

Design Make Evaluate

	Autumn Food – The best pumpkin soup		Spring Textiles – flower threading		Summer Structures – make a boat for the Gingerbread man	
	Disciplinary Knowledge	Substantive Knowledge	Disciplinary Knowledge	Substantive Knowledge	Disciplinary Knowledge	Substantive Knowledge
EYFS Reception	<ul style="list-style-type: none"> • Designing a soup recipe as a class. • Designing soup packaging. • Chopping plasticine safely. • Chopping vegetables with support. • 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. 	<ul style="list-style-type: none"> • To know that soup is ingredients (usually vegetables and liquid) blended together. • To know that vegetables are grown. • 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 	<ul style="list-style-type: none"> • Designing treaded flower with a repeating pattern. • Draw the shape of a chosen flower. • Cut out the flower. • Thread wool through punched holes in the flower. • Return to build on their previous learning, refining ideas and developing their ability to reoesent them. • Share their creations, explaining the process they have used. 	<ul style="list-style-type: none"> • Discussing what a good design looks like • Develop fine motor skills so the children can use a range of tools competently, safely and confidently. • To name some simple shapes and colours. • To listen and respond to suggestions. 	<ul style="list-style-type: none"> • Designing a junk model boat. • Using knowledge from exploration to inform design. • Making a boat that floats and is waterproof, considering material choices. • 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. 	<ul style="list-style-type: none"> • To know that some objects float and others sink. • To know the different parts of a boat.
Vocabulary						
Year 1	Autumn Mechanisms - Wheels and axel		Spring Food – Fruit and Vegetables		Summer Structures - Constructing a windmill s	
	Disciplinary Knowledge	Substantive Knowledge	Disciplinary Knowledge	Substantive Knowledge	Disciplinary Knowledge	Substantive Knowledge
	<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. Adapting mechanisms, when: <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. • Testing wheel and axle mechanisms, identifying what stops the wheels from turning, and recognising that a wheel needs an axle in order to move. 	<ul style="list-style-type: none"> • 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 an axle moves within an axle holder which is fixed to the vehicle or toy. • To know that the frame of a vehicle (chassis) needs to be balanced. 	<ul style="list-style-type: none"> • Designing smoothie carton packaging by-hand or on ICT software. • Chopping fruit and vegetables safely to make a smoothie. • Tasting and evaluating different food combinations. • Describing appearance, smell and taste. • Suggesting information to be included on packaging. 	<ul style="list-style-type: none"> • 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 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). 	<ul style="list-style-type: none"> • Learning the importance of a clear design criteria. • Including individual preferences and requirements in a design. • 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 and axles which are assembled into a main supporting structure. • 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. 	<ul style="list-style-type: none"> • 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 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.
Vocabulary	axle axle holder	dowel equipment	fruit vegetable	peel slice	axle bridge	template unstable

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DT Long Term Plan Progression with Vocabulary.



	chassis diagram	mechanism wheel	seed leaf root stem	smoothie healthy carton design flavour	design design criteria model net	strong weak packaging structure
Year 2	Autumn A Balanced Diet		Spring Mechanisms – Mechanical animals		Summer Textiles - pouches	
	Disciplinary Knowledge	Substantive Knowledge	Disciplinary Knowledge	Substantive Knowledge	Disciplinary Knowledge	Substantive Knowledge
	<ul style="list-style-type: none"> • Designing a healthy wrap based on a food combination which work well together. • Slicing food safely using the bridge or claw grip. • Constructing a wrap that meets a design brief. • 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 	<ul style="list-style-type: none"> • 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 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. • To know that I should only have a maximum of five teaspoons of sugar a day to stay healthy. • To know that many food and drinks we do not expect to contain sugar do; we call these 'hidden sugars'. 	<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 • 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 • Evaluating own designs against design criteria • Using peer feedback to modify a final design 	<ul style="list-style-type: none"> • 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 that turns on a pivot. • To know that a linkage mechanism is made up of a series of levers 	<ul style="list-style-type: none"> • Designing a pouch. • 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 • 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 	<ul style="list-style-type: none"> • To know that sewing is a method of joining fabric. • To know that different stitches 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
Vocabulary	balanced diet balance carbohydrate dairy fruit	ingredients oils sugar protein vegetable design criteria	decorate fabric fabric glue knot needle	needle threader running stitch sew template thread	axle design criteria input linkage	mechanical output pivot wheel

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Year 3	Autumn Food – Eating seasonally		Spring Textiles – Egyptian collars		Summer Structures – constructing a castle	
	Disciplinary Knowledge	Substantive Knowledge	Disciplinary Knowledge	Substantive Knowledge	Disciplinary Knowledge	Substantive Knowledge
	<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 • 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. • 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 	<ul style="list-style-type: none"> • 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 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 understand that vitamins, minerals and fibre are important for energy, growth and maintaining health. • To know safety rules for using, storing and cleaning a knife safely. • To know that similar coloured fruits and vegetables often have similar nutritional benefits. 	<ul style="list-style-type: none"> • Designing and making a template from an existing cushion and applying individual design criteria • 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) • Evaluating an end product and thinking of other ways in which to create similar items. 	<ul style="list-style-type: none"> • To know that applique is a way of mending or decorating a textile by applying smaller 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. 	<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. • Constructing a range of 3D geometric shapes using nets. • Creating special features for individual designs. • Making facades from a range of recycled materials • 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. 	<ul style="list-style-type: none"> • To understand that wide and flat based objects are more stable. • To understand the importance of strength and stiffness in structures.
Vocabulary	Climate import natural reared seasonal diet	ingredients processed recipe seasons sugar	appliqué cross-stitch fabric running stitch patch thread embellish template cotton silk	polyester wrinkle tear water-resistant breathable matt shiny biodegrade pinking	2D castle key features scoring stable strong	3D design net shape stiff structure

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Year 4	Autumn Mechanical systems – making a slingshot car		Spring Food – adapting a recipe		Summer Electrical systems - torches	
	Disciplinary Knowledge	Substantive Knowledge	Disciplinary Knowledge	Substantive Knowledge	Disciplinary Knowledge	Substantive Knowledge
	<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. • Measuring, marking, cutting and assembling with increasing accuracy. • Making a model based on a chosen design. • Evaluating the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance. 	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • Designing a biscuit within a given budget, drawing upon previous taste testing judgements • 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) • 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) 	<ul style="list-style-type: none"> • 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 know the following cooking techniques: sieving, creaming, rubbing method, cooling. • To understand the importance of budgeting while planning ingredients for biscuits. 	<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. • 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. • Evaluating electrical products. • Testing and evaluating the success of a final product 	<ul style="list-style-type: none"> • To understand that electrical conductors are materials which electricity can pass through. • To understand that electrical 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
Vocabulary	chassis energy kinetic mechanism air resistance design	structure graphics research model template	design criteria research texture innovative aesthetic measure	cross-contamination diet processed packaging	battery buzzer circuit electricity series circuit component design criteria evaluation model target audience recyclable	bulb conductor circuit diagram insulator switch diagram LED shape input theme

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Year 5	Autumn Structures - bridges		Spring Textiles – stuffed toys		Summer Food – what could be healthier?	
	Disciplinary Knowledge	Substantive Knowledge	Disciplinary Knowledge	Substantive Knowledge	Disciplinary Knowledge	Substantive Knowledge
	<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 • 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. • 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 	<ul style="list-style-type: none"> • 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 aesthetic) properties of wood 	<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. • 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. • Testing and evaluating an end product and giving point for further improvements. 	<ul style="list-style-type: none"> • To know that blanket stitch is useful to reinforce the edges of a fabric material or 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. 	<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. • 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 • Identifying the nutritional differences between different products and recipes. • Identifying and describing healthy benefits of food groups 	<ul style="list-style-type: none"> • 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 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.
Vocabulary	beam bridge arch bridge truss bridge strength technique corrugation lamination stiffness rigid factors stability visual appeal aesthetics joints	mark out hardwood softwood wood file/rasp sandpaper/glasspaper bench hook/vice tenon saw/coping saw assemble material properties reinforce wood sourcing evaluate quality of finish accuracy	accurate annotate appendage blanket-stitch design criteria detail evaluation	fabric sew shape stuffed toy stuffing template	beef reared processed ethical diet	ingredients supermarket farm balanced

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DT Long Term Plan Progression with Vocabulary.



Year 6	Autumn Mechanical systems – automata toys		Spring Food – come dine with me		Summer Digital world – navigating the world	
	Disciplinary Knowledge	Substantive Knowledge	Disciplinary Knowledge	Substantive Knowledge	Disciplinary Knowledge	Substantive Knowledge
	<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 change the direction of a force. • Making things move at the same time. • Understanding and drawing cross-sectional diagrams to show the inner-workings of my design. • Measuring, marking and checking the accuracy of the jelutong and dowel pieces required. • Measuring, marking and cutting components accurately using a ruler and scissors. • Assembling components accurately to make a stable frame. • Understanding that for the frame to function effectively the components must be cut accurately and the joints of the frame secured at right angles. • Selecting appropriate materials based on the materials being joined and the speed at which the glue needs to dry/set • Evaluating 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. 	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • Writing a recipe, explaining the key steps, method and ingredients. • Including facts and drawings from research undertaken. • Following a recipe, including using the correct quantities of each ingredient. <ul style="list-style-type: none"> • Adapting a recipe based on research. • Working to a given timescale. • Working safely and hygienically with independence. • 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 throughout the planning, preparation and cooking process. • Evaluating health and safety in production to minimise cross contamination. 	<ul style="list-style-type: none"> • 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' 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). 	<ul style="list-style-type: none"> • Writing a design brief from information submitted by a client. • Developing design criteria to fulfil the client's request. • Considering and suggesting additional functions for my navigation tool. <ul style="list-style-type: none"> • 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. • Considering materials and their functional properties, especially those that are sustainable and recyclable (for example, cork and bamboo). • Explaining material choices and why they were chosen as part of a product concept. • Programming an N,E, S, W cardinal compass. • 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. <ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • To know that accelerometers can detect movement. • To understand that sensors can be useful in products as they mean the product can function without human input.

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DT Long Term Plan Progression with Vocabulary.



Vocabulary	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	equipment flavours ingredients method research ripe	bridge method cookbook cross-contamination farm to fork preparation storyboard	smart smartphone equipment navigation cardinal compass application (apps) pedometer GPS tracker design brief design criteria client function program duplicate replica	loop variable value if statement boolean corrode mouldable lightweight sustainable design environmentally friendly biodegradable recyclable product lifecycle
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