

**Subject:** Resistant Materials (Door Wedge) **Year** 8 **Ability** All

Term / Date(s)	Technical Knowledge	Design Ideas	Making
<b>Topic</b>	Understanding Timbers and Environmental Impacts	Understanding the design process	Understanding Tools and Machinery
<b>Students will learn...</b>	Students will understand the importance of a Design Brief. Students will understand the process of designing for a client. Students will understand Environmental terms linked to timbers.	Students will understand how to create a design idea using a Design Brief. Students will understand how to work to design constraints. Students will understand how to design to a theme.	Students will understand how to use tools, equipment and machinery safely. Students will understand Health and Safety rules within a workshop. Students will learn to create a Finger joint.
<b>Components</b>	<ul style="list-style-type: none"> <li>Students will analyse a design brief, picking out key information that will impact the outcome of the final product.</li> <li>Students will understand a range of keywords linking to the design brief.</li> <li>Students will understand the importance of essentials (must) and desirables (could) in a design brief.</li> <li>Students will understand about FSC and the impacts this has on the Timber industry.</li> <li>Students will understand about the environmental impacts of timbers, including illegal logging.</li> <li>Students will be introduced to and complete Client Research amongst their peers to gain an understanding of their essential and desirable criteria.</li> <li>Students will understand the properties of hardwoods, softwoods and manufactured boards.</li> <li>Students will understand about coniferous and deciduous trees</li> <li>Students will understand how manufactured boards are formed.</li> <li>Students will understand the advantages/disadvantages and uses of Timbers and manufactured boards.</li> </ul>	<ul style="list-style-type: none"> <li>Students will design a range of ideas using the theme 'Nature'.</li> <li>Students will work to design constraints of size and shape.</li> <li>Students will learn how to create simple but effective design ideas.</li> <li>Students will learn to render accurately and with precision.</li> <li>Students will learn how to draw using Isometrics to create a 3D scale drawing.</li> <li>Students will use CAD to re-create their design in a digital format (TinkerCAD / Google Sketch-Up).</li> </ul>	<ul style="list-style-type: none"> <li>Students will use a range a range of marking out tools to mark out a Finger joint: Marking Gauge, Try-Square, Steel Ruler.</li> <li>Students will use a range of Tools to create a Finger Joint: Tenon Saw, Coping Saw, Bench Hook, File, Chisel.</li> <li>Students will use a range of Tools to create a high-quality, nature inspired Door Wedge: Coping Saw, File, Chisel, Sandpaper, Belt/Disc Sander.</li> <li>Students will use a range of Equipment to create a Bevel on their Door Wedge: Disc Sander, Wood Plane, Tenon Saw.</li> <li>Students will apply Health and Safety measures within the workshop.</li> <li>Students will understand about the importance of PPE in the workshop.</li> <li>Students will learn to create a high-quality rendered or painted finish to their work.</li> <li>Students will understand the importance of a high-quality final appearance.</li> </ul>
<b>What Students should already know (prior learning components)</b>	<ul style="list-style-type: none"> <li>How to gather simple research to improve the products we use. Students should know the key features and characteristics of the Pop Art movement and how these can be implemented in their own work</li> <li>How to identify the characteristics and uses of a range of mechanisms.</li> <li>Understand what mechanisms are, and understand the differences between pulleys, gears, cams and levers and their applications.</li> </ul>	<ul style="list-style-type: none"> <li>How to sketch 2D and 3D to convey an idea or concept.</li> <li>How to use the design process to produce simple products in the workshop.</li> <li>How to model an idea through a variety of media with an introduction to CAD – 2D Design</li> </ul>	<ul style="list-style-type: none"> <li>How to conduct themselves safely in a workshop.</li> <li>How to use the design process to produce simple products in the workshop.</li> <li>How to work safely to mark out, cut, file and sand using the workshop tools and machinery to join materials to make a product</li> <li>How to use finishing techniques such as stain and acrylic paint accurately.</li> <li>How to identify a specific mechanism and recognise its key parts.</li> <li>How to apply mechanisms into a product.</li> </ul>
<b>Golden Knowledge</b>	<ul style="list-style-type: none"> <li>Understand that a design brief is a key tool within Design and Technology.</li> <li>Understand that Timbers and Manufactured Boards have varying properties which affects their suitability for different projects.</li> </ul>	<ul style="list-style-type: none"> <li>Understand that it is important to understand how to work to design constraints such as size and themes.</li> <li>Understand that it is important to meet the design brief as part of the design process.</li> <li>Understand that rendering is a technical skill and differs to that of shading.</li> </ul>	<ul style="list-style-type: none"> <li>Understand that health and safety rules must be always followed in the workshop.</li> <li>Understand that marking out is imperative to creating high-quality and accurate work.</li> <li>Understand that it is vitally important to wear the correct PPE in the workshop.</li> </ul>

	<ul style="list-style-type: none"> <li>Understand that Client research is an integral part of the design process.</li> <li>Understand that the Forest Stewardship Council exist to keep forests sustainable for the future.</li> <li>Understand that trees can be both deciduous and coniferous.</li> </ul>	<ul style="list-style-type: none"> <li>Understand that using CAD can enhance the design process and allow the client/designer to see designs from multiple angles.</li> </ul>	<ul style="list-style-type: none"> <li>Understand that it is important to work within tolerance.</li> </ul>
<b>Transferrable knowledge (skills)</b>	<ul style="list-style-type: none"> <li>Understanding the properties of timbers and manufactured boards.</li> <li>Understanding about sustainability.</li> <li>Understanding about Client Research</li> <li>Understanding about a Design Brief.</li> </ul>	<ul style="list-style-type: none"> <li>Understanding how to use CAD.</li> <li>Understanding how to render using coloured crayons.</li> <li>Understanding how to design to constraints.</li> <li>Understand how to draw using precision and accuracy.</li> </ul>	<ul style="list-style-type: none"> <li>Understanding the importance of Health and Safety in a workshop.</li> <li>Understanding about Tolerance.</li> <li>Understanding basic measurements (mm/cm).</li> <li>Understanding the importance of PPE.</li> </ul>
<b>Key vocabulary pupil will know and learn</b>	Client Research Design Brief Sustainability Timbers Manufactured Boards FSC – Forest Stewardship Council Nature Essentials Desirables Hardwoods Softwoods. Coniferous Deciduous	CAD – Computer Aided Design TinkerCAD Sketch Up Client Designer 2D/3D Nature Constraints Precision Accuracy	Tolerance PPE – Personal Protective Equipment Centimeters Millimetres Health & Safety Conduct Marking Out Equipment Tenon Saw Coping Saw Try Square
<b>Assessment activities</b>	Live Marking within lesson and regular use of Purple Pen. Recall and Retention activities. Verbal feedback throughout the lesson.	Formative Assessment – Marking of Design Idea’s as a collective using the milestones.  Live Marking within lesson and regular use of Purple Pen. Recall and Retention activities. Verbal feedback throughout the lesson.	Summative Assessment – Assessed piece of the final making.  Live Marking within lesson and regular use of Purple Pen. Recall and Retention activities. Verbal feedback throughout the lesson.
<b>Resources available</b>	Resources for lesson delivery attached to the PPT’s – print out prior to the lesson.	Resources for lesson delivery attached to the PPT’s – print out prior to the lesson.	Resources for lesson delivery attached to the PPT’s – print out prior to the lesson.
<b>Notes</b> Why this topic is important <b>Why this topic is important...</b>	This topic is important as students are required to understand the importance of designing to a design brief. It is important they understand how to design to a client's needs and wants. It is important that students understand about the different properties of Hardwoods, Softwoods and Manufactured Boards as they progress throughout Design and Technology.	This topic is important as students are required to understand how to design to constraints such as size and client requirements. It is important that they understand how to design to a high standard and understand the expectations set within design work. It is important that students understand how to use modern technology such as CAD to further their development.	This topic is important as students need to understand the importance of Health and Safety within a workshop environment in keeping both themselves and others safe. Students need to understand how to create a range of wood joints within their work and develop independence when working in a practical environment.