



Design and Technology skills progression

	F2	KS1	LKS2	UKS2
Design	<p>Children will develop their ability to create, design and explore using a variety of different media.</p> <p>Children will develop their ability to manipulate basic tools to create an effect.</p> <p>Children will develop their ability to share their creations explaining the process they have used.</p> <p>Children will develop skills which will enable them to adapt their own designs and talk about why they have made changes.</p>	<p><u>Structures</u></p> <ul style="list-style-type: none"> learning the importance of a clear design criteria including individual preferences and requirements in a design generating and communicating ideas using sketching and modelling learning about different types of structures, found in the natural world and in everyday objects <p><u>Mechanisms</u></p> <ul style="list-style-type: none"> designing a moving story book for a given audience (purposeful) creating clearly labelled drawings which illustrate movement selecting a suitable linkage system to produce the desired motions designing a wheel selecting appropriate materials based on their properties 	<p><u>Structures</u></p> <ul style="list-style-type: none"> generating and communicating ideas using sketching and modelling learning about different types of structures, found in the natural world and in everyday objects building frame structures designed to support weight <p><u>Mechanisms</u></p> <ul style="list-style-type: none"> developing design criteria from a design brief generating ideas using thumbnail sketches and exploded diagrams learning that different types of drawings are used in design to explain ideas clearly designing a shape that reduces air resistance drawing a net to create a structure from choosing shapes that increase or decrease speed as a result of air resistance personalising a design 	<p><u>Structures</u></p> <ul style="list-style-type: none"> designing a stable structure that is able to support weight designing a playground featuring a variety of different structures, giving careful consideration to how the structures will be used, considering effective and ineffective designs <p><u>Mechanisms</u></p> <ul style="list-style-type: none"> naming each mechanism, input and output accurately experimenting with a range of cams, creating a design for an automata toy based on a choice of cam to create a desired movement understanding how linkages change the direction of a force making things move at the same time <p><u>Electrical systems</u></p> <ul style="list-style-type: none"> designing a steady hand game - identifying and naming the components required

		<p><u>Textiles</u></p> <ul style="list-style-type: none"> • using a template to create mock-up children then design a puppet 	<p><u>Electrical systems</u></p> <ul style="list-style-type: none"> • designing a game that works using static electricity, including the instructions for playing the game • identifying a design criteria and a target audience - aimed at particular individuals or groups • designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas • understand how key events and individuals in design and technology have helped shape the world: Thomas Edison electricity - torches <p><u>Textiles</u></p> <ul style="list-style-type: none"> • designing and making a template from an existing cushion and applying individual design criteria • writing design criteria for a product, articulating decisions made • designing a personalised book sleeve or pencil case 	<ul style="list-style-type: none"> • drawing a design from three different perspectives • generating ideas through sketching and discussion • modelling ideas through prototypes <p><u>Textiles</u></p> <ul style="list-style-type: none"> • research and develop design ideas for a waistcoat in accordance to specification linked to set of design criteria to fit a specific theme • annotating designs <p><u>Computing/design</u></p> <ul style="list-style-type: none"> • apply their understanding of computing to program, monitor and control their products - see computing Y6
Make		<p><u>Structures</u></p> <ul style="list-style-type: none"> • making a structure according to design criteria • creating joints and structures from paper/card and tape 	<p><u>Structures</u></p> <ul style="list-style-type: none"> • constructing a range of 3D geometric shapes using nets • creating special features for individual designs • making facades from a range of recycled materials 	<p><u>Structures</u></p> <ul style="list-style-type: none"> • building a range of play apparatus structures drawing upon new and prior knowledge of structures

		<p><u>Mechanisms</u></p> <ul style="list-style-type: none"> ● following a design to create moving models that use levers and sliders ● adapting mechanisms ● cutting and assembling components neatly ● selecting materials according to their characteristics ● following a design brief <p><u>Textiles</u></p> <ul style="list-style-type: none"> ● selecting the appropriate tool to cut fabric neatly, e.g. scissors ● using joining methods to decorate a puppet ● sequencing steps for construction ● selecting and cutting fabrics for sewing ● decorating a puppet using fabric glue or running stitch 	<ul style="list-style-type: none"> ● making a variety of free standing frame structures of different shapes and sizes ● creating a design in accordance with a plan <p><u>Mechanisms</u></p> <ul style="list-style-type: none"> ● measuring, marking, cutting and assembling with increasing accuracy ● making a model based on a chosen design <p><u>Electrical systems</u></p> <ul style="list-style-type: none"> ● making a torch with a working electrical circuit and switch ● selecting appropriate equipment to cut and attach materials ● assembling a torch according to the design and success criteria <p><u>Textiles</u></p> <ul style="list-style-type: none"> ● following design criteria to create a cushion ● selecting and cutting fabrics with ease using fabric scissors ● sewing cross stitch to join fabric ● decorating fabric using appliqué ● completing design ideas with stuffing and sewing the edges 	<ul style="list-style-type: none"> ● measuring, marking and cutting wood to create a range of structures ● using a range of materials to reinforce and add decoration to structures <p><u>Mechanisms</u></p> <ul style="list-style-type: none"> ● measuring, marking and checking the accuracy of the jelutong and dowel pieces required ● measuring, marking and cutting components accurately using a ruler and scissors ● assembling components accurately to make a stable frame ● understanding that for the frame to function effectively the components must be cut accurately and the joints of the frame secured at right angles ● selecting appropriate materials based on the materials being joined and the speed at which the glue needs to dry/set <p><u>Electrical systems</u></p> <ul style="list-style-type: none"> ● building a range of play apparatus structures drawing upon new and prior knowledge of structures ● accurately measuring, marking and cutting wood to create a range of structures
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				<ul style="list-style-type: none"> ● selecting a range of materials to reinforce and add decoration to structures – aesthetic qualities <p><u>Textiles</u></p> <ul style="list-style-type: none"> ● using template pinning panels onto fabric ● marking and cutting fabric accurately, in accordance with a design ● sewing a strong running stitch, making small, neat stitches and following the edge ● tying strong knots ● decorating a waistcoat - attaching objects using thread and adding a secure fastening – aesthetic qualities
Evaluate		<p><u>Structures</u></p> <ul style="list-style-type: none"> ● exploring the features of structures ● comparing the stability of different shapes ● testing the strength of own structures ● identifying the weakest part of a structure ● evaluating the strength, stiffness and stability of own structure <p><u>Mechanisms</u></p> <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 	<p><u>Structures</u></p> <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 <p><u>Mechanisms</u></p> <ul style="list-style-type: none"> ● evaluating the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance 	<p><u>Structures</u></p> <ul style="list-style-type: none"> ● improving a design plan based on peer evaluation ● testing and adapting a design to improve it as it is developed ● identifying what makes a successful structure <p><u>Mechanisms</u></p> <ul style="list-style-type: none"> ● evaluating the work of others and receiving feedback on own work ● applying points of improvements ● describing changes they would make/do if they were to do the project again

		<ul style="list-style-type: none"> ● reviewing the success of a product by testing it with its intended audience ● testing mechanisms, identifying what stops wheels from turning, knowing ● recognising that a wheel needs an axle in order to move ● evaluating own designs against design criteria ● using peer feedback to modify a final design ● evaluating different designs ● testing and adapting a design <p><u>Textiles</u></p> <ul style="list-style-type: none"> ● reflecting on a finished product, explaining likes and dislikes ● evaluating the quality of the stitching on others' work ● discussing as a class, the success of their stitching against the success criteria ● identifying aspects of their peers' work that they particularly like and why 	<p><u>Electrical systems</u></p> <ul style="list-style-type: none"> ● evaluating electrical products ● testing and evaluating the success of a final product and taking inspiration from the work of peers <p><u>Textiles</u></p> <ul style="list-style-type: none"> ● evaluating an end product and thinking of other ways in which to create similar items ● testing and 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 	<p><u>Electrical systems</u></p> <ul style="list-style-type: none"> ● testing own and others finished games, identifying what went well and making suggestions for improvement <p><u>Textiles</u></p> <ul style="list-style-type: none"> ● evaluating work continually as it is created
<p>Technical Knowledge</p>		<p><u>Structures</u></p> <ul style="list-style-type: none"> ● identifying natural and man-made structures ● identifying when a structure is more or less stable than another ● knowing that shapes and structures with wide, at bases or legs are the most stable ● understanding that the shape of a structure affects its strength 	<p><u>Structures</u></p> <ul style="list-style-type: none"> ● identifying 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 at based objects are more stable 	<p><u>Structures</u></p> <ul style="list-style-type: none"> ● knowing that structures can be strengthened by manipulating materials and shapes – applying knowledge to more complex structures ● identifying the shell structure in everyday life (cars, aeroplanes, tins, cans)

		<ul style="list-style-type: none"> • using the vocabulary: strength, stiffness and stability • knowing that materials can be manipulated to improve strength and stiffness • building a strong and stiff structure by folding paper <p><u>Mechanisms</u></p> <ul style="list-style-type: none"> • learning that levers and sliders are mechanisms and can make things move • identifying whether a mechanism is a lever or slider and determining what movement the mechanism will make • using the vocabulary: up, down, left, right, vertical and horizontal to describe movement • identifying what mechanism makes a toy or vehicle roll forwards • learning that for a wheel to move it must be attached to an axle • learning that mechanisms are a collection of moving parts that work together in a machine • learning that there is an input and output in a mechanism • identifying mechanisms in everyday objects • learning that a lever is something that turns on a pivot 	<ul style="list-style-type: none"> • understanding the terminology of strut, tie, span, beam • understanding the difference between frame and shell structure <p><u>Mechanisms</u></p> <ul style="list-style-type: none"> • learning that products change and evolve over time • learning that all moving things have kinetic energy • understanding that kinetic energy is the energy that something (object person) has by being in motion <p><u>Electrical systems</u></p> <ul style="list-style-type: none"> • learning how electrical items work • identifying electrical products • 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 torch • understanding how a torch works • articulating the positives and negatives about different torches <p><u>Textiles</u></p> <ul style="list-style-type: none"> • threading needles with greater independence 	<ul style="list-style-type: none"> • understanding man-made and natural structures <p><u>Mechanisms</u></p> <ul style="list-style-type: none"> • knowing how to a bench hook to saw safely and effectively • exploring cams, learning that different shaped cams produce different follower movements • exploring types of motions and direction of a motion <p><u>Electrical systems</u></p> <ul style="list-style-type: none"> • understanding how electromagnetic motors work • learning that batteries contain acid, which can be dangerous if they leak • learning that when electricity enters a magnetic field it can make a motor • understanding that breaks in a series circuit will stop it from working • learning the key components used to create a series circuit: switches, bulbs, buzzers and motors <p><u>Textiles</u></p> <ul style="list-style-type: none"> • learning different decorative stitches • application and outcome of the individual technique • sewing accurately with even regularity of stitches
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		<ul style="list-style-type: none"> ● learning that a linkage is a system of levers that are connected by pivots ● exploring wheel mechanisms ● learning how axels help wheels to move a vehicle <p><u>Textiles</u></p> <ul style="list-style-type: none"> ● learning different ways in which to join fabrics together: pinning, stapling, gluing ● joining items using fabric glue or stitching ● identifying benefits of these techniques ● threading a needle ● sewing running stitch, with evenly spaced, neat, even stitches to join fabric ● neatly pinning and cutting fabric using a template 	<ul style="list-style-type: none"> ● tying knots with greater independence ● sewing cross stitch and appliqué ● understanding the need to count the thread on a piece of even weave fabric in each direction to create uniform size and appearance ● understanding that fabrics can be layered for affect ● understanding that there are different types of fastenings and what they are ● articulating the benefits and disadvantages of different fastening types 	<ul style="list-style-type: none"> ● threading needles independently
<p>Cooking and Nutrition</p>		<p><u>Design</u></p> <ul style="list-style-type: none"> ● designing a healthy wrap based on a food combination which work well together <p><u>Make</u></p> <ul style="list-style-type: none"> ● chopping fruit and vegetables safely to make a smoothie ● 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 	<p><u>Design</u></p> <ul style="list-style-type: none"> ● creating a healthy and nutritious recipe for a savoury tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish ● designing appealing packaging to reflect a recipe <p><u>Make</u></p> <ul style="list-style-type: none"> ● knowing how to prepare themselves and a work space to cook safely in, learning 	<p><u>Design</u></p> <ul style="list-style-type: none"> ● writing a recipe, explaining the key steps, method and ingredients ● including facts and drawings from research undertaken <p><u>Make</u></p> <ul style="list-style-type: none"> ● cutting and preparing vegetables safely ● using equipment safely, including knives, hot pans and hobs ● knowing how to avoid cross-contamination

		<ul style="list-style-type: none"> ● constructing a wrap that meets a design brief <p><u>Evaluate</u></p> <ul style="list-style-type: none"> ● tasting and evaluating different food combinations ● describing appearance, smell and taste ● suggesting information to be included on packaging ● describing the taste, texture and smell of fruit and vegetables ● taste testing food combinations and final products ● describing the information that should be included on a label ● evaluating which grip was most effective <p><u>Technical knowledge</u></p> <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 ● knowing the five food groups 	<p>the basic rules to avoid food contamination</p> <ul style="list-style-type: none"> ● following the instructions within a recipe ● cooking safely, following basic hygiene rules <p><u>Evaluate</u></p> <ul style="list-style-type: none"> ● establishing and using design criteria to help test and review dishes ● describing the benefits of seasonal fruits and vegetables and the impact on the environment ● suggesting points for improvement when making a seasonal tart <p><u>Technical knowledge</u></p> <ul style="list-style-type: none"> ● learning that climate affects food growth ● working with cooking equipment safely and hygienically ● learning that imported foods travel from far away and this can negatively impact the environment ● learning that vegetables and fruit grow in certain seasons ● learning that each fruit and vegetable gives us nutritional benefits ● learning to use, store and clean a knife safely 	<ul style="list-style-type: none"> ● following a step by step method carefully to make a recipe ● 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 <p><u>Evaluate</u></p> <ul style="list-style-type: none"> ● identifying the nutritional differences between different products and recipes ● identifying and describing healthy benefits of food groups ● evaluating a recipe, considering: taste, smell, texture and origin of the food group ● taste testing and scoring final products ● suggesting and writing up points of improvements in productions ● evaluating health and safety in production to minimise cross contamination <p><u>Technical knowledge</u></p> <ul style="list-style-type: none"> ● understanding where food comes from - learning that beef is from cattle and how beef is reared and processed
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