



## Design and Technology MTP – Year 4-5 Spring

### Wooden picture frames

National Curriculum	Wk.	NC coverage	Knowledge and Skills	Key Vocab	Activity Outline
To evidence D&T, a <b>project booklet</b> needs to be created.					
<p><b>Purpose of study:</b> Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.</p> <p><b>Aims</b> The national curriculum for design and technology aims to ensure that all pupils:</p>	1	<p>generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</p>	Use models, kits and drawings to help formulate design ideas.	<p>Safety</p> <p>Woodworking tools</p> <p>Measuring</p>	<p>TBQ: What is our project for this term?</p> <p>Introduction to the wooden picture frame project: Students will be shown examples of wooden frames, and the objectives will be outlined (design, make, evaluate).</p> <p>Discuss the importance of safety in woodworking. Review safety rules regarding tools (e.g., scissors, glue guns, small hammers), the classroom environment, and proper posture.</p> <p>Explain the basic stages of the project: design, construction, finishing, and evaluation.</p>
	2	<p>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</p>	Develop more than one design or adaptation of an initial design.	<p>Design</p> <p>Inspiration</p> <p>Function</p>	<p>TBQ: What inspires me?</p> <p>Show students examples of different wooden picture frames, from simple to ornate. Discuss the materials and design variations (e.g., size, shape, decorative elements).</p> <p>Students will look for inspiration from their surroundings (e.g., home, galleries, nature) to sketch their own picture frame ideas. Encourage them to think about the purpose of the frame (e.g., a frame for a family photo, an artwork, etc.).</p> <p>Introduce the concept of "function" in design: What is the purpose of the frame? Should it be simple and functional or more decorative?</p>
	3	<p>generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes,</p>	Propose realistic suggestions as to how they can achieve their design ideas.	<p>Sketch</p> <p>Dimension</p> <p>Marking</p>	<p>TBQ: Can I create an initial design?</p> <p>Review design ideas with the students, discussing the importance of planning before making. Have students sketch at least two or</p>



<ul style="list-style-type: none"> <li>• develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world</li> <li>• build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users</li> <li>• critique, evaluate and test their ideas and products and the work of others</li> <li>• understand and apply the principles of nutrition and learn how to cook.</li> </ul> <p><b>Key stage 2</b> Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment]. When designing and making, pupils should be taught to:</p> <p><b>Design:</b></p> <ul style="list-style-type: none"> <li>• use research and develop design criteria to inform the design of innovative, functional, appealing</li> </ul>		<p>pattern pieces and computer-aided design</p>			<p>three different designs, focusing on the dimensions, shape, and size of their frame.</p> <p>Encourage students to think about the style of the frame (e.g., rustic, modern, colourful) and decide if they will add any decorative elements like carving, painting, or patterns.</p> <p>Discuss measurements and how to mark them accurately on the wood. Each student will create a design plan with dimensions for their frame.</p>
	4	<p>select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately</p>	Use tools with accuracy.	<p>Material</p> <p>Recycled</p> <p>Cutting</p>	<p>TBQ: How do I prepare the wood?</p> <p>Introduce the students to the materials they will be using: wood types (e.g., softwood, plywood, MDF), as well as recycled or scrap wood options.</p> <p>Explain how to choose the right wood for their design, focusing on durability and ease of handling. Discuss the importance of selecting pieces of wood that are straight and free from major defects.</p> <p>Demonstrate how to measure and mark the wood according to the sketch, paying attention to the dimensions of the frame.</p> <p>Supervise the cutting process, ensuring all students follow proper safety procedures.</p>
	5	<p>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>	Select from a range of tools for cutting shaping joining and finishing.	<p>Cutting tools</p> <p>Accuracy</p> <p>Sawdust</p>	<p>TBQ: How do I safely cut wood?</p> <p>Demonstrate how to safely use cutting tools (e.g., junior saws, craft knives) to cut wood. Emphasise proper posture and safety precautions.</p> <p>Each student will carefully cut their wood pieces based on their sketch and measurements. They will need four pieces for the sides and additional pieces for the back and any decorative elements.</p>



<p>products that are fit for purpose, aimed at particular individuals or groups</p> <ul style="list-style-type: none"> <li>generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</li> </ul> <p><b>Make</b></p> <ul style="list-style-type: none"> <li>select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], 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> </ul> <p><b>Evaluate</b></p> <ul style="list-style-type: none"> <li>investigate and analyse a range of existing products</li> <li>evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</li> <li>understand how key events and individuals in design and technology have helped shape the world</li> </ul>					Encourage students to cut slowly and check measurements frequently to ensure accuracy.
	6	<p>apply their understanding of how to strengthen, stiffen and reinforce more complex structures</p>	<p>Select from materials according to their functional properties.</p>	<p>Joinery</p> <p>Glue</p> <p>Reinforcement</p>	<p>TBQ: Can I assemble my frame?</p> <p>Discuss basic joinery methods such as butt joints and corner joints, and how to secure pieces using glue or nails.</p> <p>Demonstrate how to apply wood glue to the edges of the frame and assemble it, ensuring the corners are square. Show how to reinforce joints with nails or small screws.</p> <p>Allow students time to assemble their frames, ensuring all pieces are held together securely while the glue dries.</p>
	7	<p>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>Use appropriate finishing techniques.</p>	<p>Sanding</p> <p>Smoothness</p> <p>Finish</p>	<p>TBQ: Can I sand and smooth?</p> <p>Introduce sanding as an important step in woodworking to smooth rough edges and prepare the wood for finishing.</p> <p>Demonstrate how to use different grades of sandpaper to achieve a smooth surface on the frame.</p> <p>Students will sand their frames carefully, focusing on the edges, corners, and any areas with splinters or rough spots.</p> <p>Discuss the importance of sanding for both the appearance and durability of the frame.</p>
	8	<p>select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately</p>	<p>Select from materials according to their functional properties.</p>	<p>Decorative</p> <p>Carving</p> <p>Embellishment</p>	<p>TBQ: Can I add decorative elements?</p> <p>Discuss how decorative elements, such as carving, painting, or adding embellishments (e.g., beads, fabric), can enhance the appearance of the frame.</p> <p>Students will decide if they want to paint their frames, carve designs into the wood, or add decorative materials.</p>



<p><b>Technical Knowledge:</b></p> <ul style="list-style-type: none"> <li>• apply their understanding of how to strengthen, stiffen and reinforce more complex structures</li> <li>• understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]</li> <li>• understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]</li> <li>• apply their understanding of computing to program, monitor and control their products.</li> </ul> <p><b>Cooking and nutrition</b></p> <p>As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life. Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• understand and apply the principles of a healthy and varied diet</li> <li>• prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques</li> <li>• understand seasonality, and know where and how a variety of</li> </ul>				<p>Provide paints, markers, or carving tools (if appropriate), and let students decorate their frames based on their designs.</p> <p>Encourage students to think about the style and colours that will best complement the picture they intend to place in the frame.</p>	
	9	<p>apply their understanding of how to strengthen, stiffen and reinforce more complex structures</p>	<p>Use appropriate finishing techniques.</p>	<p>Varnish</p> <p>Coat</p> <p>Protection</p>	<p>TBQ: Why do I need to apply a protective finish?</p> <p>Discuss the purpose of applying a finish, such as varnish or wood oil, to protect the wood and enhance its appearance.</p> <p>Demonstrate how to apply a thin coat of varnish or wood oil evenly across the frame.</p> <p>Allow time for students to apply the finish to their frames, using brushes or cloths, and ensure they work in a well-ventilated area.</p> <p>Students will leave the frames to dry for several hours or overnight.</p>
	10	<p>evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</p>	<p>Select from materials according to their functional properties.</p>	<p>Backing</p> <p>Picture hook</p> <p>Securing</p>	<p>TBQ: Is my frame complete?</p> <p>Students will cut and attach a backing for the frame. The backing can be made from cardboard, thin wood, or MDF.</p> <p>Demonstrate how to attach the backing securely to the frame using glue or small nails.</p> <p>If students have glass or plastic for the frame cover, explain how to carefully measure and place it.</p> <p>Finally, guide students in adding picture hooks or stands to the back of the frame, if desired.</p>
	11	<p>evaluate their ideas and products against their own design criteria and consider the views of</p>	<p>Consider and explain how the finished product could be improved.</p>	<p>Functionality</p> <p>Sturdiness</p> <p>Evaluation</p>	<p>TBQ: Is my frame functional?</p> <p>Students will test their frames by inserting a picture and checking if the frame holds it securely.</p>



<p>ingredients are grown, reared, caught and processed.</p>		<p>others to improve their work</p>			<p>Review the frame's sturdiness, functionality, and any potential issues with the design.</p> <p>Discuss the importance of evaluation, both for functionality and aesthetic appeal.</p> <p>Provide time for students to evaluate their frames and make any final adjustments.</p>
	<p>12</p>	<p>evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</p>	<p>Discuss how well the finished product meets the design criteria of the user.</p>	<p>Self-assessment Peer review Reflection</p>	<p>TBQ: Can I evaluate my product?</p> <p>Students will fill out a self-assessment sheet to evaluate their work based on design, making, and finishing.</p> <p>They will also participate in a peer review session, giving feedback to each other on their frames.</p> <p>Encourage students to focus on constructive criticism and highlight areas where their peers did well.</p>
<p>13 - end</p>	<p align="center"><b>Assessment</b></p> <p>Complete a quiz based on this unit.</p>				