St. Bernadette's Catholic Primary School
Design & Technology Skills Progression

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Design	Begin to use the language of designing and making, e.g. join, build and shape. Learning about planning and adapting initial ideas to make them better.	**Mechanisms & Mechanical Systems** Designing a vehicle that includes wheels, axles and axle holders, which will allow the wheels to move Creating clearly labelled drawings which illustrate movement **Cooking & Nutrition** Designing smoothie carton packaging by-hand or on ICT software **Textiles** Using a template to create a design for a puppet	**Structures** Generating and communicating ideas using sketching and modelling. Learning about different types of structures, found in the natural world and in everyday objects. **Mechanisms & Mechanical Systems** Creating a class design criteria for a moving monster Designing a moving monster for a specific audience in accordance with a design criteria. Selecting a suitable linkage system to produce the desired motions. **Cooking & Nutrition** Designing a healthy wrap based on a food combination which work well together.	**Textiles** Designing and making a template from an existing item, eg card, cushion and applying individual design criteria. **Cooking & Nutrition** Creating a healthy and nutritious recipe for a savoury dish using seasonal ingredients, considering the taste, texture, smell and appearance of the dish **Structures** Generate realistic ideas and design criteria collaboratively through discussion, focusing on the needs of the user and the functional and aesthetic purposes of the product. Develop ideas through the analysis of existing shell structures and use computer-aided design to model and communicate ideas.	**Structures** Carry out research into user needs and existing products, using surveys, interviews, questionnaires and web-based resources. Develop a simple design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost. **Cooking & Nutrition** Designing a biscuit within a given budget, drawing upon previous taste testing **Electrical Systems** Generate, develop and model innovative ideas, through discussion, prototypes and annotated sketches. Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas	**Textiles** Designing a stuffed toy considering the main component shapes required and creating an appropriate template. Considering the proportions of individual components **Cooking & Nutrition** 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 **Mechanisms & Mechanical Systems** Designing a pop-up book which uses a mixture of structures and mechanisms Naming each mechanism, input and output accurately Storyboarding ideas for a book.	**Mechanisms & Mechanical Systems** 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 Understanding and drawing cross-sectional diagrams to show the inner-workings of the automata. **Cooking & Nutrition** Writing a recipe, explaining the key steps, method and ingredients, including facts and drawings from research undertaken. **Electrical Systems** Designing a steady hand game - identifying and naming the components required Drawing a design from three different perspectives Generating ideas through sketching and discussion and modelling ideas through prototypes Understanding the purpose of products (toys), including what is meant by 'fit for purpose' and 'form over function'

Make	To learn to construct with a purpose in mind. To select tools and techniques needed to shape, assemble and join materials.	**Mechanisms & Mechanical Systems** Following a design to create moving models. Adapting mechanisms to suit need. **Cooking & Nutrition** 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. **Textiles** Cutting fabric neatly with scissors. Using joining methods to decorate a puppet Sequencing steps for construction.	**Mechanisms & Mechanical Systems** Making linkages using card for levers and split pins for pivots 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. **Cooking & Nutrition** Slicing food safely using the bridge or claw grip Constructing a wrap that meets a design brief **Structures** Making a structure according to design criteria Creating joints and structures from paper/card and tape	**Textiles** Following design criteria to create a textile product. 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 **Cooking & Nutrition** 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 Plan the order of the main stages of making. **Structures** Select and use appropriate tools and software to measure, mark out, cut, score, shape and assemble with some accuracy. Explain their choice of materials according to functional properties and aesthetic qualities.	**Structures** Formulate a clear plan, including a step-by-step list of what needs to be done and lists of resources to be used. Competently select from and use appropriate tools to accurately measure, mark out, cut, shape and join construction materials to make frameworks. Use finishing and decorative techniques suitable for the product they are designing and making. **Cooking & Nutrition** Following a baking recipe Cooking safely, following basic hygiene rules. Adapting a recipe. **Electrical Systems** 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.	**Textiles** 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. **Cooking & Nutrition** Cutting and preparing vegetables safely Using equipment safely, including knives, hot pans and hobs Knowing how to avoid cross-contamination Following a step by step method carefully to make a recipe. **Mechanisms & Mechanical Systems** Following a design brief to make a pop-up book, neatly and with focus on accuracy Making mechanisms and/or structures using sliders, pivots and folds to produce movement Using layers and spacers to hide the workings of	Mechanisms & Mechanical Systems 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. **Cooking & Nutrition** 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. **Electrical Systems**

				Use computer-generated finishing techniques suitable for the product they are creating.		mechanical parts for an aesthetically pleasing result.	Constructing a stable base for a game. Accurately cutting, folding and assembling a net Decorating the base of the game to a high quality finish. Making and testing a circuit and incorporating a circuit into a base

Evaluate	Begin to talk about changes made during the making process, e.g. making a decision to use a different joining method.	**Mechanisms & Mechanical Systems** Testing mechanisms, identifying what stops wheels from turning, knowing that a wheel needs an axle in order to move. **Cooking & Nutrition** Tasting and evaluating different food combinations Describing appearance, smell and taste. Suggesting information to be included on packaging. Textiles Reflecting on a finished product, explaining likes and dislikes.	**Mechanisms & Mechanical Systems** Evaluating own designs against design criteria Using peer feedback to modify a final design. Evaluating different designs. Testing and adapting a design. **Cooking & Nutrition** 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. **Structures** Exploring the features of structures	**Textiles** Evaluating an end product and thinking of other ways in which to create similar items. **Cooking & Nutrition** 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 dish. **Structures** Investigate and evaluate a range of shell structures including the materials, components and techniques that have been used. Test and evaluate their own products against design criteria and the intended user and purpose.	**Structures** Investigate and evaluate a range of existing frame structures. Critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests. Research key events and individuals relevant to frame structures. **Cooking & Nutrition** Evaluating a recipe, considering: taste, smell, texture and appearance Describing the impact of the budget on the selection of ingredients **Electrical Systems** Evaluating and comparing a range of products Suggesting modifications Evaluating electrical products Testing and evaluating the success of a final product and taking inspiration from the work of peers.	**Textiles** Testing and evaluating an end product and giving point for further improvements. **Cooking & Nutrition** Identifying the nutritional differences between different products and recipes. Identifying and describing healthy benefits of food groups. Mechanisms & Mechanical Systems Evaluating the work of others and receiving feedback on own work Suggesting points for improvement	**Mechanisms & Mechanical Systems** 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 **Cooking & Nutrition** 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. **Electrical Systems** Testing own and others finished games, identifying what went well and making suggestions for improvement Gathering images and information about existing children's toys Analysing a selection of existing children's toys.

			Comparing the stability of different shapes Testing the strength of own structures and identifying the weakest part of a structure Evaluating the strength, stiffness and stability of own structure.				

Technical Knowledge	To learn how to use a range of tools, e.g. scissors, hole punch, stapler, woodworking tools, rolling pins, pastry cutters. Learn how everyday objects work by dismantling things.	**Mechanisms & Mechanical Systems** Identifying what mechanism makes a toy or vehicle roll forwards Learning that for a wheel to move it must be attached to an axle **Cooking & Nutrition** Understanding the difference between fruits and vegetables Describing and grouping fruits by texture and taste. **Textiles** Learning different ways in which to join fabrics together: pinning, stapling, gluing, stitching.	**Mechanisms & Mechanical Systems** 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 Learning that a linkage is a system of levers that are connected by pivots **Cooking & Nutrition** Understanding what makes a balanced diet Knowing where to find the nutritional information on packaging Knowing the five food groups. **Structures**	**Textiles** Threading needles with greater independence 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 **Cooking & Nutrition** 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.	**Structures** Understand how to strengthen, stiffen and reinforce 3-D frameworks. Know and use technical vocabulary relevant to the project.(See POAP) **Cooking & Nutrition** Understanding the impact of the cost and importance of budgeting while planning ingredients for biscuits Understanding the environmental impact on future product and cost of production. **Electrical Systems** 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.	**Textiles** Learning to sew blanket stitch to join fabric Applying blanket stitch so the space between the stitches are even and regular Threading needles independently. **Cooking & Nutrition** 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. **Mechanisms & Mechanical Systems** Knowing that an input is the motion used to start a mechanism Knowing that output is the motion that happens as a result of starting the input Knowing that mechanisms control movement	**Mechanisms & Mechanical Systems** 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 **Cooking & Nutrition** 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 process of 'Farm to Fork' for a given ingredient. **Electrical Systems** Learning that batteries contain acid, which can be dangerous if they leak. Identifying and naming the circuit components in a steady hand game.

			Identifying natural and man-made structures Identifying when a structure is more or less stable than another Knowing that shapes and structures with wide, flat bases or legs are the most stable Understanding that the shape of a structure affects its strength 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	**<u>Structures</u>** Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes. Develop and use knowledge of how to construct strong, stiff shell structures. Know and use technical vocabulary relevant to the project. (See POAP)	Articulating the positives and negatives about different torches.	Describing mechanisms that can be used to change one kind of motion into another.	