

Structures	EYFS -	KS1- How freestanding structures can be made stronger, stiffer and more stable – Model city/village		LKS2- How to make strong, stiff shell structures – Mini Habitat Biome		UKS2- How to reinforce and strengthen a frame structure- Brilliant Bridges	
<b>Substantive Knowledge</b>		<ul style="list-style-type: none"> <li>- Structures are things that are built for a purpose</li> <li>-They can be large like buildings and bridges or small like chairs and tables</li> <li>- They need to support their weight or the weight of things using them</li> <li>-They need to be strong, rigid and stable</li> <li>-Stability in a structure can be improved by making the base wider</li> <li>- A buttress adds width to based making it more stable</li> <li>- As a free-standing structure becomes taller, it becomes less stable</li> <li>- Structures can be made stronger and more rigid by making sure that parts and materials are properly joined</li> <li>- A Joint is where parts of a structure are connected together</li> </ul>		<ul style="list-style-type: none"> <li>- Shell structures are structures with a solid our surface and a hollow inner area</li> <li>- Shell structures are used to protects, contain and present something</li> <li>- Food packaging, tunnels, helmets and boats are all examples of shell structures</li> <li>-Shell structures need to be appealing to the users</li> <li>- Shell structures can be strengthened through laminating, corrugating and ribbing.</li> </ul>		<ul style="list-style-type: none"> <li>- Frame Structures are rigid support structures that use beams, columns and slabs to hold large forces of gravity and weight</li> <li>- Beam</li> <li>- Column</li> <li>- Slabs</li> <li>- The system of beams and columns can be further strengthened through foundations and bracing</li> <li>-Triangulation can be used to add strength to a structure</li> </ul>	
<b>Technical Knowledge</b>		<ul style="list-style-type: none"> <li>- Joins can be made stronger by using masking tape and glue</li> <li>-Folding materials can make them stronger or stiffer</li> <li>- When cutting the index and middle fingers of the cutting hand are still. - - - The thumb is used to open and close the scissors</li> <li>- The assistant hand is used to hold the material- thumb on top and fingers underneath</li> </ul> <p>Measuring to the nearest Cm Marking measures</p>		<ul style="list-style-type: none"> <li>-Scoring is the process of scribing, or even partly cutting through, the material along the line to be bent or folded.</li> <li>-Laminating is gluing together several layers of card</li> <li>-Corrugating is zig-zag a piece of paper or card and glue in between two layers of card</li> <li>-Ribbing is gluing layers of straws between layers of card</li> </ul>		<ul style="list-style-type: none"> <li>-Joints for Straws can be made through; Being flattened, wrapped around and glued</li> <li>- Joints for thin pieces of wood can be made through; Card strips, card triangles and elastic bands</li> <li>-Junior hacksaws are used to cut soft materials like wood</li> <li>-A bench hook is used to hold a workpiece in place while crosscutting with a hand saw.</li> <li>- When two prices of wood come together at 90 degrees they are said to be Square</li> </ul>	
<b>Vocabulary to be taught explicitly</b>		Strong Rigid Stable Weak Buttress Index & middle fingers	Three-dimensional Tabs Slot Fold Free-standing Stiff	Shall structures Cube Cuboid Cylinder Base Curve Adhesive	Assemble Laminating Corrugating Ribbing Durable Solid hollow	Beams Foundations Bracing Triangulation Crosscutting Handsaw Scoring	Columns Hacksaw