The Federation of St Mary's Catholic Schools

"I can do all things through Christ who strengthens me" Philippians 4:13

Design and Technology Curriculum Document				
INTENT	The national curriculum for design and technology aims to ensure that all pupils: • develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world • 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 • critique, evaluate and test their ideas and products and the work of others • understand and apply the principles of nutrition and learn how to cook This subject uses the Kapow Primary resources – all teachers have access to the detailed planning and accompanying resources to support the teaching of Design & Technology.			
	Design	**Make**	**Evaluate**	**Technical Knowledge**
Year 3	<u>Food</u> Creating a healthy and nutritious recipe for a savoury tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish <u>Mechanical Systems</u> Designing a toy which uses a pneumatic system Developing design criteria from a design brief Generating ideas using thumbnail sketches and exploded diagrams Learning that different types of drawings are used in	<u>Food</u> Creating a healthy and nutritious recipe for a savoury tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish <u>Mechanical Systems</u> Designing a toy which uses a pneumatic system Developing design criteria from a design brief Generating ideas using thumbnail sketches and exploded diagrams	<u>Food</u> 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 <u>Mechanical Systems</u> Using the views of others to improve designs Testing and modifying the outcome, suggesting improvements	<u>Food</u> 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

	design to explain ideas clearly <u>Structures</u> Designing a castle with key features to appeal to a specific person/purpose Drawing and labelling a castle design using 2D shapes, labelling: the 3D shapes that will create the features – materials need and colours	Learning that different types of drawings are used in design to explain ideas clearly <u>Electrical Systems</u> Designing a game that works using static electricity, including the instructions for playing the game Identifying a design criteria and a target audience	 <u>Structures</u> 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	<u>Mechanical Systems</u> 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 <u>Structures</u> 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 flat based objects are more stable Understanding the terminology of strut, tie, span, beam Understanding the difference between frame and shell structure
Year 4	<u>Textiles</u> Writing design criteria for a product, articulating decisions made Designing a personalized book sleeve <u>Food</u> Designing a biscuit within a given budget, drawing upon previous taste testing	<u>Textiles</u> Making and testing a paper template with accuracy and in keeping with the design criteria Measuring, marking and cutting fabric using a paper template Selecting a stitch style to join fabric, working neatly sewing small neat stitches Incorporating fastening to a design	<u>Textiles</u> 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	<u>Textiles</u> Understanding that there are different types of fastenings and what they are Articulating the benefits and disadvantages of different fastening types <u>Food</u> Understanding the impact of the cost and importance of

	<u>Electrical Systems</u> Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas	<u>Food</u> Following a baking recipe Cooking safely, following basic hygiene rules Adapting a recipe <u>Electrical Systems</u> Making a torch with a working electrical circuit and switch Using appropriate equipment to cut and attach materials Assembling a torch according to the design and success criteria	<u>Food</u> Evaluating a recipe, considering taste, smell, texture and appearance Describing the impact of the budget on the selection of ingredients Evaluating and comparing a range of products Suggesting modifications <u>Electrical Systems</u> Evaluating electrical products Testing and evaluating the success of a final product and taking inspiration from the work of peers	budgeting while planning ingredients for biscuits Understanding the environmental impact on future product and cost of production <u>Electrical Systems</u> 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
Year 5	<u>Structures</u> Designing a stable structure that is able to support weight Creating frame structure with focus on triangulation <u>Food</u> Adapting a traditional recipe, understanding that the nutritional value of a recipe alters if you remove, substitute or add additional ingredients Writing an amended method for a recipe to	<u>Structures</u> Making a range of different shaped beam bridges Using triangles to create truss bridges that span a given distance and supports a load Building a wooden bridge structure Independently measuring and marking wood accurately Selecting appropriate tools and equipment for particular tasks Using the correct techniques to saws safely	<u>Structures</u> 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 <u>Food</u> Identifying the nutritional differences between different products and recipes	<u>Structures</u> Exploring how to create a strong beam Identifying arch and beam bridges and understanding the terms: compression and tension Identifying stronger and weaker structures Finding different ways to reinforce structures Understanding how triangles can be used to reinforce bridges

	incorporate the relevant changes to ingredients Designing appealing packaging to reflect a recipe <u>Textiles</u> Designing a stuffed toy considering the main component shapes required and creating an appropriate template Considering proportions of individual components	Identifying where a structure needs reinforcement and using card corners for support <u>Food</u> Adapting a traditional recipe, understanding that the nutritional value of a recipe alters if you remove, substitute or add additional ingredients Writing an amended method for a recipe to incorporate the relevant changes to ingredients Designing appealing packaging to reflect a recipe <u>Textiles</u> Creating a 3D stuffed toy from a 2D design Measuring, marking and cutting fabric accurately and independently Creating strong and secure blanket stitches when joining fabric Using applique to attach pieces of fabric decoration	Identifying and describing healthy benefits of food groups <u>Textiles</u> Testing and evaluating an end product and giving point for further improvements	Articulating the difference between beam, arch, truss and suspension bridges <u>Food</u> Understanding where food comes from – learning that beef is from cattle and how beef is reared and processed Understanding what constitutes a balanced diet Learning to adapt a recipe to make it healthier Comparing two adapted recipes using a nutritional calculator and then identifying the healthier option <u>Textiles</u> Learning to sew blanket stitch to join fabric Applying blanket stitch so the space between the stitches are even and regular Threading needles independently
Year 6	<u>Food</u> Writing a recipe, explaining the key steps, method and ingredients Including facts and drawings from research undertaken <u>Mechanical Systems</u> After experimenting with a range of cams, creating a design for an automata toy	<u>Food</u> 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 <u>Mechanical Systems</u>	<u>Food</u> 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	<u>Food</u> Learning how to research a recipe by ingredient 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

	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 <u>Electrical Systems</u> Designing a steady hand game – identifying and naming the components required Drawing a design from three different perspectives Generating ideas through sketching and discussion Modelling ideas through prototypes	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	Evaluating health and safety in production to minimise cross contamination <u>Mechanical Systems</u> 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 <u>Electrical Systems</u> Testing own and others finished games, identifying what went well and making suggestions for improvement	process of 'Farm to Fork' for a given ingredient <u>Mechanical Systems</u> Using 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 <u>Electrical Systems</u> 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