Ravens Wood School

KS3 Curriculum Plan

Subject: Design Technology

Timber Design Strategies – Wood Joints

Overarching Topic:			
Why is this topic being studied at this time? How does it fit into the wider subject curriculum?	**Inquiry Question**: How are timber structures and products designed & joined taking advantage of the natural properties of the material? When and where are specific joints used, understanding complexity, time to manufacture and mechanical limitations. Practical lessons - Students will learn how to design and manufacture a wide variety of timber joints and understand their strengths and weaknesses to be able to confidently apply them to their own designs. Butt joints, half and full lap joints, housing joints, mortice and tennons, finger joints and dovetails. **Joining up:** Maths – measureing and marking out. Geography & history, how joinery is affected by other factors e.g. limited availability of metals etc.		
	Essential	**Core**	**Ambitious**
	- Can I identify the basic timber joints used in design? - Can I demonstrate some understanding of practical instruction in completing a wood joint? - Can I select the appropriate tools for at least one type of wood joint? - Can I show basic proficiency in creating one type of wood joint? -	- Can I confidently identify timber joints and understand the correct applications in industry? - Can I identify and select the appropriate tools for several different wood joints? - Can I identify and explain how their wood joints match with a success criteria? - Can I identify and explain how the working properties of timber can be exploited in the construction of timber-based products? - Can I show good proficiency in creating several wood joints?	- Can I evaluate the effectiveness of different wood-joints in different industry applications? - Can I identify and explain how their wood joints match with a success criteria and recommend imporvements in technique and/or tool selection? - Can I evaluate and apply knowledge of the working properties of timber to solve real-world design problems? - Can my practical work show a high level of skill with joints which are well made and tight fitting with a high level of accuracy?
The Key Skills/ Techniques	**The sophistication and application of skills will become more advanced as students' progress through the essential, core and ambitious knowledge**		
	Skill/Technique	**How will this skill be developed?**	

	Product Analysis	Students will study existing products such as chairs, tables, cupboards and buildings
	CAD Design	Using sketchup to design timber joints
	Sketching/drawing skills	Students will use sketching skills to show joints in cross section and exploded view
	Converting 2D designing into 3D products	Student will use timber to mark out and cut a variety of joints.
	Modelling techniques	Students will produce a series of sample joints to practice techniqies and understand the function, application |& limitations of different joints.
	Graphical communication techniques.	Isometric, oblique and google sketch up to model/draw different styles of joints.
	Understanding cultural diversity	Students will study joint styles emplyed by Japense carpenters and assess how joints can become aesthetic features in their own right.