



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

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

Make

<p>To learn to construct with a purpose in mind.</p> <p>To select tools and techniques needed to shape, assemble and join materials.</p>	<p><u>Mechanisms & Mechanical Systems</u> Following a design to create moving models.</p> <p>Adapting mechanisms to suit need.</p> <p><u>Cooking & Nutrition</u> Chopping fruit and vegetables safely to make a smoothie</p> <p>Identifying if a food is a fruit or a vegetable</p> <p>Learning where and how fruits and vegetables grow.</p> <p><u>Textiles</u> Cutting fabric neatly with scissors.</p> <p>Using joining methods to decorate a puppet</p> <p>Sequencing steps for construction.</p>	<p><u>Mechanisms & Mechanical Systems</u> Making linkages using card for levers and split pins for pivots</p> <p>Experimenting with linkages adjusting the widths, lengths and thicknesses of card used</p> <p>Cutting and assembling components neatly</p> <p>Selecting materials according to their characteristics</p> <p>Following a design brief.</p> <p><u>Cooking & Nutrition</u> Slicing food safely using the bridge or claw grip</p> <p>Constructing a wrap that meets a design brief</p> <p><u>Structures</u> Making a structure according to design criteria</p> <p>Creating joints and structures from paper/card and tape</p>	<p><u>Textiles</u> Following design criteria to create a textile product.</p> <p>Selecting and cutting fabrics with ease using fabric scissors</p> <p>Sewing cross stitch to join fabric.</p> <p>Decorating fabric using appliqué</p> <p>Completing design ideas with stuffing and sewing the edges</p> <p><u>Cooking & Nutrition</u> Knowing how to prepare themselves and a work space to cook safely in, learning the basic rules to avoid food contamination</p> <p>Following the instructions within a recipe</p> <p>Plan the order of the main stages of making.</p> <p><u>Structures</u> Select and use appropriate tools and software to measure, mark out, cut, score, shape and assemble with some accuracy.</p> <p>Explain their choice of materials according to functional properties and aesthetic qualities.</p> <p>Use computer-generated finishing techniques suitable for the product they are creating.</p>	<p><u>Structures</u> Formulate a clear plan, including a step-by-step list of what needs to be done and lists of resources to be used.</p> <p>Competently select from and use appropriate tools to accurately measure, mark out, cut, shape and join construction materials to make frameworks.</p> <p>Use finishing and decorative techniques suitable for the product they are designing and making.</p> <p><u>Cooking & Nutrition</u> Following a baking recipe</p> <p>Cooking safely, following basic hygiene rules.</p> <p>Adapting a recipe.</p> <p><u>Electrical Systems</u> Making a torch with a working electrical circuit and switch</p> <p>Using appropriate equipment to cut and attach materials</p> <p>Assembling a torch according to the design and success criteria.</p>	<p><u>Textiles</u> Creating a 3D stuffed toy from a 2D design</p> <p>Measuring, marking and cutting fabric accurately and independently</p> <p>Creating strong and secure blanket stitches when joining fabric</p> <p>Using applique to attach pieces of fabric decoration.</p> <p><u>Cooking & Nutrition</u> Cutting and preparing vegetables safely</p> <p>Using equipment safely, including knives, hot pans and hobs</p> <p>Knowing how to avoid cross-contamination</p> <p>Following a step by step method carefully to make a recipe.</p> <p><u>Mechanisms & Mechanical Systems</u> Following a design brief to make a pop-up book, neatly and with focus on accuracy</p> <p>Making mechanisms and/or structures using sliders, pivots and folds to produce movement</p> <p>Using layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result.</p>	<p><u>Mechanisms & Mechanical Systems</u> Measuring, marking and checking the accuracy of the jelutong and dowel pieces required</p> <p>Measuring, marking and cutting components accurately using a ruler and scissors</p> <p>Assembling components accurately to make a stable frame</p> <p>Understanding that for the frame to function effectively the components must be cut accurately and the joints of the frame secured at right angles.</p> <p>Selecting appropriate materials based on the materials being joined and the speed at which the glue needs to dry/set.</p> <p><u>Cooking & Nutrition</u> Following a recipe, including using the correct quantities of each ingredient</p> <p>Adapting a recipe based on research</p> <p>Working to a given timescale</p> <p>Working safely and hygienically with independence.</p> <p><u>Electrical Systems</u> Constructing a stable base for a game.</p> <p>Accurately cutting, folding and assembling a net</p> <p>Decorating the base of the game to a high quality finish.</p> <p>Making and testing a circuit and incorporating a circuit into a base</p>
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Evaluate

<p>Begin to talk about changes made during the making process, e.g. making a decision to use a different joining method.</p>	<p><u>Mechanisms & Mechanical Systems</u> Testing mechanisms, identifying what stops wheels from turning, knowing that a wheel needs an axle in order to move.</p> <p><u>Cooking & Nutrition</u> Tasting and evaluating different food combinations Describing appearance, smell and taste.</p> <p>Suggesting information to be included on packaging.</p> <p><u>Textiles</u> Reflecting on a finished product, explaining likes and dislikes.</p>	<p><u>Mechanisms & Mechanical Systems</u> Evaluating own designs against design criteria</p> <p>Using peer feedback to modify a final design.</p> <p>Evaluating different designs.</p> <p>Testing and adapting a design.</p> <p><u>Cooking & Nutrition</u> Describing the taste, texture and smell of fruit and vegetables</p> <p>Taste testing food combinations and final products</p> <p>Describing the information that should be included on a label</p> <p>Evaluating which grip was most effective.</p> <p><u>Structures</u> Exploring the features of structures</p> <p>Comparing the stability of different shapes</p> <p>Testing the strength of own structures and identifying the weakest part of a structure</p> <p>Evaluating the strength, stiffness and stability of own structure.</p>	<p><u>Textiles</u> Evaluating an end product and thinking of other ways in which to create similar items.</p> <p><u>Cooking & Nutrition</u> Establishing and using design criteria to help test and review dishes</p> <p>Describing the benefits of seasonal fruits and vegetables and the impact on the environment</p> <p>Suggesting points for improvement when making a seasonal dish.</p> <p><u>Structures</u> Investigate and evaluate a range of shell structures including the materials, components and techniques that have been used.</p> <p>Test and evaluate their own products against design criteria and the intended user and purpose.</p>	<p><u>Structures</u> Investigate and evaluate a range of existing frame structures.</p> <p>Critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests.</p> <p>Research key events and individuals relevant to frame structures.</p> <p><u>Cooking & Nutrition</u> Evaluating a recipe, considering: taste, smell, texture and appearance</p> <p>Describing the impact of the budget on the selection of ingredients</p> <p><u>Electrical Systems</u> Evaluating and comparing a range of products</p> <p>Suggesting modifications</p> <p>Evaluating electrical products</p> <p>Testing and evaluating the success of a final product and taking inspiration from the work of peers.</p>	<p><u>Textiles</u> Testing and evaluating an end product and giving point for further improvements.</p> <p><u>Cooking & Nutrition</u> Identifying the nutritional differences between different products and recipes.</p> <p>Identifying and describing healthy benefits of food groups.</p> <p><u>Mechanisms & Mechanical Systems</u> Evaluating the work of others and receiving feedback on own work</p> <p>Suggesting points for improvement</p>	<p><u>Mechanisms & Mechanical Systems</u> Evaluating the work of others and receiving feedback on own work</p> <p>Applying points of improvements</p> <p>Describing changes they would make/do if they were to do the project again</p> <p><u>Cooking & Nutrition</u> Evaluating a recipe, considering: taste, smell, texture and origin of the food group</p> <p>Taste testing and scoring final products</p> <p>Suggesting and writing up points of improvements in productions.</p> <p>Evaluating health and safety in production to minimise cross contamination.</p> <p><u>Electrical Systems</u> Testing own and others finished games, identifying what went well and making suggestions for improvement</p> <p>Gathering images and information about existing children's toys</p> <p>Analysing a selection of existing children's toys.</p>
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Technical Knowledge

<p>To learn how to use a range of tools, e.g. scissors, hole punch, stapler, woodworking tools, rolling pins, pastry cutters.</p> <p>Learn how everyday objects work by dismantling things.</p>	<p><u>Mechanisms & Mechanical Systems</u> Identifying what mechanism makes a toy or vehicle roll forwards</p> <p>Learning that for a wheel to move it must be attached to an axle</p> <p><u>Cooking & Nutrition</u> Understanding the difference between fruits and vegetables</p> <p>Describing and grouping fruits by texture and taste.</p> <p><u>Textiles</u> Learning different ways in which to join fabrics together: pinning, stapling, gluing, stitching.</p>	<p><u>Mechanisms & Mechanical Systems</u> Learning that mechanisms are a collection of moving parts that work together in a machine</p> <p>Learning that there is an input and output in a mechanism</p> <p>Identifying mechanisms in everyday objects</p> <p>Learning that a lever is something that turns on a pivot</p> <p>Learning that a linkage is a system of levers that are connected by pivots</p> <p><u>Cooking & Nutrition</u> Understanding what makes a balanced diet</p> <p>Knowing where to find the nutritional information on packaging</p> <p>Knowing the five food groups.</p> <p><u>Structures</u> Identifying natural and man-made structures</p> <p>Identifying when a structure is more or less stable than another</p> <p>Knowing that shapes and structures with wide, flat bases or legs are the most stable</p>	<p><u>Textiles</u> Threading needles with greater independence</p> <p>Tying knots with greater independence</p> <p>Sewing cross stitch and appliqué</p> <p>Understanding the need to count the thread on a piece of evenweave fabric in each direction to create uniform size and appearance</p> <p>Understanding that fabrics can be layered for affect</p> <p><u>Cooking & Nutrition</u> Learning that climate affects food growth</p> <p>Working with cooking equipment safely and hygienically.</p> <p>Learning that imported foods travel from far away and this can negatively impact the environment</p> <p>Learning that vegetables and fruit grow in certain seasons.</p> <p>Learning that each fruit and vegetable gives us nutritional benefits</p> <p>Learning to use, store and clean a knife safely.</p> <p><u>Structures</u> Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes.</p>	<p><u>Structures</u> Understand how to strengthen, stiffen and reinforce 3-D frameworks.</p> <p>Know and use technical vocabulary relevant to the project.(See POAP)</p> <p><u>Cooking & Nutrition</u> Understanding the impact of the cost and importance of budgeting while planning ingredients for biscuits</p> <p>Understanding the environmental impact on future product and cost of production.</p> <p><u>Electrical Systems</u> Learning how electrical items work</p> <p>Identifying electrical products</p> <p>Learning what electrical conductors and insulators are</p> <p>Understanding that a battery contains stored electricity and can be used to power products</p> <p>Identifying the features of a torch</p> <p>Understanding how a torch works.</p>	<p><u>Textiles</u> Learning to sew blanket stitch to join fabric</p> <p>Applying blanket stitch so the space between the stitches are even and regular</p> <p>Threading needles independently.</p> <p><u>Cooking & Nutrition</u> Understanding where food comes from - learning that beef is from cattle and how beef is reared and processed</p> <p>Understanding what constitutes a balanced diet</p> <p>Learning to adapt a recipe to make it healthier</p> <p>Comparing two adapted recipes using a nutritional calculator and then identifying the healthier option.</p> <p><u>Mechanisms & Mechanical Systems</u> Knowing that an input is the motion used to start a mechanism</p> <p>Knowing that output is the motion that happens as a result of starting the input</p> <p>Knowing that mechanisms control movement</p> <p>Describing mechanisms that can be used to change one kind of motion into another.</p>	<p><u>Mechanisms & Mechanical Systems</u> Using a bench hook to saw safely and effectively</p> <p>Exploring cams, learning that different shaped cams produce different follower movements</p> <p>Exploring types of motions and direction of a motion</p> <p><u>Cooking & Nutrition</u> Learning how to research a recipe by ingredient</p> <p>Recording the relevant ingredients and equipment needed for a recipe</p> <p>Understanding the combinations of food that will complement one another</p> <p>Understanding where food comes from, describing the process of</p> <p>‘Farm to Fork’ for a given ingredients.</p> <p><u>Electrical Systems</u> Learning that batteries contain acid, which can be dangerous if they leak.</p> <p>Identifying and naming the circuit components in a steady hand game.</p>
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