

Lydney C of E Primary School

'A caring Christian community where every child achieves a love of life and of learning.'

Design and Technology: Progression Document

Lydney C of E D&T Progression Document							
Vision	A caring Christian community where every child achieves a love of life and of learning						
	Rec	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Unit	Structures: Junk modelling	Food: Fruit and vegetables	Mechanisms: Wheels and axles	Textiles: Cross-stitch and appliqué	Electrical systems: Torches	Mechanical systems: Pop-up book	Digital world: Navigating the world
	Food: Soup	Mechanisms: Making a moving story book	Food: A balanced diet	Electrical systems: Electric poster	Mechanical systems: Making a slingshot car	Digital world: Monitoring devices	Food: Come dine with me
	Textiles: Bookmarks	Structures: Constructing a windmill	Mechanisms: Making a moving monster	Mechanical systems: Pneumatic toys	Digital world: Mindful moments timer	Electrical systems: Doodlers	Structure: Playgrounds
	Structures: Boats	Textiles: Puppets	Structures: Baby Bear's chair	Digital world: Electronic charm	Food: Adapting a recipe	Food: What could be healthier?	Textiles: Waistcoats/cushions
	Seasonal projects	Mechanisms: Wheels and axles	Textiles: Pouches	Food: Eating seasonally	Structure: Pavilions	Structure: Bridges	Electrical systems: Steady hand game
				Structures: Constructing a castle	Textiles: Fastenings	Textiles: Stuffed toys	Mechanical systems: Automata toys

Progression of Skills (Structures)							
	Rec	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Progression of Skills: Design	• Making verbal plans and material choices. • Developing a junk model. • Designing a junk model boat. • Using knowledge from exploration to inform design.	• 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.	• 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 needed and colours. • Designing and/or decorating a castle tower on CAD software.	• Designing a stable pavilion structure that is aesthetically pleasing and selecting materials to create a desired effect. • Building frame structures designed to support weight.	• Designing a stable structure that is able to support weight. • Creating a frame structure with a focus on triangulation.	• Designing a playground featuring a variety of different structures, giving careful consideration to how the structures will be used, considering effective and ineffective designs.
Progression of Skills: Make	• Improving fine motor/scissor skills with a variety of materials. • Joining materials in a variety of ways (temporary and permanent). • Joining different materials	• Making stable structures from card, tape and glue • Learning how to turn 2D nets into 3D structures. • Following instructions to cut and assemble the supporting	• Making a structure according to design criteria. • Creating joints and structures from paper/card and tape. • Building a strong and stiff structure by folding paper.	• Constructing a range of 3D geometric shapes using nets. • Creating special features for individual designs. • Making facades from a range of recycled materials.	• Creating a range of different shaped frame structures. • Making a variety of free standing frame structures of different shapes and sizes. • Selecting appropriate materials to build a	• Making a range of different shaped beam bridges. • Using triangles to create truss bridges that span a given distance and support a load. • Building a wooden bridge structure.	• Building a range of play apparatus structures drawing upon new and prior knowledge of structures. • Measuring, marking and cutting wood to create a range of structures.

	together. • Describing their junk model, and how they intend to put it together. • Making a boat that floats and is waterproof, considering material choices.	structure of a windmill.			strong structure and cladding. • Reinforcing corners to strengthen a structure. • Creating a design in accordance with a plan. • Learning to create different textural effects with materials.	• 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. • Explaining why selecting appropriating materials is an important part of the design process. • Understanding basic wood functional properties.	• Using a range of materials to reinforce and add decoration to structures.
Progression of Skills: Evaluate	• Giving a verbal evaluation of their own and others'	• Evaluating a windmill according to the design criteria, testing	• Exploring the features of structures.	• Evaluating own work and the work of others based on the aesthetic of	• Evaluating structures made by the class.	• Adapting and improving own bridge structure by identifying points	• Improving a design plan based on peer evaluation. • Testing and adapting a

	junk models with adult support. • Checking to see if their model matches their plan. • Considering what they would do differently if they were to do it again. • Describing their favourite and least favourite part of their model. • Making predictions about, and evaluating different materials to see if they are waterproof. • Making predictions about, and evaluating existing boats to see which floats best. • Testing their design and reflecting on what	whether the structure is strong and stable and altering it if it isn't. • Suggest points for improvements.	• 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.	the finished product and in comparison to the original design. • Suggesting points for modification of the individual designs.	• Describing what characteristics of a design and construction made it the most effective. • Considering effective and ineffective designs.	of weakness and reinforcing them as necessary. • Suggesting points for improvements for own bridges and those designed by others.	design to improve it as it is developed. • Identifying what makes a successful structure.
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	could have been done differently. • Investigating the how the shapes and structure of a boat affect the way it moves.						
Progression of Knowledge							
	Rec	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Progression of Knowledge: Technical	• To know there are a range to different materials that can be used to make a model and that they are all slightly different. • Making simple suggestions to fix their junk model. • To know that 'waterproof' materials are those which do not absorb water.	• To understand that the shape of materials can be changed to improve the strength and stiffness of structures. • To understand that cylinders are a strong type of structure (e.g. the main shape used for windmills and lighthouses). • To understand that axles are used in structures and mechanisms to make parts turn in a circle.	• To know that shapes and structures with wide, flat bases or legs are the most stable. • To understand that the shape of a structure affects its strength. • To know that materials can be manipulated to improve strength and stiffness. • To know that a structure is something which has been formed or made from parts.	• To understand that wide and flat based objects are more stable. • To understand the importance of strength and stiffness in structures.	• To understand what a frame structure is. • To know that a 'free-standing' structure is one which can stand on its own.	• To understand some different ways to reinforce structures. • To understand how triangles can be used to reinforce bridges. • To know that properties are words that describe the form and function of materials. • To understand why material selection is important based on properties. • To understand the material (functional and	• To know that structures can be strengthened by manipulating materials and shapes.

		• To begin to understand that different structures are used for different purposes. • To know that a structure is something that has been made and put together.	• To know that a 'stable' structure is one which is firmly fixed and unlikely to change or move. • To know that a 'strong' structure is one which does not break easily. • To know that a 'stiff' structure or material is one which does not bend easily.			aesthetic) properties of wood.	
Progression of Knowledge: Additional	• To know that some objects float and others sink. • To know the different parts of a boat.	• To know that a client is the person I am designing for. • To know that design criteria is a list of points to ensure the product meets the clients needs and wants. • To know that a windmill harnesses the power of wind for a purpose like grinding grain, pumping water or generating electricity.	• To know that natural structures are those found in nature. • To know that man-made structures are those made by people.	• To know the following features of a castle: flags, towers, battlements, turrets, curtain walls, moat, drawbridge and gatehouse - and their purpose. • To know that a façade is the front of a structure. • To understand that a castle needed to be strong and stable	• To know that a pavilion is a a decorative building or structure for leisure activities. • To know that cladding can be applied to structures for different effects. • To know that aesthetics are how a product looks. • To know that a product's function means its purpose. • To understand	• To understand the difference between arch, beam, truss and suspension bridges. • To understand how to carry and use a saw safely.	• To understand what a 'footprint plan' is. • To understand that in the real world, design, can impact users in positive and negative ways. • To know that a prototype is a cheap model to test a design idea.

		• To know that windmill turbines use wind to turn and make the machines inside work. • To know that a windmill is a structure with sails that are moved by the wind. • To know the three main parts of a windmill are the turbine, axle and structure.		to withstand enemy attack. • To know that a paper net is a flat 2D shape that can become a 3D shape once assembled. • To know that a design specification is a list of success criteria for a product.	that the target audience means the person or group of people a product is designed for. • To know that architects consider light, shadow and patterns when designing.		
Mechanisms/Mechanical Systems							
Progression of Skills: Design		• Explaining how to adapt mechanisms, using bridges or guides to control the movement. • Designing a moving story book for a given audience. • Designing a vehicle that includes wheels, axles and axle	• Selecting a suitable linkage system to produce the desired motion. • Designing a wheel. • Creating a class design criteria for a moving monster. • Designing a moving monster for a specific audience in	• 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	• 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.	• 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.	• 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.

		holders, that when combined, will allow the wheels to move. • Creating clearly labelled drawings that illustrate movement.	accordance with a design criteria.	drawings are used in design to explain ideas clearly.			• Understanding and drawing cross-sectional diagrams to show the inner-workings of my design.
Progression of Skills: Make		• Following a design to create moving models that use levers and sliders. • Adapting mechanisms, when: • they do not work as they should. • to fit their vehicle design. • to improve how they work after testing their vehicle.	• Selecting materials according to their characteristics. • 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.	• 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. • Selecting materials due to their functional and aesthetic characteristics. • Manipulating materials to create different effects by	• Measuring, marking, cutting and assembling with increasing accuracy. • Making a model based on a chosen design.	• 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 mechanical parts for an aesthetically pleasing result.	• 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.

				cutting, creasing, folding and weaving.			• Selecting appropriate materials based on the materials being joined and the speed at which the glue needs to dry/set.
Progression of Skills: Evaluate		• 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. • Testing wheel and axle mechanisms, identifying what stops the wheels from turning, and recognising that a wheel needs an axle in order to move.	• Evaluating different designs. • Testing and adapting a design. • Evaluating own designs against design criteria. • Using peer feedback to modify a final design.	• Using the views of others to improve designs. • Testing and modifying the outcome, suggesting improvements. • Understanding the purpose of exploded-diagrams through the eyes of a designer and their client.	• Evaluating the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance.	• Evaluating the work of others and receiving feedback on own work. • Suggesting points for improvement.	• Evaluating the work of others and receiving feedback on own work. • Applying points of improvement to their toys. • Describing changes they would make/do if they were to do the project again.

Progression of Knowledge: Technical		• To know that a mechanism is the parts of an object that move together. • To know that a slider mechanism moves an object from side to side. • To know that a slider mechanism has a slider, slots, guides and an object. • To know that bridges and guides are bits of card that purposefully restrict the movement of the slider. • To know that wheels need to be round to rotate and move. • To understand that for a wheel to move it must be attached to a rotating axle.	• To know that different materials have different properties and are therefore suitable for different uses. • To know that mechanisms are a collection of moving parts that work together as a machine to produce movement. • To know that there is always an input and output in a mechanism. • To know that an input is the energy that is used to start something working. • To know that an output is the movement that happens as a result of the input. • To know that a lever is something	• To understand how pneumatic systems work. • To understand that pneumatic systems can be used as part of a mechanism. • To know that pneumatic systems operate by drawing in, releasing and compressing air.	• To understand that all moving things have kinetic energy. • To understand that kinetic energy is the energy that something (object/person) has by being in motion. • To know that air resistance is the level of drag on an object as it is forced through the air. • To understand that the shape of a moving object will affect how it moves due to air resistance.	• To know that mechanisms control movement. • To understand that mechanisms can be used to change one kind of motion into another. • To understand how to use sliders, pivots and folds to create paper-based mechanisms.	• To understand that the mechanism in an automata uses a system of cams, axles and followers. • To understand that different shaped cams produce different outputs.
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Progression of Knowledge: Additional		• To know that in Design and technology we call a plan a 'design'. • To know some real-life items that use wheels such as wheelbarrows, hamster wheels and vehicles.	• To know the features of a ferris wheel include the wheel, frame, pods, a base an axle and an axle holder. • To know that it is important to test my design as I go along so that I can solve any problems that may occur. • To know some real-life objects that contain mechanisms.	• To understand how sketches, drawings and diagrams can be used to communicate design ideas. • To know that exploded-diagrams are used to show how different parts of a product fit together. • To know that thumbnail sketches are small drawings to get ideas down on paper quickly.	• To understand that products change and evolve over time. • To know that aesthetics means how an object or product looks in design and technology. • To know that a template is a stencil you can use to help you draw the same shape accurately. • To know that a birds-eye view means a view from a high angle (as if a bird in flight).	• To know that a design brief is a description of what I am going to design and make. • To know that designers often want to hide mechanisms to make a product more aesthetically pleasing.	• To know that an automata is a hand powered mechanical toy. • To know that a cross-sectional diagram shows the inner workings of a product. • To understand how to use a bench hook and saw safely. • To know that a set square can be used to help mark 90° angles.

					• To know that graphics are images which are designed to explain or advertise something. • To know that it is important to assess and evaluate design ideas and models against a list of design criteria.		
Electrical Systems (KS2 only)							
Progression of Skills: Design				• Carry out research based on a given topic (e.g. The Romans) to develop a range of initial ideas. • Generate a final design for the electric poster with consideration to the client's needs and design criteria. • Design an electric poster that fits the	• Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas.	• Identifying factors that could be changed on existing products and explaining how these would alter the form and function of the product. • Developing design criteria based on findings from investigating existing products. • Developing design criteria that	• 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. • Understanding the purpose of products

				requirements of a given brief. • Plan the positioning of the bulb (circuit component) and its purpose.		clarifies the target user.	(toys), including what is meant by 'fit for purpose' and 'form over function'
Progression of Skills: Make				• Create a final design for the electric poster. • Mount the poster onto corrugated card to improve its strength and allow it to withstand the weight of the circuit on the rear. • Measure and mark materials out using a template or ruler. • Fit an electrical component (bulb). • Learn ways to give the final product a higher quality finish (e.g. framing to conceal a roughly cut edge).	• 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.	• Altering a product's form and function by tinkering with its configuration. • Making a functional series circuit, incorporating a motor. • Constructing a product with consideration for the design criteria. • Breaking down the construction process into steps so that others can make the product.	• 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. • Incorporating a circuit into a base.

Progression of Skills: Evaluate				• Learning to give and accept constructive criticism on own work and the work of others. • Testing the success of initial ideas against the design criteria and justifying opinions. • Revisiting the requirements of the client to review developing design ideas and check that they fulfil their needs.	• Evaluating electrical products. • Testing and evaluating the success of a final product.	• Carry out a product analysis to look at the purpose of a product along with its strengths and weaknesses. • Determining which parts of a product affect its function and which parts affect its form. • Analysing whether changes in configuration positively or negatively affect an existing product. • Peer evaluating a set of instructions to build a product.	• 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.
Progression of Knowledge: Technical				• To understand that an electrical system is a group of parts (components) that work together to transport	• To understand that electrical conductors are materials which electricity can pass through. • To understand that electrical	• To know that series circuits only have one direction for the electricity to flow. • To know when there is a break in a series circuit, all	• To know that batteries contain acid, which can be dangerous if they leak. • To know the names of the components in

				electricity around a circuit. • To understand common features of an electric product (switch, battery or plug, dials, buttons etc.). • To list examples of common electric products (kettle, remote control etc.). • To understand that an electric product uses an electrical system to work (function). • To know the name and appearance of a bulb, battery, battery holder and crocodile wire to build simple circuits.	insulators are materials which electricity cannot pass through. • To know that a battery contains stored electricity that can be used to power products. • To know that an electrical circuit must be complete for electricity to flow. • To know that a switch can be used to complete and break an electrical circuit	components turn off. • To know that an electric motor converts electrical energy into rotational movement, causing the motor's axle to spin. • To know a motorised product is one which uses a motor to function.	a basic series circuit, including a buzzer.
Progression of Knowledge: Additional				• To understand the importance and purpose of information design. • To	• To know the features of a torch: case, contacts, batteries, switch,	• To know that product analysis is critiquing the strengths and	• To know that 'form' means the shape and appearance of an object.

				understand how material choices (such as mounting paper to corrugated card) can improve a product to serve its purpose (remain rigid without bending when the electrical circuit is attached).	reflector, lamp, lens. • To know facts from the history and invention of the electric light bulb(s) - by Sir Joseph Swan and Thomas Edison.	weaknesses of a product. • To know that 'configuration' means how the parts of a product are arranged.	• To know the difference between 'form' and 'function'. • To understand that 'fit for purpose' means that a product works how it should and is easy to use. • To know that form over purpose means that a product looks good but does not work very well. • To know the importance of 'form follows function' when designing: the product must be designed primarily with the function in mind. • To understand the diagram perspectives 'top view', 'side view' and 'back'
Food							
Progression of Skills: Design	• Designing a soup recipe as a class. • Designing soup packaging.	• Designing smoothie carton packaging by-hand or on ICT software.	• Designing a healthy wrap based on a food combination which	• Creating a healthy and nutritious recipe for a savoury tart using seasonal	• Designing a biscuit within a given budget, drawing upon previous taste	• Adapting a traditional recipe, understanding that the nutritional value of a recipe	• Writing a recipe, explaining the key steps, method and ingredients.

			work well together.	ingredients, considering the taste, texture, smell and appearance of the dish.	testing judgements.	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.	• Including facts and drawings from research undertaken.
Progression of Skills: Make	• Chopping plasticine safely. • Chopping vegetables with support.	• Chopping fruit and vegetables safely to make a smoothie.	• Slicing food safely using the bridge or claw grip. • Constructing a wrap that meets a design brief.	• 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, from start to finish, including the preparation of ingredients. • Cooking safely, following basic hygiene rules. • Adapting a recipe to improve it or change it to meet new criteria (e.g. from savoury to sweet).	• 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.	• 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.

Progression of Skills: Evaluate	• Tasting the soup and giving opinions. • Describing some of the following when tasting food: look, feel, smell and taste. • Choosing their favourite packaging design and explaining why.	• 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.	• 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.	• 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 food products. • Suggesting modifications to a recipe (e.g. This biscuit has too many raisins, and it is falling apart, so next time I will use less raisins).	• Identifying the nutritional differences between different products and recipes. • Identifying and describing healthy benefits of food groups.	• Identifying the nutritional differences between different products and recipes. • Identifying and describing healthy benefits of food groups.
Progression of Knowledge: Cooking and Nutrition	• To know that soup is ingredients (usually vegetables and liquid) blended together. • To know that vegetables are grown.	• Understanding the difference between fruits and vegetables. • To understand that some foods typically known as vegetables are actually fruits (e.g. cucumber).	• To know that 'diet' means the food and drink that a person or animal usually eats. • To understand what makes a balanced diet. • To know where to find the	• To know that not all fruits and vegetables can be grown in the UK. • To know that climate affects food growth. • To know that vegetables and	• To know that the amount of an ingredient in a recipe is known as the 'quantity.' • To know that it is important to use oven gloves when removing hot food from an oven.	• To understand where meat comes from - learning that beef is from cattle and how beef is reared and processed, including key welfare issues.	• To know that 'flavour' is how a food or drink tastes. • To know that many countries have 'national dishes' which are recipes associated with that country. • To know that 'processed food'

	• To recognise and name some common vegetables. • To know that different vegetables taste different. • To know that eating vegetables is good for us. • To discuss why different packages might be used for different foods.	• To know that a blender is a machine which mixes ingredients together into a smooth liquid. • To know that a fruit has seeds and a vegetable does not. • To know that fruits grow on trees or vines. • To know that vegetables can grow either above or below ground. • To know that vegetables can come from different parts of the plant (e.g. roots: potatoes, leaves: lettuce, fruit: cucumber).	nutritional information on packaging. • To know that the five main food groups are: Carbohydrates, fruits and vegetables, protein, dairy and foods high in fat and sugar. • To understand that I should eat a range of different foods from each food group, and roughly how much of each food group. • To know that nutrients are substances in food that all living things need to make energy, grow and develop. • To know that 'ingredients' means the items in a mixture or recipe.	fruit grow in certain seasons. • To know that cooking instructions are known as a 'recipe'. • To know that imported food is food which has been brought into the country. • To know that exported food is food which has been sent to another country. • To understand that imported foods travel from far away and this can negatively impact the environment. • To know that each fruit and vegetable gives us nutritional benefits because they contain vitamins, minerals and fibre.	• To know the following cooking techniques: sieving, creaming, rubbing method, cooling. • To understand the importance of budgeting while planning ingredients for biscuits.	• To know that I can adapt a recipe to make it healthier by substituting ingredients. • To know that I can use a nutritional calculator to see how healthy a food option is. • To understand that 'cross-contamination' means bacteria and germs have been passed onto ready-to-eat foods and it happens when these foods mix with raw meat or unclean objects.	means food that has been put through multiple changes in a factory. • To understand that it is important to wash fruit and vegetables before eating to remove any dirt and insecticides. • To understand what happens to a certain food before it appears on the supermarket shelf (Farm to Fork).
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Textiles							
Progression of Skills: Design	• Discussing what a good design needs. • Designing a simple pattern with paper. • Designing a bookmark. • Choosing from available materials.	• Using a template to create a design for a puppet.	• Designing a pouch.	• Designing and making a template from an existing collar and applying individual design criteria.	• Writing design criteria for a product, articulating decisions made. • Designing a personalised book sleeve.	• Designing a stuffed toy, considering the main component shapes required and creating an appropriate template. • Considering the proportions of individual components.	• Designing a cushion in accordance to a specification linked to set of design criteria. • Annotating designs, to explain their decisions.

Progression of Skills: Make	• Developing fine motor/cutting skills with scissors. • Exploring fine motor/threading and weaving (under, over technique) with a variety of materials. • Using a prepared needle and wool to practise threading.	• Cutting fabric neatly with scissors. • Using joining methods to decorate a puppet. • Sequencing steps for construction.	• Selecting and cutting fabrics for sewing. • Decorating a pouch using fabric glue or running stitch. • Threading a needle. • Sewing running stitch, with evenly spaced, neat, even stitches to join fabric. • Neatly pinning and cutting fabric using a template.	• Following design criteria to create a collar. • Selecting and cutting fabrics with ease using fabric scissors. • Threading needles with greater independence. • Tying knots with greater independence. • Sewing cross stitch to join fabric. • Decorating fabric using appliqué. • Completing design ideas with embellishing the collars based on design ideas.	• 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 by sewing small, straight stitches. • Incorporating a fastening to a design.	• 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. • Threading needles independently. • Using appliqué to attach pieces of fabric decoration. • Sewing blanket stitch to join fabric. • Applying blanket stitch so the spaces between the stitches are even and regular.	• Using a template when cutting fabric to ensure they achieve the correct shape. • Using pins effectively to secure a template to fabric without creases or bulges. • Marking and cutting fabric accurately, in accordance with their design. • Sewing a strong running stitch, making small, neat stitches and following the edge. • Tying strong knots. • Decorating a cushion, attaching features (such as appliqué) using thread. • Finishing the cushion with a secure fastening (such as buttons).
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							• Learning different decorative stitches. • Sewing accurately with evenly spaced, neat stitches.
Progression of Skills: Evaluate	• Reflecting on a finished product and comparing to their design.	• Reflecting on a finished product, explaining likes and dislikes.	• Troubleshooting scenarios posed by teacher. • 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.	• 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. • Articulating the advantages and disadvantages of different fastening types.	• Testing and evaluating an end product and giving point for further improvements.	• Reflecting on their work continually throughout the design, make and evaluate process.
Progression of Knowledge:	• To know that a design is a way of planning our idea before we start. • To know that threading is	• To know that 'joining technique' means connecting two pieces of material together. • To know that	• To know that sewing is a method of joining fabric. • To know that different stitches	• To know that applique is a way of mending or decorating a textile by applying smaller	• To know that a fastening is something which holds two pieces of material together for example a	• To know that blanket stitch is useful to reinforce the edges of a fabric material or	• To understand that it is important to design with the client/ target customer in mind.

	putting one material through an object.	there are various temporary methods of joining fabric by using staples. glue or pins. • To understand that different techniques for joining materials can be used for different purposes. • To understand that a template (or fabric pattern) is used to cut out the same shape multiple times. • To know that drawing a design idea is useful to see how an idea will look.	can be used when sewing. • To understand the importance of tying a knot after sewing the final stitch. • To know that a thimble can be used to protect my fingers when sewing.	pieces of fabric to larger pieces. • To know that when two edges of fabric have been joined together it is called a seam. • To know that it is important to leave space on the fabric for the seam. • To understand that some products are turned inside out after sewing so the stitching is hidden.	zipper, toggle, button, press stud and velcro. • To know that different fastening types are useful for different purposes. • To know that creating a mock up (prototype) of their design is useful for checking ideas and proportions.	join two pieces of fabric. • To understand that it is easier to finish simpler designs to a high standard. • To know that soft toys are often made by creating appendages separately and then attaching them to the main body. • To know that small, neat stitches which are pulled taut are important to ensure that the soft toy is strong and holds the stuffing securely.	• To know that using a template helps to accurately mark out a design on fabric. • To understand the importance of consistently sized stitches.
Digital World							
Progression of Skills: Design				• Problem solving by suggesting potential features on a Micro: bit and justifying my ideas. • Developing design ideas for a	• Writing design criteria for a programmed timer (Micro:bit). • Exploring different	• Researching (books, internet) for a particular (user's) animal's needs. • Developing design criteria	• Writing a design brief from information submitted by a client. • Developing design criteria to fulfil the client's request.

				technology pouch. • Drawing and manipulating 2D shapes, using computer-aided design, to produce a point of sale badge.	mindfulness strategies. • Applying the results of my research to further inform my design criteria. • Developing a prototype case for my mindful moment timer. • Using and manipulating shapes and clipart by using computer-aided design (CAD), to produce a logo. • Following a list of design requirements	based on research. • Generating multiple housing ideas using building bricks. • Understanding what a virtual model is and the pros and cons of traditional and CAD modelling. • Placing and manoeuvring 3D objects, using CAD. • Changing the properties of, or combining one or more 3D objects, using CAD.	• Considering and suggesting additional functions for my navigation tool. • Developing a product idea through annotated sketches. • Placing and manoeuvring 3D objects, using CAD. • Changing the properties of, or combining one or more 3D objects, using CAD.
Progression of Skills: Make				• Using a template when cutting and assembling the pouch. • Following a list of design requirements. • Selecting and using the appropriate tools	• Developing a prototype case for my mindful moment timer. • Creating a 3D structure using a net. • Programming a micro:bit in the Microsoft micro:bit	• Understanding the functional and aesthetic properties of plastics. • Programming to monitor the ambient temperature and coding an (audible	• Considering materials and their functional properties, especially those that are sustainable and recyclable (for example, cork and bamboo). • Explaining material choices and why they

				and equipment for cutting, joining, shaping and decorating a foam pouch. • Applying functional features such as using foam to create soft buttons. • Writing a program to control (button press) and/or monitor (sense light) that will initiate a flashing LED algorithm.	editor, to time a set number of seconds/minutes upon button press.	or visual) alert when the temperature rises above or falls below a specified range.	were chosen as part of a product concept. • Programming an N,E, S, W cardinal compass.
Progression of Skills: Evaluate				• Analysing and evaluating an existing product. • Identifying the key features of a pouch.	• Investigating and analysing a range of timers by identifying and comparing their advantages and disadvantages. • Evaluating my Micro:bit program against points on my design criteria and amending them to include	• Stating an event or fact from the last 100 years of plastic history. • Explaining how plastic is affecting planet Earth and suggesting ways to make more sustainable choices. • Explaining key functions in my	• Explaining how my program fits the design criteria and how it would be useful as part of a navigation tool. • Developing an awareness of sustainable design. • Identifying key industries that utilise 3D CAD modelling and explaining why.

					any changes I made. • Documenting and evaluating my project. • Understanding what a logo is and why they are important in the world of design and business. • Testing my program for bugs (errors in the code). • Finding and fixing the bugs (debug) in my code.	program (audible alert, visuals). • Explaining how my product would be useful for an animal carer including programmed features	• Describing how the product concept fits the client's request and how it will benefit the customers. • Explaining the key functions in my program, including any additions. • Explaining how my program fits the design criteria and how it would be useful as part of a navigation tool. • Explaining the key functions and features of my navigation tool to the client as part of a product concept pitch. • Demonstrating a functional program as part of a product concept pitch.
Progression of Knowledge: Technical				• To understand that, in programming, a 'loop' is code that	• To understand what variables are in programming.	• To know that a 'device' means equipment created for a certain	• To know that accelerometers can detect movement.

				repeats something again and again until stopped. • To know that a Micro:bit is a pocket-sized, codeable computer.	• To know some of the features of a Micro:bit. • To know that an algorithm is a set of instructions to be followed by the computer. • To know that it is important to check my code for errors (bugs). • To know that a simulator can be used as a way of checking your code works before installing it onto an electronic device.	purpose or job and that monitoring devices observe and record. • To know that a sensor is a tool or device that is designed to monitor, detect and respond to changes for a purpose. • To understand that conditional statements (and, or, if booleans) in programming are a set of rules which are followed if certain conditions are met.	• To understand that sensors can be useful in products as they mean the product can function without human input.
Progression of Knowledge: Additional				• To know what the 'Digital Revolution' is and features of some of the products that have evolved as a result. • To know that in Design and technology the term 'smart'	• To understand the terms 'ergonomic' and 'aesthetic'. • To know that a prototype is a 3D model made out of cheap materials, that allows us to test design ideas	• To understand key developments in thermometer history. • To know events or facts that took place over the last 100 years in the history of plastic, and how this is	• To know that designers write design briefs and develop design criteria to enable them to fulfil a client's request. • To know that 'multifunctional' means an object or

				means a programmed product. • To know the difference between analogue and digital technologies. • To understand what is meant by 'point of sale display.' • To know that CAD stands for 'Computer-aided design'.	and make better decisions about size, shape and materials.	changing our outlook on the future. • To know the 6Rs of sustainability. • To understand what a virtual model is and the pros and cons of traditional vs CAD modelling.	product has more than one function. • To know that magnetometers are devices that measure the Earth's magnetic field to determine which direction you are facing.
Vocabulary	Soup Fruit • Vegetables • Safety • Knife • Blade • Tool • Edge • Handle • Chop • Slice • Cut • Saucepan • Blender • Chopping board • Hob • Boil • Blend • Mix • Packaging • Recyclable • Metal • Plastic • Reusable	Fruit and Vegetables • Blender • Carton • Fruit • Healthy • Ingredients • Peel • Peeler • Recipe • Slice • Smoothie • Stencil • Template • Vegetable Making a moving story book Assemble • Design • Evaluation •	A balanced diet Alternative • Diet • Balanced diet • Evaluation • Expensive • Healthy • Ingredients • Nutrients • Packaging • Refrigerator • Sugar • Substitute Making a Moving Monster	Eating Seasonally • Climate • Dry climate • Exported • Imported • Mediterranean climate • Nationality • Nutrients • Polar climate • Recipe • Seasonal food • Seasons • Temperate climate • Tropical climate	Pavilions Aesthetic • Cladding • Design criteria • Evaluation • Frame structure • Function • Inspiration • Pavilion • Reinforce • Stable • Structure • Target audience • Target customer • Texture • Theme	What could be healthier? • Beef • Cross-contamination • Diet • Ethical issues • Farm • Healthy • Ingredients • Method • Nutrients • Packaging • Reared • Recipe • Research • Substitute • Supermarket •	Come Dine with Me • Accompaniment • Collaboration • Cookbook • Cross-contamination • Equipment • Farm • Flavour • Illustration • Imperative-verb • Ingredients • Method • Nationality • Preparation • Processed • Reared • Recipe • Research • Storyboard • Target audience •

	Junk Modelling - Join • Stick • Cut • Bend • Slot • Scissors • Measure • Materials • Fix Bookmarks - Thread • Weave • Pattern • Sew • Sewing needle • Embroider • Design • Evaluate Structures - Waterproof • Absorb • Prediction • Variable • Experiment • Investigation • Float • Sink • Junk	Mechanism • Model • Sliders • Stencil • Target audience • Template • Test Constructing a windmill - Client • Design • Evaluation • Net • Stable • Strong • Test • Weak • Windmill Puppets - Decorate • Design • Fabric • Glue • Model • Hand puppet • Safety pin • Staple • Stencil • Template Wheels and Axles - Axle • Axle holder • Chassis • Design • Evaluation • Fix • Mechanic • Mechanism	Evaluation • Input • Lever • Linear motion • Linkage • Mechanical • Mechanism • Motion • Oscillating motion • Output • Pivot • Reciprocating motion • Rotary motion • Survey Baby Bear's Chair - Function • Man-made • Mould • Natural • Stable • Stiff • Strong • Structure • Test • Weak Pouches - Accurate • Fabric • Knot • Pouch • Running-stitch • Sew • Shape • Stencil • Template • Thimble Fairground Wheel - Axle • Decorate • Evaluation • Ferris	Constructing a Castle 2D shapes • 3D shapes • Castle • Design criteria • Evaluate • Facade • Feature • Flag • Net • Recyclable • Scoring • Stable • Strong • Structure • Tab • Weak Collars - Accurate • Applique • Cross-stitch • Cushion • Decorate • Detail • Fabric • Patch • Running-stitch • Seam • Stencil • Stuffing • Target audience • Target customer • Template Electric Poster - Battery • Bulb • Circuit • Circuit component • Crocodile wires • Electrical product	Adapting a recipe - Adapt • Budget • Cooling rack • Creaming • Equipment • Evaluation • Flavour • Ingredients • Method • Net • Packaging • Prototype • Quantity • Recipe • Rubbing • Sieving • Target audience • Unit of measurement • Utilities Fastenings - Aesthetic • Assemble • Book sleeve • Design criteria • Evaluation • Fabric • Fastening • Mock-up • Net • Running-stitch • Stencil • Target audience • Target customer • Template	Vegan • Vegetarian • Welfare Making a Pop Up Book - Aesthetic • Computer-aided design (CAD) • Caption • Design • Design brief • Design criteria • Exploded-diagram • Function • Input • Linkage • Mechanism • Motion • Output • Pivot • Prototype • Slider • Structure • Template Stuffed Toys - Accurate • Annotate • Appendage • Blanket-stitch • Design criteria • Detail • Evaluation • Fabric • Sew • Shape • Stuffed	Top tips • Unit of measurement Automata Toys - Accurate • Assembly-diagram • Automata • Axle • Bench hook • Cam • Clamp • Component • Cutting list • Diagram • Dowel • Drill bits • Exploded-diagram • Finish • Follower • Frame • Function • Hand drill • Jelutong • Linkage • Mark out • Measure • Mechanism • Model • Research • Right-angle • Set square • Tenon saw Cushions - Accurate • Adapt • Annotate • Design • Design criteria • Detail • Fabric • Fastening • Knot • Properties • Running-stitch
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		Model • Test • Wheel	wheel • Mechanism • Stable • Strong • Test • Waterproof • Weak	• Electrical system • Final design • Information design • Initial ideas • Peer assessment • Research • Self assessment • Sketch Pneumatic Toys Exploded-diagram • Function • Input • Lever • Linkage • Mechanism • Motion • Net • Output • Pivot • Pneumatic system • Thumbnail sketch Electric Charms Analogue • Badge • CAD • Control • Design requirements • Develop • Digital • Digital revolution • Digital world • Display • Electronic • Electronic products	Torches • Battery • Bulb • Buzzer • Cell • Component • Conductor • Copper • Design criteria • Electrical item • Electricity • Electronic item • Function • Insulator • Series circuit • Switch • Test • Torch • Wire Making a Slingshot Car Aesthetic • Air resistance • Chassis • Design • Design criteria • Function • Graphics • Kinetic energy • Mechanism • Net • Structure Mindful Moments Timer	toy • Stuffing • Template Doodlers • Circuit component • Configuration • Current • Develop • DIY • Investigate • Motor • Motorised • Problem solve • Product analysis • Series circuit • Stable • Target user Bridges Abutment • Accurate • Arched bridge • Beam bridge • Coping saw • Evaluation • File • Mark out • Material properties • Measure • Predict • Reinforce • Research • Sandpaper • Set square •	Seam • Sew • Shape • Target audience • Target customer • Template • Thread • Unique • Cushion • Waterproof Steady Hand Game • Assemble • Battery • Battery pack • Benefit • Bulb • Bulb holder • Buzzer • Circuit • Circuit symbol • Component • Conductor • Copper • Design • Design criteria • Evaluation • Fine motor skills • Fit for purpose • Form • Function • Gross motor skills • Insulator • LED • User Playgrounds • Adapt • Apparatus • Bench hook • Cladding • Coping saw • Design • Dowel • Evaluation •
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				• Fasten • Feature • Function • - Initiate • Key - features • Layers • - Loops • Micro: bit - Monitor • Net • - Point of sale • - Product • Product - design • Program • Sense • - Simulator • Smart - wearables • Stand • Technology • - Template • Test • - User	2D • Advantage • - Assemble • Block • Brand identity • - Branding • Bug • - CAD • Cheap • - Clipart • Coding • - Criteria • Debug • - Design • Develop • Disadvantage • - Ergonomic • - Evaluate • Form • - Function • - Instructions • Join • Logo • Loop • - Mindfulness • - Model • Net • - Pause • Process • - Program • - Prototype • - Research • - Sketchpad • - Template • Test • - Timer • User • - Variable	- Suspension bridge • Tenon saw • - Test • Truss bridge • Wood Monitoring Devices • Alert • Ambient • Boolean • - Consumables • - Decompose • - Development • - Device • Duplicate • Durable • - Electronic • - Inventor • - Lightweight • - Man-made • - Manipulate • - Manoeuvre • - Microplastics • - Model • Monitor • Monitoring - device • Moulded • Plastic • Plastic - pollution • - Programming - comment • - Programming loop • Reformed • - Replica • Research	- Feedback • Idea • - Jelutong • Landscape • Mark out • - Measure • Modify • - Natural materials • - Plan view • - Playground • - Prototype • - Reinforce • Sketch • - Strong • Structure • - Tenon saw • Texture • User • Vice • - Weak Navigating the World • 3D CAD • - Application (apps) • - Biodegradable • - Boolean • Cardinal - compass • Client • - Compass • Concept • Convince • - Corrode • Duplicate • Environmentally - friendly • Equipment • Feature • Finite • - Function • - Functional • GPS - tracker • If - statement • Infinite
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						• Sensor • Strong • Sustainability • - Synthetic • - Thermometer • - Thermoscope • - Value • Variable • - Versatile • Water-resistant • - Workplane	• Investment • - Lightweight • Loop • - Manufacture • - Materials (wood, metal, plastic etc.) • - Mouldable • - Navigation • Non-recyclable • - Product lifecycle • - Product lifespan • - Program • - Recyclable • - Smart • - Sustainable • - Sustainable design • - Unsustainable design • • Variable • - Workplane
Spirituality	Our curriculum provides children with opportunities to explore the big questions in the world:						
Possibilities	Our curriculum intends to raise children's aspirations and set high expectations for <u>ALL</u> pupils:						
Well-Being	Our curriculum intends to raise self-esteem and self-confidence:						
Belonging	Our curriculum intends to educate children about their place in the world						
World Aware	Our curriculum intends to be based on a range of experiential opportunities to help them understand the world they live in:						

Trust, Friendship, Respect, Forgiveness, Courage, Truthfulness