

Design and Technology Pupil Progression

Design

	<u>Year 1 and Year 2 Cycle A</u>	<u>Year 3 and Year 4 Cycle A</u>	<u>Year 5</u>	<u>Year 6</u>
<u>Structures</u>	<ul style="list-style-type: none"> Learning the importance of a clear design criteria Generating and communicating ideas using sketching and modelling Learning about different types of structures, found in the natural world and in everyday objects 	<ul style="list-style-type: none"> Designing with key features to appeal to a specific person/ purpose Drawing and labelling a design using key requirements and vocabulary Designing a stable castle structure that is aesthetically pleasing and selecting materials to create a desired effect 	<ul style="list-style-type: none"> Designing a stable structure that can hold together due to precise measuring and cutting Creating frame structure with focus on joints 	<ul style="list-style-type: none"> Designing a birdbox featuring a variety of different aspects, giving careful consideration to how the structure will be used, considering effective and ineffective designs
<u>Mechanisms</u>	<ul style="list-style-type: none"> Creating clearly labelled drawings which illustrate individuality Creating a class design criteria for a moving Christmas card slider Designing a moving windmill for a specific audience in accordance with a design criteria 	<ul style="list-style-type: none"> Researching what a boards game and an electronic buzzer game is Personalising a design Designing an electronic buzzer game with a simple electrical control circuit, identifying components 	<ul style="list-style-type: none"> Designing a toy which uses a pneumatic system using a design criteria from a design brief Generating ideas using thumbnail sketches Learning that different types of drawings are used in design to explain ideas clearly 	N/A (SATs)
<u>Textiles</u>	<ul style="list-style-type: none"> Designing a template for fabric for sports day bunting 	<ul style="list-style-type: none"> criteria for a product, articulating decisions made Designing a personalised Christmas stocking with an audience in mind 	<ul style="list-style-type: none"> Designing a walker's pouch considering the main component shapes required and creating an appropriate template Considering proportions of individual components 	<ul style="list-style-type: none"> Designing a Christmas fabric ornament in accordance to specification linked to set of design criteria to fit a specific theme • Annotating designs
<u>Cooking and nutrition</u>	<ul style="list-style-type: none"> Designing a frozen fruit ice lolly with their own personal choices 	<ul style="list-style-type: none"> Creating a healthy and nutritious fruit cereal bar considering the taste, texture, smell and appearance of the dish Designing a food product with their own personal adaptations 	<ul style="list-style-type: none"> Understanding that the nutritional value of their recipe Designing how to make their product appealing 	<ul style="list-style-type: none"> Writing a recipe, explaining the key steps, method and ingredients Discuss seasonality and use this within their recipe

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Make

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<u>Structures</u>	<ul style="list-style-type: none"> • Making stable structures from card, tape and glue • Following instructions to cut and assemble the supporting structure of a windmill • Making functioning turbines and axles which are assembled into a main supporting structure • Making a structure according to design criteria 	<ul style="list-style-type: none"> • Making stable structures from card, tape and glue for their castle • Following instructions to cut and assemble the supporting structure • Making a structure according to design criteria • Creating joints and structures from paper/card and tap 	<ul style="list-style-type: none"> • Independently measuring and marking wood accurately • Selecting appropriate tools and equipment for particular tasks • Using the correct techniques to saws safely • Identifying where a structure needs reinforcement and using card corners for support 	<ul style="list-style-type: none"> • Building an animal home that opens with a hinge • Measuring, marking and cutting wood to create a range of shapes for their structure • Using a range of materials to reinforce and add decoration to structures
<u>Mechanisms</u>	<ul style="list-style-type: none"> • Following a design to create moving models • Adapting mechanisms • Experimenting with linkages adjusting the widths, lengths and thicknesses of card used • Cutting and assembling components neatly • Selecting materials according to their characteristics • Following a design brief 	<ul style="list-style-type: none"> • Using tools to create holes and secure equipment • Making a working circuit • Creating an electronic buzzer board game, referring to a design criteria • Mapping out where different components of the circuit will go • Making their game look appealing 	<ul style="list-style-type: none"> • Creating a pneumatic system to create a desired motion • Building secure housing for a pneumatic system • Using syringes and balloons to create different types of pneumatic systems to make a functional and appealing pneumatic toy 	N/A (SATs)
<u>Textiles</u>	<ul style="list-style-type: none"> • Cutting fabric neatly with scissors • Using joining methods to decorate their bunting • Selecting and cutting fabrics for sewing • Sewing using running stitch with lots of adult support 	<ul style="list-style-type: none"> • Following design criteria to create a Christmas stocking • Selecting and cutting fabrics with ease using scissors • Sewing running stitch to join fabric and practicing blanket stitch (Yr4) • Completing design ideas with sewing the edges and decorating fabric sewing small neat stitches 	<ul style="list-style-type: none"> • Creating a walker's pouch from their design • Measuring, marking and cutting fabric accurately and independently • Creating strong and secure running and blanket stitches when joining fabric • Attach pieces of fabric decoration and string for strap 	<ul style="list-style-type: none"> • Using template pinning panels onto fabric • Marking and cutting fabric accurately, in accordance with fabric ornament design • Sewing a strong running, blanket and back stitch, making small, neat stitches and following the edge • Tying strong knots in threads
<u>Cooking and nutrition</u>	<ul style="list-style-type: none"> • Chopping fruit and vegetables safely to make a fruit yogurt lolly • Identifying if a food is a fruit or a vegetable • Learning where and how fruits and vegetables grow • Slicing food safely using the bridge or claw grip 	<ul style="list-style-type: none"> • 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 • Following a baking recipe for healthy cereal bars • Cooking safely, following basic hygiene rules • Adapting a recipe 	<ul style="list-style-type: none"> • Cutting and preparing vegetables safely for wrap pizzas • Using equipment safely, including knives, graters and peelers • Knowing how to avoid cross contamination • Following a step by step method carefully to make a recipe 	<ul style="list-style-type: none"> • Following a recipe, including using the correct quantities of each ingredient • Adapting a recipe based on research • Working to a given timescale • Working safely and hygienically with independence

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Evaluate

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<u>Structures</u>	<ul style="list-style-type: none"> Evaluating a windmill according to the design criteria, testing whether the structure is strong and stable and altering it if it isn't Suggest points for improvements Exploring the features of structures Comparing the stability of different shapes Evaluating the strength, stiffness and stability of own structure 	<ul style="list-style-type: none"> Evaluating own work and the work of others based on the aesthetic of the finished product and in comparison to the original design Suggesting points for modification of the individual designs Evaluating structures made by the class Describing what characteristics of a design and construction made it the most effective and considering effective and ineffective designs 	<ul style="list-style-type: none"> Adapting and improving own picture frames by identifying points of weakness and reinforcing them as necessary Suggesting points for improvements for own frames and those designed by others 	<ul style="list-style-type: none"> Improving a design plan based on self and peer evaluation Testing and adapting a design to improve it as it is developed Identifying what makes a successful structure and how theirs could be improved
<u>Mechanisms</u>	<ul style="list-style-type: none"> Testing a finished product, seeing whether it moves as planned and if not, explaining why and how it can be fixed Reviewing the success of a product by testing it with its intended audience Evaluating own designs against design criteria Using peer feedback to modify a final design 	<ul style="list-style-type: none"> Using the views of others to improve designs Testing and modifying the outcome, suggesting improvements Evaluating the circuit, design and structure of their design 	<ul style="list-style-type: none"> Evaluating the work of others and receiving feedback on own work Suggesting points for improvement 	N/A (SATS)
<u>Textiles</u>	<ul style="list-style-type: none"> Reflecting on a finished product, explaining likes and dislikes Troubleshooting scenarios posed by teacher Evaluating the quality of the stitching on others' work Discussing the success of their stitching against the success criteria 	<ul style="list-style-type: none"> Evaluating an end product and thinking of other ways in which to recreate it better Evaluating an end product against the original design criteria Deciding how many of the criteria should be met for the product to be considered successful Suggesting modifications for improvement 	<ul style="list-style-type: none"> Testing and evaluating an end product and giving point for further improvements 	<ul style="list-style-type: none"> Evaluating end product of what was successful, needs improvement and what skills have been learned/improved along the way
<u>Cooking and nutrition</u>	<ul style="list-style-type: none"> Tasting and evaluating their food combinations Describing appearance, smell and taste Evaluating which grip was most effective 	<ul style="list-style-type: none"> Describing the benefits of seasonal fruits and vegetables and the impact on the environment Suggesting points for improvement when making their cereal bars Evaluating a recipe, considering: taste, smell, texture and appearance 	<ul style="list-style-type: none"> Identifying the nutritional differences between different products and recipes Identifying and describing healthy benefits of food groups 	<ul style="list-style-type: none"> Evaluating a recipe, considering: taste, smell, texture and origin of the food group Taste testing and scoring final products Suggesting points of improvements

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Technical Knowledge

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<u>Structures</u>	<ul style="list-style-type: none"> Describing the purpose of structures, including windmills Learning that the shape of materials can be changed to improve the strength and stiffness of structures Understanding that axles are used in structures and mechanisms to make parts turn in a circle Using the vocabulary: strength, stiffness and stability 	<ul style="list-style-type: none"> Identify features of a castle Identifying suitable materials to be selected and used for a castle, considering weight, compression, tension Extending the knowledge of wide and flat based objects are more stable Understanding the terminology of strut, tie, span, beam Understanding the difference between frame and shell structure 	<ul style="list-style-type: none"> Understanding how pneumatic systems work Learning that mechanisms are a system of parts that work together to create motion Understanding that pneumatic systems can be used as part of a mechanism Learning that pneumatic systems force air over a distance to create movement 	<ul style="list-style-type: none"> Knowing that structures can be strengthened by manipulating materials and shapes Understanding man made and natural structures Identifying stronger and weaker structures Finding different ways to reinforce structures
<u>Mechanisms</u>	<ul style="list-style-type: none"> Learning that mechanisms can make things move Learning that a lever or slider and determining what movement the mechanism will make Learning that mechanisms are a collection of moving parts that work together in a machine 	<ul style="list-style-type: none"> Learning how electrical items work Learning what electrical conductors and insulators are Understanding that a battery contains stored electricity and can be used to power products Identifying the features of a circuit in their game 	<ul style="list-style-type: none"> Understanding how pneumatic systems work Learning that mechanisms are a system of parts that work together to create motion Understanding that pneumatic systems can be used as part of a mechanism Learning that pneumatic systems force air over a distance to create 	N/A (SATs)
<u>Textiles</u>	<ul style="list-style-type: none"> Joining items using glue and stitching Sewing running stitch, with evenly spaced, neat, even stitches to join fabric Neatly cutting fabric using a template 	<ul style="list-style-type: none"> Threading needles with greater independence Tying knots with greater independence Sewing running stitch with less support Practice blanket stitch (yr4) with support Understanding how evenly spaced and close together stitching is effective for their stocking. 	<ul style="list-style-type: none"> Learning to sew blanket stitch to join fabric Applying running and blanket stitch so the space between the stitches are even and regular Threading needles more independently 	<ul style="list-style-type: none"> Learning different decorative stitches Application and outcome of the individual technique Sewing accurately with even regularity of stiches Threading needles independently
<u>Cooking and nutrition</u>	<ul style="list-style-type: none"> Understanding the difference between fruits and vegetables Describing and grouping fruits by texture and taste Understanding what makes a balanced diet Knowing where to find the nutritional information on packaging 	<ul style="list-style-type: none"> Knowing the five food groups Working with cooking equipment safely and hygienically Learning that imported foods travel from far away and this can impact the environment Learning that vegetables and fruit grow in certain seasons Learning to use, store and clean a knife safely 	<ul style="list-style-type: none"> Understanding where food comes from - learning that meat is reared and processed Understanding what constitutes a balanced diet Learning to adapt a recipe to make it healthier 	<ul style="list-style-type: none"> Recording the relevant ingredients and equipment needed for a recipe Understanding the combinations of food that will complement one another Understanding where food comes from, describing the process of 'Farm to Fork' for a given ingredient

