

# Brough Primary School – Curriculum Intention Plan 2024 - 2025



<b>Subject:</b> Design and Technology <b>Year Group:</b> Year 5/6		<b>Area of learning: Structures - More Complex Structures</b> <i>Focus - How to strengthen, stiffen and reinforce more complex structures.</i>
Links to previous work/Remember when	<ul style="list-style-type: none"> <li>Children will have had experience of creating shell structures in Year 3/4 to make a desk tidy and simple structures in Year 1/2 to create a model of the Humber Bridge. In this project they will develop these skills to create a more complex structure.</li> <li>Children will have previously developed skills of research, evaluation, cutting, joining different materials, simple finishing techniques and design skills.</li> </ul>	
<b>Term</b>	<b>Key Skills to be taught</b>	
<b>Spring 2025</b>  What the children should know at the end of this series of lessons	<ul style="list-style-type: none"> <li>- Investigate and analyse a range of existing products.</li> <li>- Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups.</li> <li>- generate, develop, model and communicate their ideas through discussion, annotated sketches, exploded diagrams and prototypes.</li> <li>- Select from and use a wider range of tools and equipment to cut, shape, join and finish their model accurately.</li> <li>- 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.</li> <li>- apply their understanding of how to strengthen, stiffen and reinforce more complex structures.</li> <li>- Evaluate their ideas and products against their own design criteria.</li> </ul>	

## Vocabulary

***Strengthen, stiffen, reinforce, design criteria, evaluation, reinforce, stable, user, ply wood, saw, drill, sandpaper,***

Sequence of learning	Learning Objectives/Outcomes	suggested Lesson Outline
1	<b>Learning Objective:</b>  <b>Key Knowledge:</b>	<b>Recap</b> – Remind children of structures that they have made in previous years in design and technology - a desk tidy in year 3 or 4 and a model of the Humber Bridge in Year 1 or 2.

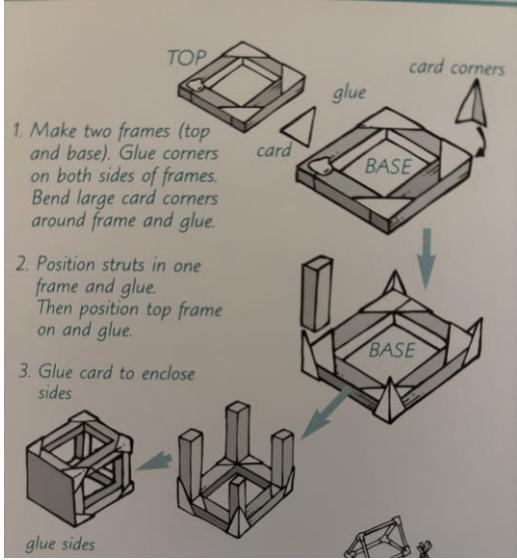
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	<p><i>What is a structure? - there are two main types of structure - frame structures and shell structures.</i></p> <p><a href="https://www.bbc.co.uk/bitesize/articles/zbmw6rd#zbn63qt">https://www.bbc.co.uk/bitesize/articles/zbmw6rd#zbn63qt</a></p>	<p>What is a structure? Look at the information from BBC Bitesize - <a href="https://www.bbc.co.uk/bitesize/articles/zbmw6rd#zbn63qt">https://www.bbc.co.uk/bitesize/articles/zbmw6rd#zbn63qt</a></p> <p><b>Children record</b></p> <p><i>Explain to the children that they are going to be making a bird house that could be used in the wild life area or a garden.</i></p> <p><i>Investigate what birds need and why people make bird houses for birds.</i></p> <p><i>Children record - what bird houses often look like, why birds need houses and why people make houses for birds.</i></p>
2	<p><b>Learning Objective:</b> To investigate the materials and features of bird houses and how to draw diagrams.</p> <p><b>Key Knowledge:</b></p> <p><u>Exploded diagram</u> - exploded diagrams help when we want to show people the parts or components of the product we are designing, how they fit together and the order of assembly.</p>	<p><b>Recap</b> – Recap what we learned last lesson about why birds need houses, what they generally look like and why people make them for birds.</p> <p><b>Children record</b> <i>Children investigate and discuss what materials bird houses are generally made from.</i></p> <p><i>Record this on a spider diagram.</i></p> <p><i>Children look at different shapes and designs for bird houses. Children to draw their favourite design of a bird house - either a 3D drawing with labels or an exploded diagram using the examples provided in the resources.</i></p>
3	<p><b>Learning Objective:</b> To investigate and practise woodwork skills.</p> <p><b>Key Knowledge:</b></p> <p>Card triangles can be used to strengthen and stiffen the structure.</p> <ul style="list-style-type: none"> <li>• Invite children to list some safety precautions they will need to take</li> </ul>	<p><b>Recap</b> – Remind the children of the designs that we have seen for bird houses and the types of materials that are often used to make them.</p> <p><b>Children record</b> <b><i>*Decide how you are going to make the box as a Y5/6 team - are you going to make a frame and then add thin wooden sections or weather treated cardboard to the frame or are you going to make it using sections of ply-wood glued or nailed together?</i></b></p> <p>Show children how to use the saw and thin sectioned wood to make joints. Make a frame for</p>

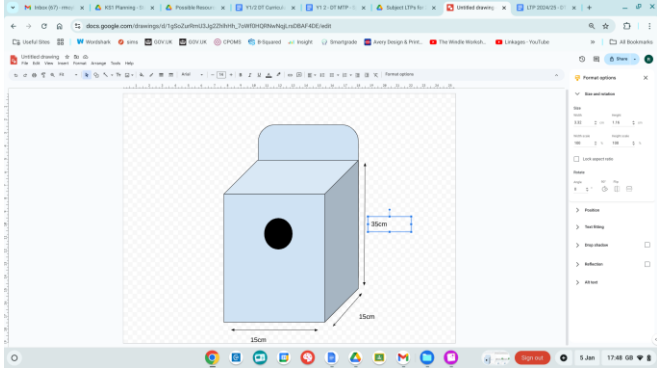
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	<p>before using any of the woodwork tools.</p> <ul style="list-style-type: none"> <li>• Once your children have listed their safety ideas have a serious discussion with them about the importance of keeping safe and the actual things they will need to do to carry out this lesson safely.</li> </ul>	<p>the bird box using the sectioned wood and the card triangles to make joints.</p>  <p><i>Alternatively, Show children the following video clips and ask them to pay attention to the tools and equipment used, the skills needed, the steps taken and the safety precautions used in the clips.</i>  <a href="https://www.youtube.com/watch?v=LnuNu1cpjC4">https://www.youtube.com/watch?v=LnuNu1cpjC4</a>  <a href="https://www.youtube.com/watch?v=j0werPvrrPI">https://www.youtube.com/watch?v=j0werPvrrPI</a></p> <p><i>Provide children with a set of Observation Cards and ask them to record (using pictures and words) the things they see in the video clips. This will help them to make their own bird house next lesson.</i>  <i>The cards are labelled tools and equipment, steps followed and safety precautions.</i></p>
<p>4</p>	<p><b>Learning Objective:</b> To be able to design a bird house for a specific bird.</p> <p><b>Key Knowledge:</b></p>	<p><b>Recap</b> – Recap the types of houses that birds would nest in. Remind children of their exploded diagrams/3D drawings of bird houses - what materials were they made of? What shapes were they?</p> <p><b>Children record</b>  <i>Decide what the design specifications for the bird house will be. Children record the design specification.</i>  <i>Children to design a bird house for a bird of their choice using CAD - Computer aided design. Use the drawing programme on the chrome books - type: <b>drawings.google.com</b> into the search bar on the computers and this should launch the drawings programme and</i></p>

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		<p><i>the children can make a basic design using the 'insert-shapes' tool and choosing the cube. They can add a circle for the hole and a rectangle to make a back board for the bird house.</i></p> <p><i>E.g.</i></p> 
5	<p><b>Learning Objective:</b></p> <p>To be able to make a bird house by following a plan.</p>	<p><b>Recap:</b> Recap what we have learned so far. Recap on the safety rules for each piece of equipment.</p> <p><b>Children record:</b> Show children how to make the bird box step by step.</p>
6	<p><b>Learning Objective:</b></p> <p>To evaluate a completed bird house</p>	<p><b>Recap:</b> Look at the completed bird houses. Remind the children of the design specification for their bird houses. What were the needs of the birds - why were bird houses made?</p> <p><b>Children record:</b> Children to evaluate their designs making sure they reference whether or not the design specifications have been met.</p>

**Learning Outcome/product**

Can the children design a new bird house for the wildlife area?

**Assessment records**

List only those children who have not achieved the expected outcomes.

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