

DT Skills Builder

Year			Structures	Mechanisms	Electrical Systems	Cooking and Nutrition	Textiles
FS	Skills	Design	<u>Junk Modelling</u> <ul style="list-style-type: none"> • Making verbal plans and material choices. • Developing a junk model. <u>Boats</u> <ul style="list-style-type: none"> • Designing a junk model boat. • Using knowledge from exploration to inform design. 			<u>Soup</u> <ul style="list-style-type: none"> • Designing a soup recipe as a class. • Designing soup packaging. 	<u>Book Marks</u> <ul style="list-style-type: none"> • Discussing what a good design needs. • Designing a simple pattern with paper. • Designing a bookmark. • Choosing from available materials.
		Make	<u>Junk Modelling</u> <ul style="list-style-type: none"> • Improving fine motor/scissor skills with a variety of materials. • Joining materials in a variety of ways (temporary and permanent). • Joining different materials together. • Describing their junk model, and how they intend to put it together. <u>Boats</u> <ul style="list-style-type: none"> • Making a boat that floats and is waterproof, considering material choices. 			<u>Soup</u> <ul style="list-style-type: none"> • Chopping plasticine safely. • Chopping vegetables with support. 	<u>Book Marks</u> <ul style="list-style-type: none"> • 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.
		Evaluate	<u>Junk Modelling</u> <ul style="list-style-type: none"> • Giving a verbal evaluation of their own and others' 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. 			<u>Soup</u> <ul style="list-style-type: none"> • 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. 	<u>Book Marks</u> <ul style="list-style-type: none"> • Reflecting on a finished product and comparing to their design.

			<u>Boats</u> <ul style="list-style-type: none"> • 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 could have been done differently. • Investigating the how the shapes and structure of a boat affect the way it moves. 				
1	Skills	Design	<u>Constructing a windmill</u> <ul style="list-style-type: none"> • Learning the importance of a clear design criteria. • Including individual preferences and requirements in a design. 	<u>Making a moving story book</u> <ul style="list-style-type: none"> • Explaining how to adapt mechanisms, using bridges or guides to control the movement. • Designing a moving story book for a given audience. 		<u>Smoothies</u> <ul style="list-style-type: none"> • Designing smoothie carton packaging by-hand or on ICT software. 	<u>Puppets</u> <ul style="list-style-type: none"> • Using a template to create a design for a puppet.
		Make	<u>Constructing a windmill</u> <ul style="list-style-type: none"> • 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 structure of a windmill. • Making functioning turbines 	<u>Making a moving story book</u> <ul style="list-style-type: none"> • Following a design to create moving models that use levers and sliders. <u>Wheels and Axles</u> <ul style="list-style-type: none"> • Designing a vehicle that includes wheels, axles and axle holders, that when combined, will allow the wheels to move. • Creating clearly labelled drawings that illustrate movement. 		<u>Smoothies</u> <ul style="list-style-type: none"> • Chopping fruit and vegetables safely to make a smoothie. 	<u>Puppets</u> <ul style="list-style-type: none"> • Cutting fabric neatly with scissors. • Using joining methods to decorate a puppet. • Sequencing steps for construction.

			and axles which are assembled into a main supporting structure.	<ul style="list-style-type: none"> • they do not work as they should. • to fit their vehicle design. • to improve how they work after testing their vehicle. 			
		Evaluate	<u>Constructing a windmill</u> <ul style="list-style-type: none"> • Evaluating a windmill according to the design criteria, testing whether the structure is strong and stable and altering it if it isn't. • Suggest points for improvements. 	<u>Making a moving story book</u> <ul style="list-style-type: none"> • Testing a finished product, seeing whether it moves as planned and if not, explaining why and how it can be fixed. • Reviewing the success of a product by testing it with its intended audience. <u>Wheels and Axles</u> <ul style="list-style-type: none"> • Testing wheel and axle mechanisms, identifying what stops the wheels from turning, and recognising that a wheel needs an axle in order to move. 		<u>Smoothies</u> <ul style="list-style-type: none"> • Tasting and evaluating different food combinations. • Describing appearance, smell and taste. • Suggesting information to be included on packaging. 	<u>Puppets</u> <ul style="list-style-type: none"> • Reflecting on a finished product, explaining likes and dislikes.
2	Skills	Design	<u>Baby Bear's Chair</u> <ul style="list-style-type: none"> • Generating and communicating ideas using sketching and modelling. • Learning about different types of structures, found in the natural world and in everyday objects. 	<u>Fairground wheel</u> <ul style="list-style-type: none"> • Selecting a suitable linkage system to produce the desired motion. • Designing a wheel. <u>Making a moving monster</u> <ul style="list-style-type: none"> • Creating a class design criteria for a moving monster. • Designing a moving monster for a specific audience in accordance with a design criteria. 		<u>A Balanced Diet</u> <ul style="list-style-type: none"> • Designing a healthy wrap based on a food combination which work well together. 	<u>Pouches</u> <ul style="list-style-type: none"> • Designing a pouch.

		Make	<u>Baby Bear's Chair</u> <ul style="list-style-type: none"> • 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. 	<u>Fairground wheel</u> <ul style="list-style-type: none"> • Selecting materials according to their characteristics. • Following a design brief. <u>Making a moving monster</u> <ul style="list-style-type: none"> • 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. 		<u>A Balanced Diet</u> <ul style="list-style-type: none"> • Slicing food safely using the bridge or claw grip. • Constructing a wrap that meets a design brief. 	<u>Pouches</u> <ul style="list-style-type: none"> • 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.
		Evaluate	<u>Baby Bear's Chair</u> <ul style="list-style-type: none"> • Exploring the features of structures. • Comparing the stability of different shapes. • Testing the strength of own structures. • Identifying the weakest part of a structure. • Evaluating the strength, stiffness and stability of own structure 	<u>Fairground wheel</u> <ul style="list-style-type: none"> • Evaluating different designs. • Testing and adapting a design. <u>Making a moving monster</u> <ul style="list-style-type: none"> • Evaluating own designs against design criteria. • Using peer feedback to modify a final design. 		<u>A Balanced Diet</u> <ul style="list-style-type: none"> • 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. 	<u>Pouches</u> <ul style="list-style-type: none"> • 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.
3	Skills	Design	<u>Constructing a castle</u> <ul style="list-style-type: none"> • 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. 	<u>Pneumatic toys</u> <ul style="list-style-type: none"> • 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 design to explain ideas clearly. 	<u>Electrical Poster</u> <ul style="list-style-type: none"> • 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 requirements of a given brief. • Plan the positioning of the bulb (circuit component) and its purpose. 	<u>Eating Seasonally</u> <ul style="list-style-type: none"> • Creating a healthy and nutritious recipe for a savoury tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish. 	<u>Cross-stitch and appliqué Cushions or Egyptian collars</u> <ul style="list-style-type: none"> • Designing and making a template from an existing cushion and applying individual design criteria.

		Make	<u>Constructing a castle</u> <ul style="list-style-type: none"> Constructing a range of 3D geometric shapes using nets. Creating special features for individual designs. Making facades from a range of recycled materials. 	<u>Pneumatic toys</u> <ul style="list-style-type: none"> 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 cutting, creasing, folding and weaving. 	<u>Electrical Poster</u> <ul style="list-style-type: none"> 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). 	<u>Eating Seasonally</u> <ul style="list-style-type: none"> 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. 	<u>Cross-stitch and appliqué Cushions or Egyptian collars</u> <ul style="list-style-type: none"> Following design criteria to create a cushion or Egyptian 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 stuffing and sewing the edges (Cushions) or embellishing the collars based on design ideas (Egyptian collars).
		Evaluate	<u>Constructing a castle</u> <ul style="list-style-type: none"> Evaluating own work and the work of others based on the aesthetic of the finished product and in comparison to the original design. Suggesting points for modification of the individual designs 	<u>Pneumatic toys</u> <ul style="list-style-type: none"> 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. 	<u>Electrical Poster</u> <ul style="list-style-type: none"> 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. 	<u>Eating Seasonally</u> <ul style="list-style-type: none"> Establishing and using design criteria to help test and review dishes. Describing the benefits of seasonal fruits and vegetables and the impact on the environment. Suggesting points for improvement when making a seasonal tart. 	<u>Cross-stitch and appliqué Cushions or Egyptian collars</u> <ul style="list-style-type: none"> Evaluating an end product and thinking of other ways in which to create similar items.
4	Skills	Design	<u>Egyptian Monuments</u> <ul style="list-style-type: none"> Designing a stable pavilion structure that is aesthetically pleasing and selecting materials to create a desired effect. Building frame structures designed to support weight. 	<u>Making a slingshot car</u> <ul style="list-style-type: none"> 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. 	<u>Torches</u> <ul style="list-style-type: none"> Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas. 	<u>Adapting a Recipe</u> <ul style="list-style-type: none"> Designing a biscuit within a given budget, drawing upon previous taste testing judgements. 	<u>Fastenings</u> <ul style="list-style-type: none"> Writing design criteria for a product, articulating decisions made. Designing a personalised book sleeve.

		Make	<u>Egyptian Monuments</u> <ul style="list-style-type: none"> • 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 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. 	<u>Making a slingshot car</u> <ul style="list-style-type: none"> • Measuring, marking, cutting and assembling with increasing accuracy. • Making a model based on a chosen design. 	<u>Torches</u> <ul style="list-style-type: none"> • 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>Adapting a Recipe</u> <ul style="list-style-type: none"> • 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). 	<u>Fastenings</u> <ul style="list-style-type: none"> • 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.
		Evaluate	<u>Egyptian Monuments</u> <ul style="list-style-type: none"> • Evaluating structures made by the class. • Describing what characteristics of a design and construction made it the most effective. • Considering effective and ineffective designs. 	<u>Making a slingshot car</u> <ul style="list-style-type: none"> • Evaluating the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance. 	<u>Torches</u> <ul style="list-style-type: none"> • Evaluating electrical products. • Testing and evaluating the success of a final product. 	<u>Adapting a Recipe</u> <ul style="list-style-type: none"> • 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). 	<u>Fastenings</u> <ul style="list-style-type: none"> • 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.
5	Skills	Design	<u>Bridges</u> <ul style="list-style-type: none"> • Designing a stable structure that is able to support weight. • Creating a frame structure with a focus on triangulation. 	<u>Pop up book</u> <ul style="list-style-type: none"> • 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. 	<u>Doodlers</u> <ul style="list-style-type: none"> • 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 clarifies the target user. 	<u>Developing a Recipe</u> <ul style="list-style-type: none"> • 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>Stuffed Toys</u> <ul style="list-style-type: none"> • Designing a stuffed toy, considering the main component shapes required and creating an appropriate template. • Considering the proportions of individual components.

		Make	<u>Bridges</u> <ul style="list-style-type: none"> • 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. • 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. 	<u>Pop up book</u> <ul style="list-style-type: none"> • 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. 	<u>Doodlers</u> <ul style="list-style-type: none"> • 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. 	<u>Developing a Recipe</u> <ul style="list-style-type: none"> • Cutting and preparing vegetables safely. • Using equipment safely, including knives, hot pans and hobs. • Knowing how to avoid cross-contamination. • Following a step by step method carefully to make a recipe. 	<u>Stuffed Toys</u> <ul style="list-style-type: none"> • 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.
		Evaluate	<u>Bridges</u> <ul style="list-style-type: none"> • 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>Pop up book</u> <ul style="list-style-type: none"> • Evaluating the work of others and receiving feedback on own work. • Suggesting points for improvement. 	<u>Doodlers</u> <ul style="list-style-type: none"> • 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. 	<u>Developing a Recipe</u> <ul style="list-style-type: none"> • Identifying the nutritional differences between different products and recipes. • Identifying and describing healthy benefits of food groups. 	<u>Stuffed Toys</u> <ul style="list-style-type: none"> • Testing and evaluating an end product and giving point for further improvements.
6	Skills	Design	<u>Playgrounds</u> <ul style="list-style-type: none"> • Designing a playground featuring a variety of different structures, giving careful consideration to how the structures will be used, considering effective and 	<u>Automata Toys</u> <ul style="list-style-type: none"> • 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 	<u>Steady Hand Game</u> <ul style="list-style-type: none"> • Designing a steady hand game - identifying and naming the components required. • Drawing a design from three different perspectives. • Generating ideas through 	<u>Come dine with Me</u> <ul style="list-style-type: none"> • Writing a recipe, explaining the key steps, method and ingredients. • Including facts and drawings from research undertaken. 	<u>Waistcoats</u> <ul style="list-style-type: none"> • Designing a waistcoat in accordance to a specification linked to set of design criteria. • Annotating designs, to explain their decisions.

		ineffective designs.	change the direction of a force. <ul style="list-style-type: none"> • Making things move at the same time. • Understanding and drawing cross-sectional diagrams to show the inner-workings of my design. 	sketching and discussion. <ul style="list-style-type: none"> • Modelling ideas through prototypes. • Understanding the purpose of products (toys), including what is meant by 'fit for purpose' and 'form over function'. 		
	Make	<u>Playgrounds</u> <ul style="list-style-type: none"> • 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. • Using a range of materials to reinforce and add decoration to structures. 	<u>Automata Toys</u> <ul style="list-style-type: none"> • Measuring, marking and checking the accuracy of the jelutong and dowel pieces required. • Measuring, marking and cutting components accurately using a ruler and scissors. • Assembling components accurately to make a stable frame. • Understanding that for the frame to function effectively the components must be cut accurately and the joints of the frame secured at right angles. • Selecting appropriate materials based on the materials being joined and the speed at which the glue needs to dry/set. 	<u>Steady Hand Game</u> <ul style="list-style-type: none"> • 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. 	<u>Come dine with Me</u> <ul style="list-style-type: none"> • 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>Waistcoats</u> <ul style="list-style-type: none"> • 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 waistcoat, attaching features (such as appliqué) using thread. • Finishing the waistcoat with a secure fastening (such as buttons). • Learning different decorative stitches. • Sewing accurately with evenly spaced, neat stitches.
	Evaluate	<u>Playgrounds</u> <ul style="list-style-type: none"> • Improving a design plan based on peer evaluation. • Testing and adapting a design to improve it as it is developed. • Identifying what makes a successful structure. 	<u>Automata Toys</u> <ul style="list-style-type: none"> • 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. 	<u>Steady Hand Game</u> <ul style="list-style-type: none"> • 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. 	<u>Come dine with Me</u> <ul style="list-style-type: none"> • 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 when scoring others' dishes, and when evaluating their own 	<u>Waistcoats</u> <ul style="list-style-type: none"> • Reflecting on their work continually throughout the design, make and evaluate process.

						<p>throughout the planning, preparation and cooking process.</p> <ul style="list-style-type: none">• Evaluating health and safety in production to minimise cross contamination.	
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