



## Upperwood Academy

### Design Technology Disciplinary Knowledge Progression

	EYFS	KS1	LKS2	UKS2
Design	<ul style="list-style-type: none"><li>• Make verbal plans and communicate material choices</li></ul>	<ul style="list-style-type: none"><li>• Learning the importance of a clear design criteria.</li><li>• Including individual preferences and requirements in a design.</li><li>• Use a template to create a design</li><li>• Creating clearly labelled drawings that illustrate movement.</li><li>• Generating and communicating ideas using sketching and modelling.</li><li>• Selecting a suitable linkage system to produce the desired motion.</li><li>• Design a meal based on knowledge of food combinations that work well together</li><li>• Design packaging for a food product.</li></ul>	<ul style="list-style-type: none"><li>• Carry out research based on a given topic (e.g. The Romans) to develop a range of initial ideas.</li><li>• Generate a final design for a product with consideration to the client's needs and design criteria.</li><li>• Plan the positioning of the bulb (circuit component) and its purpose.</li><li>• Design a product that uses a pneumatic system</li><li>• Generating ideas using thumbnail sketches and exploded diagrams.</li><li>• Learning that different types of drawings are used in design to explain ideas clearly.</li><li>• Create a meal using seasonal ingredients, considering the taste, texture, smell and appearance of the dish.</li><li>• Designing a shape that reduces air resistance.</li><li>• Drawing a net to create a structure. Choosing shapes that increase or decrease speed as a result of air resistance.</li><li>• Problem solving by suggesting potential features on a Micro: bit and justifying my ideas.</li><li>• Drawing and manipulating 2D shapes, using computer-aided</li></ul>	<ul style="list-style-type: none"><li>• Design a product considering the main component shapes required and creating an appropriate template.</li><li>• Considering the proportions of individual components.</li><li>• Designing a stable structure that is able to support weight.</li><li>• Creating a frame structure with a focus on triangulation.</li><li>• Designing a pop-up book which uses a mixture of structures and mechanisms.</li><li>• Naming each mechanism, input and output accurately.</li><li>• Writing a recipe, explaining the key steps, method and ingredients.</li><li>• Including facts and drawings from research undertaken.</li><li>• Writing a design brief from information submitted by a client.</li><li>• Developing design criteria to fulfil the client's request. Considering and suggesting additional functions for my navigation tool.</li><li>• Developing a product idea through annotated sketches. Placing and manoeuvring 3D objects, using CAD.</li></ul>

			<p>design, to produce a point of sale badge.</p> <ul style="list-style-type: none"> <li>Designing a biscuit within a given budget, drawing upon previous taste testing judgements.</li> </ul>	<ul style="list-style-type: none"> <li>Changing the properties of, or combining one or more 3D objects, using CAD.</li> </ul>
	EYFS	KS1	LKS2	UKS2
Make	<ul style="list-style-type: none"> <li>Improving fine motor/scissor skills with a variety of materials.</li> <li>Joining materials in a variety of ways (temporary and permanent).</li> <li>Joining different materials together.</li> </ul>	<ul style="list-style-type: none"> <li>Making stable structures from card, tape and glue.</li> <li>Learning how to turn 2D nets into 3D structures. Following instructions to cut and assemble the supporting structure of a windmill.</li> <li>Making functioning turbines and axles which are assembled into a main supporting structure.</li> <li>Cutting fabric neatly with scissors.</li> <li>Using joining methods to decorate a puppet / pouch. Sequencing steps for construction.</li> <li>Chopping fruit and vegetables safely to make a smoothie / fruit salad.</li> </ul>	<ul style="list-style-type: none"> <li>Knowing how to prepare themselves and a work space to cook safely in, learning the basic rules to avoid food contamination. Following the instructions within a recipe, including preparation of ingredients.</li> <li>Create a final design for the electric poster. Mount the poster onto corrugated card to improve its strength and allow it to withstand the weight of the circuit on the rear.</li> <li>Fit an electrical component (bulb).</li> <li>Learn ways to give the final product a higher quality finish (e.g. framing to conceal a roughly cut edge).</li> <li>Creating a pneumatic system to create a desired motion.</li> <li>Building secure housing for a pneumatic system.</li> </ul>	<ul style="list-style-type: none"> <li>Creating a 3D stuffed toy from a 2D design.</li> <li>Measuring, marking and cutting fabric accurately and independently.</li> <li>Creating strong and secure blanket stitches when joining fabric.</li> <li>Threading needles independently.</li> <li>Using appliquéd to attach pieces of fabric decoration.</li> <li>Making a range of different shaped beam bridges.</li> <li>Using triangles to create truss bridges that span a given distance and support a load. Building a wooden bridge structure.</li> <li>Independently measuring and marking wood accurately. Selecting appropriate tools and</li> </ul>

	<ul style="list-style-type: none"> <li>• Adapting mechanisms, when they do not work as they should; to fit their vehicle design; to improve how they work after testing their vehicle.</li> <li>• Making a structure according to design criteria.</li> <li>• Creating joints and structures from paper/card and tape.</li> <li>• Building a strong and stiff structure by folding paper.</li> <li>• Selecting materials according to their characteristics.</li> <li>• Slicing food safely using the bridge or claw grip. Constructing a wrap that meets a design brief.</li> </ul>	<ul style="list-style-type: none"> <li>• Using syringes and balloons to create different types of pneumatic systems to make a functional and appealing pneumatic toy.</li> <li>• Selecting materials due to their functional and aesthetic characteristics.</li> <li>• Manipulating materials to create different effects by cutting, creasing, folding and weaving.</li> <li>• Measuring, marking, cutting and assembling with increasing accuracy.</li> <li>• Making and assembling a torch with a working electrical circuit and switch.</li> <li>• Writing a program to control (button press) and/or monitor (sense light) that will initiate a flashing LED algorithm.</li> <li>• Cooking safely, following basic hygiene rules.</li> <li>• Adapting a recipe to improve it or change it to meet new criteria (e.g. from savoury to sweet).</li> <li>• Creating a range of different shaped frame structures.</li> <li>• Making a variety of free-standing frame structures of different shapes and sizes. Selecting appropriate materials to build a strong structure and cladding.</li> <li>• Reinforcing corners to strengthen a structure.</li> <li>• Programming a micro:bit in the Microsoft micro:bit editor, to time equipment for particular tasks. Using the correct techniques to saws safely.</li> </ul>
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a set number of seconds/minutes  
upon button press.

EYFS

KS1

LKS2

UKS2

Evaluate	<ul style="list-style-type: none"> <li>Give a verbal evaluate of their own and others' work.</li> <li>Make simple suggestions to fix a model.</li> <li>Checking to see if their model matches their plan.</li> <li>Considering what they would do differently if they were to do it again.</li> <li>Describing their favourite and least favourite part of their model.</li> </ul>	<ul style="list-style-type: none"> <li>Evaluating a windmill according to the design criteria, testing whether the structure is strong and stable and altering it if it isn't.</li> <li>Suggest points for improvements.</li> <li>Reflecting on a finished product, explaining likes and dislikes.</li> <li>Describing the taste, texture and smell of fruit and vegetables.</li> <li>Taste testing food combinations and final products.</li> <li>Describing the information that should be included on a label.</li> <li>Evaluating which grip was most effective.</li> <li>Testing wheel and axle mechanisms, identifying what stops the wheels from turning, and recognising that a wheel needs an axle in order to move.</li> <li>Exploring the features of structures.</li> <li>Comparing the stability of different shapes.</li> </ul>	<ul style="list-style-type: none"> <li>Establishing and using design criteria to help test and review dishes.</li> <li>Describing the benefits of seasonal fruits and vegetables and the impact on the environment. Suggesting points for improvement when making a seasonal tart.</li> <li>Learning to give and accept constructive criticism on own work and the work of others.</li> <li>Testing the success of initial ideas against the design criteria and justifying opinions.</li> <li>Revisiting the requirements of the client to review developing design ideas and check that they fulfil their needs.</li> <li>Using the views of others to improve designs.</li> <li>Testing and modifying the outcome, suggesting improvements. Understanding the purpose of exploded-diagrams through the eyes of a designer and their client.</li> <li>Evaluating the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance.</li> <li>Evaluating electrical products. Testing and evaluating the success of a final product</li> <li>Analysing and evaluating an existing product.</li> </ul>	<ul style="list-style-type: none"> <li>Testing and evaluating an end product and giving point for further improvements.</li> <li>Adapting and improving own bridge structure by identifying points of weakness and reinforcing them as necessary. Suggesting points for improvements for own bridges and those designed by others.</li> <li>Evaluating the work of others and receiving feedback on own work.</li> <li>Suggesting points for improvement.</li> <li>Evaluating a recipe, considering: taste, smell, texture and origin of the food group.</li> <li>Taste testing and scoring final products.</li> <li>Suggesting and writing up points of improvements when scoring others' dishes, and when evaluating their own throughout the planning, preparation and cooking process.</li> <li>Evaluating health and safety in production to minimise cross contamination.</li> <li>Explaining how my program fits the design criteria and how it would be useful as part of a navigation tool.</li> <li>Developing an awareness of sustainable design.</li> </ul>
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- Testing my program for bugs (errors in the code).
- Finding and fixing the bugs (debug) in my code.