and joining your materials safely and accurately.

