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| **St Bartholomew’s Knowledge Organiser****Design Technology** | **Class 4** | **Summer 1 DT–** **Year 2021-2022** | **Structures** |
| **What we will learn:** |  **Success Criteria:** |
| In this unit you will learn to;* explore how to reinforce a beam (structure) to improve its strength
* identify beam and arch bridges
* create a range of beam and arch bridge designs
* identify stronger and weaker structures
* find different ways to reinforce structures
* build a spaghetti truss bridge
* identify arch, beam and truss bridges
* use triangles to create truss bridges and test them
* understand how triangles can be used to reinforce bridges
* measure and mark out accurately on wood
* select appropriate tools and equipment for particular tasks
* follow health and safety rules
* explain why selecting appropriating materials is an important part of the design process
* complete, reinforce and evaluate my truss bridge
 | * Articulating the definition of ‘tension and compression’ and identifying stronger and weaker shapes and points where structures typically failed
* Identifying suspension and truss bridges and using triangles to create a simple truss bridge that spans a given distance and supports a load.
* Independently measuring and marking out wood and using correct techniques to cut it safely
* Evaluating the success of the bridge, making improvements and reinforcements as necessary
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| **Important Vocabulary** |
| **Accurate – neat, correct shape, size and pattern with no mistakes****Arch bridge – a bridge which is built with a curved arch****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****Bench hook – a tool that hooks onto the edge of the workbench. It’s used to hold woodwork still when sawing****Compression – a squashing force caused when parts of a structure are forced together****Reinforce – to make a structure or material stronger, especially by adding another material or element to it****Structure – something which stands, usually on its own****Tension – a stretching force caused by two parts of a structure being pulled apart****Automata – mechanical toys or kinetic art. They use hand powered mechanisms to create movement in a scene of characters****Axle – the axle rotates turning the cam with it. It is attached to the handle****Clamp – a tool for holding objects together****Cam – a rotating or sliding piece in a mechanism. It changes rotary motion to linear motion****Component – one of several parts of which something is made****Dowel – wood in the shape of a cylinder****Finish – to complete your product with a high quality appearance****Function – how a product or objects operates****Jelutong – a type of softwood, it is lightweight, easy to cut and shape****Linkage – a set of bars linked together to form a mechanism****Mark out – to measure and mark where a piece of material needs to be cut or shaped** |