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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 | |
| **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** | |