

St Bernadette's Catholic Primary Voluntary Academy  
 Design Technology Medium Term Planning - UKS2 Lent 1 CycleA - Furnaces of Fire  
 Structures



Prior Knowledge					
<b>Year 5 Children's Prior Knowledge</b>					
<b>EYFS</b>	<b>KS1</b>	<b>LKS2</b>			
<ul style="list-style-type: none"> <li>Cut and join paper and card</li> </ul>	<ul style="list-style-type: none"> <li>Cut and join a variety of construction materials</li> <li>Cut and fold paper to make it stronger</li> </ul>	<ul style="list-style-type: none"> <li>Measuring, marking out, cutting, joining, shaping and finishing techniques with construction materials.</li> <li>How structures can be made stronger, stiffer and more stable</li> </ul>			
<b>Year 6 Children's Prior Knowledge</b>					
<b>EYFS</b>	<b>KS1</b>	<b>LKS2</b>			
<ul style="list-style-type: none"> <li>Cut and join paper and card</li> </ul>	<ul style="list-style-type: none"> <li>Cut and join a variety of construction materials</li> <li>Cut and fold paper to make it stronger</li> </ul>	<ul style="list-style-type: none"> <li>Measuring, marking out, cutting, joining, shaping and finishing techniques with construction materials.</li> <li>How structures can be made stronger, stiffer and more stable</li> </ul>			
	Learning Objective	Activity	Key Knowledge (By the end of the lesson)		Vocabulary (Tier 3)
			Substantive	Disciplinary	
Lesson 1	LO: Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed	Study different types of bridges and their structures. Study the architects that created them. <b>Link with 'bridges within building structures of Hadid</b>	<ul style="list-style-type: none"> <li>Know that a bridge is a structure that allows people and vehicles to cross an open space.</li> <li>Know that Thomas Pritchard designed the Iron Bridge</li> </ul>		Bridge Design Annotate Exploded diagram Architect

	<p>at particular individuals or groups. LO: Understand how key events and individuals in design and technology have helped shape the world.</p> <p>To know about some significant bridges in Britain</p>		<ul style="list-style-type: none"> <li>● Know that the Iron Bridge was the 1st bridge made from iron.</li> <li>● Know that Humber Bridge is a single suspension bridge.</li> </ul>		
Lesson 2	<p>LO: Select from and confidently use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. LO: Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities</p> <p>To investigate how joins can be made stronger.</p>	<p>Teacher input on triangle reinforcement and triangulation Experiment with different joining and strengthening techniques using straws.</p>	<ul style="list-style-type: none"> <li>● Know joins can be made by glueing, compressing, threading, using strips and bands.</li> <li>● Know that card triangles reinforce corners.</li> <li>● Know that triangulation increases rigidity within a structure.</li> </ul> <p>(Previous learning)</p> <ul style="list-style-type: none"> <li>● Know the properties of different materials</li> </ul>	<ul style="list-style-type: none"> <li>● Join straws/wood.</li> <li>● Use triangles to reinforce</li> </ul>	<p>Reinforce Compression Diagonal Horizontal Vertical Tension Tie Triangulation</p>
Lesson 3	<p>Project Title Design, make and evaluate a bridge that will support a toy car crossing from one table to another.</p>	<p>Generate ideas for a structure that would form a bridge.</p> <p>Discuss design criteria: To carry a toy car across the gap between 2 tables . Experimenting and creating a prototype Create an exploded diagram of their final design showing the types of joins they will use.</p>	<ul style="list-style-type: none"> <li>● Know that joins can be made by glueing, compressing, threading, using strips and bands.</li> <li>● Know that card triangles reinforce corners.</li> <li>● Know that triangulation increases rigidity within a structure.</li> </ul> <p>(Previous learning)</p> <ul style="list-style-type: none"> <li>● Know the properties of different materials</li> </ul>	<ul style="list-style-type: none"> <li>● Create an exploded diagram showing the types of joins</li> <li>● Create a design criteria</li> </ul>	<p>Exploded diagram</p>

Lesson 4	<p>LO: Select from and confidently use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately.</p> <p>LO: Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities</p> <p>To select from and use a range of suitable tools, equipment and materials, safely and accurately to make a bridge</p>	Choose from a range of materials including straws, paper and wood and begin to construct a bridge structure.	<ul style="list-style-type: none"> <li>● Know the criteria for their design</li> </ul>	<ul style="list-style-type: none"> <li>● Demonstrate skills and techniques for accurately joining framework materials together.</li> <li>● Use joining and strengthening techniques</li> <li>● Explain their decisions.</li> <li>● Work as a group .</li> </ul>	Frame Structure
Lesson 5	<p>LO: Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities</p> <p>LO: Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.</p> <p>To evaluate and improve their product.</p>	Whilst continuing to make the bridge, evaluate their product so far. How could it be improved? Choose from a range of materials including straws, paper and wood and improve and finalise their bridge structure.	<ul style="list-style-type: none"> <li>● Know the criteria for their design</li> <li>● Know that adjustments can be made to enhance a design.</li> </ul>	<ul style="list-style-type: none"> <li>● Evaluate their own work against a set design criteria they have created</li> <li>● Use different materials to create a structure that meets the design criteria.</li> <li>● Use joining and strengthening techniques</li> </ul>	
Lesson 6	LO: Evaluate their ideas and products against their own design criteria and consider the	Evaluate their final design against the design criteria Peer evaluations	<ul style="list-style-type: none"> <li>● Know the criteria for their design</li> </ul>	<ul style="list-style-type: none"> <li>● Evaluate their own work against a set design criteria they have created</li> <li>● Evaluate others work</li> </ul>	Evaluate Critique Improve

	<p>views of others to improve their work.</p> <p>To use an evaluation web to evaluate their bridge against the design criteria.</p>			<p>against a set design criteria they have created</p> <ul style="list-style-type: none"><li>• Discuss and record improvements to their and others work</li></ul>	
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