

Subject: DT	Year Group: 2	Unit: Significant buildings around the world
Key Question:		
First- hand experience:		

NC Objectives to be addressed:	Prior Learning required:
<ul style="list-style-type: none"> • Design – design purposeful, functional, appealing products for themselves and other users based on design criteria • generate, develop, model, and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology • Make – select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining, and finishing] • select from and use a wide range of materials and components, including construction materials, textiles, and ingredients, according to their characteristics • Evaluate – explore and evaluate a range of existing products • evaluate their ideas and products against design criteria • Technical knowledge – build structures, exploring how they can be made stronger, stiffer, and more stable 	<p>Yr 1 – paper strengthening – Brilliant Banbury</p>
Architects/Engineers – Sir Horace Jones – architect – Tower of London.	
Key Vocabulary:	
Tier 3 – Strong, Strength, Tower, Engineer, Architect, Stable, Structure, Freestanding, Bridge, Stiff	

Sequence of learning:

Knowledge to be taught (Declarative):

- To know what a draw bridge is.
- To know what a draw bridge is used for.
- To know that Sir Horace Jones was the architect behind the Tower Bridge.
- To know that a draw bridge needs to be strong to hold the weight of horses, carts and people.
- To know that different materials are stronger than others.
- To know that layering materials can make them stronger.
- To know what a design brief is.

DESIGN BRIEF – To design and make a drawbridge which will hold a certain weight.

1 INVESTIGATE/TECHNICAL KNOWLEDGE

DESIGN BRIEF - TO DESIGN AND MAKE A DRAWBRIDGE WHICH WILL HOLD A CERTAIN WEIGHT.

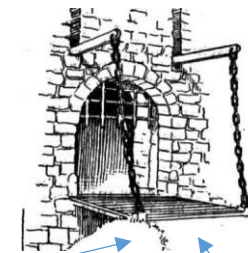
1 INVESTIGATE/TECHNICAL KNOWLEDGE – Children look at images of drawbridges. What are they used for? Teacher explains – see key knowledge link – What is a drawbridge?

Show image of the Tower Bridge. Explain that it is a type of drawbridge and who design it – Sir Horace Jones. Image of Sir Horace Jones and the Tower Bridge with labels of name, date of birth/death, when it was design and built.

2 Explain that the drawbridge must be strong. Provide children with the materials – see skills. How can we make this strong or stronger? What can we do to strengthen it? Show children a linen bag, (which contains 500g bag of sugar). Children take it in turns to hold the bag to understand the weight of it.

Skills to be developed (Procedural):

- Can choose materials which can create a strong structure – materials – lolly sticks, match sticks, paper straws, layered paper, folded paper, cardboard.
- Can design a draw bridge including labels of which materials are being used -
- Can layer chosen materials to create a drawbridge.
- Can stick to a design brief and make a drawbridge which fits the design. See design brief resource.



Lolly sticks

Paper straws

Children investigate and explore how they could make the materials stronger. Have scissors and glue available. Children show examples of strengthening. Take photographs and put into sketchbooks.

T model - using HUE, (visualiser) demonstrate how to strengthen materials by layering different ways, layering on top of each other the same way.

4 DESIGN – As a whole class, brainstorm why a drawbridge needs to be strong. This could be photographed and stuck in sketchbook.

Explain the brief – to make a drawbridge which will hold a certain weight, (500g).

T model using HUE – draw a drawbridge and label with the materials chosen and tell the children why they have been chosen. Children discuss in groups of 2 or 3 what materials they are going to use and then draw a labelled diagram of design.

5 MAKE – Provide the children with a table of materials. Tell children they will need their design and then collect the materials from the table.

Question the children – what happens if you need to make changes to your design? Is this, ok? Discuss that it is fine to change the original design and encourage the children to annotate their design if changes are made. In 2 or 3s, children then make their drawbridge.

6 EVALUATE – Set up 2 tables with a 10cm gap. Each group takes it in turn to evaluate their drawbridge. Place the drawbridge across the two tables, place the 500g sack in the centre of the drawbridge and see if it holds.

Discuss what the reasons might be for it working or collapsing.

Take a photograph of completed drawbridge and children right a sentence about why their design was successful or not and whether they would change anything.

EXTRA OPTION – see which drawbridge holds the most weight.

DT designs



Entrance with drawbridge; Forte da Ponta da Bandeira; Lagos, Portugal

Castle Nahavend by Eugène Flandin

[Kids Encyclopedia Facts](#)



Tower Bridge



Sir Horace Jones



Assessment:

Design brief in sketchbook

Labelled diagram of drawbridge

Photograph of finished drawbridge.

Evaluation of drawbridge – see drawbridge evaluation.

Key Knowledge:

- Sir **Horace Jones** [PPRIBA](#) (20 May 1819 – 21 May 1887) was an [English architect](#) particularly noted for his work as architect and surveyor to the [City of London](#) from 1864 until his death. He served as president of the [Royal Institute of British Architects](#) from 1882 until 1884, and was knighted in 1886. His most recognised work, [Tower Bridge](#), was completed posthumously.
- How to draw a drawbridge - [Castle+Drawbridge.jpg \(1239x1600\) \(bp.blogspot.com\)](#)
- **What is a drawbridge?** <https://kids.kiddle.co/Drawbridge>