



Design & Technology Long Term Plan 2024-2025

Overview of Topics							
	EYFS	KS1		LKS2		UKS2	
		Cycle 1	Cycle 2	Cycle 1	Cycle 2	Cycle 1	Cycle 2
Autumn	See EYFS LTP	Nutrition: Fruit & Vegetables (Smoothies)	Nutrition: A Balanced Diet (Wraps)	Textiles – Cushions (Cross stitch/applique)	Textiles - Fastenings	Textiles - Stuffed Toys	Textiles - Waist Coats
Spring	See EYFS LTP	Structures - Making a Windmill	Mechanisms – Making a moving monster	Nutrition: Eating seasonally (Tarts)	Nutrition: Adapting a Recipe (Biscuits)	Structures - Bridges	Mechanisms – Automata toys
Summer	See EYFS LTP	Textiles - Puppets	Textiles - Pouches	Structures - Pavilions	Mechanisms – Pneumatic toys	Nutrition: What could be healthier? (Developing a recipe)	Nutrition: Come Dine with Me

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum Objectives (EYFS Development Matters 2023)	<p>EAD Birth to 3 years: -Explore different materials, using all their senses to investigate them. -Manipulate and play with different materials. -Use their imagination as they consider what they can do with different materials. -Make simple models which express their ideas.</p> <p>EAD 3-4 Years: -Explore different materials freely, to develop their ideas about how to use them and what to make. -Develop their own ideas and then decide which materials to use to express them. -Join different materials and explore different textures.</p> <p>EAD Reception: -Explore, use and refine a variety of artistic effects to express their ideas and feelings. -Return to and build on their previous learning, refining ideas and developing their ability to represent them. -Create collaboratively sharing ideas, resources and skills.</p> <p>PSED 3-4 years: -Make healthy choices about food, drink, activity and toothbrushing.</p>	<p>Design -Design purposeful, functional, appealing products for themselves and other users based on design criteria -Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology</p> <p>Make -Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]</p> <p>-Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics</p> <p>Evaluate -Explore and evaluate a range of existing products -Evaluate their ideas and products against design criteria</p> <p>Technical knowledge -Build structures, exploring how they can be made stronger, stiffer and more stable -Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.</p> <p>Nutrition -Use the basic principles of a healthy and varied diet to prepare dishes -Understand where food comes from.</p>	<p>Design -Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups -Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</p> <p>Make -Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately -Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities</p> <p>Evaluate -Investigate and analyse a range of existing products -Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work -Understand how key events and individuals in design and technology have helped shape the world</p> <p>Technical knowledge -Apply their understanding of how to strengthen, stiffen and reinforce more complex structures -Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] -Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] -Apply their understanding of computing to program, monitor and control their products.</p> <p>Nutrition -Understand and apply the principles of a healthy and varied diet. -Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques. -Understand seasonality, and know where and how a variety.</p>				

	<p>PSED Reception: Know and talk about the different factors that support their overall health and wellbeing:</p> <ul style="list-style-type: none">• healthy eating		
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Nutrition	EYFS	KS1 - Cycle 1	KS1 - Cycle 2	LKS2 - Cycle 1	LKS2 - Cycle 2	UKS2 - Cycle 1	UKS2 - Cycle 1
Vocabulary	Bake, wash, clean, recipe, ingredients, healthy, unhealthy, equipment, weigh, measure, mix, spread, add	Blend, blender, chopping board, compare, cut, design, evaluate, flavour, fork, fruit, healthy ingredients, juice, juicer, leaf, plant, recipe, root, seed, select, smoothie, stem, table knife, taste, tree, vegetable, vine	Appearance, balanced, carbohydrates, chopping board, Combination, cut, dairy, design, design brief, diet, evaluate, feel, fruit, grate, grater, ingredients, menu, oils, proteins, review, scissors, smell, snip, spread, spreads, table knife, taste, vegetables	Complementary, country, cut, design, Evaluate, export, fruit, Grate, import, ingredients, Mediterranean, mock-up, mountain, peel, polar, seasonal, seasons, snip, taste, temperate, texture, tropical, vegetable, weather	Adapt, addition, Appearance, budget, Buttery, combine, Comment, compare, Construct, cream, Crunchy, cuboid, Cut, design, evaluate, Fold, hygiene, ingredients, layout, market research, modify, multiplication, opinion, pounds, sieve, sift, target audience, taste, texture, unique, wooden spoon	Abattoir, adaptation, Balanced, beef, brand, Cook, cross-contamination, cut, Design, enhance, Equipment, evaluate, Farm, grate, Hygiene, ingredients, Label, measure, nutrient, nutrition, nutritional value, preference, press, process, recipe, safety, theme	Balance, bitter, bridge method, complement, cookbook, cross-contamination, enhance, equipment, farm to fork, flavours, ingredients, method, research, pairing, recipe, preparation, salty, sour, storyboard, sweet, umami
Design	<p><u>Design</u> Select from a range of appropriate healthy options to add to an existing recipe. Can understand which foods are healthy options.</p> <p>Autumn F1 Flapjack, exploring 1 by adding together 1 of each ingredient to make flapjack. F2 Look at what ingredients are needed to make Pumpkin soup, look at vegetables and discuss healthy eating.</p> <p>Spring F1 Gingerbread Man- with support children will follow a simple recipe and mix together the</p>	<p><u>Design</u> Know the difference between fruits and vegetables Can identify if a food is a fruit or a vegetable. Pepper*, Avocado*, Cucumber*, Butternut squash*, Tomato*, Grapes (with seeds) *, Orange (with seeds) *, Apple*, Kiwi*, Strawberry*, Banana*, Pineapple*, Mango*, Blueberries*, Potato, Carrot, Green beans, Lettuce, Onion, Spinach, Celery, Parsnip *fruits</p>	<p><u>Design</u> Know where to find the nutritional information on packaging Can find the sugar contents in drinks by looking at the nutritional information. Use Change 4 life smart scanner. Make smart (low sugar options/healthier) choices about drinks that they choose to consume.</p> <p>Knowing the five food groups; Fats, proteins, dairy, carbohydrates and fruit/vegetables Can explain that balanced diets consist of a mix of food groups: protein,</p>	<p><u>Design</u> Know that each fruit and vegetable gives us nutritional benefits. Can create a healthy and nutritious recipe for a savoury filo tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish</p> <p>Know that climate affects food growth Explain that some vegetables and fruit cannot be grown in the UK Bananas – tropical Strawberries – temperate Lychee – tropical</p>	<p><u>Design</u> Design a biscuit within a given budget, drawing upon previous taste testing Describe the impact of the budget on the selection of ingredients. Use their research to inform the design they make.</p>	<p><u>Design</u> Adapting a traditional recipe (Spaghetti Bolognese), understanding that the nutritional value of a recipe alters if you remove, substitute or add additional ingredients Understanding where food comes from - learning that beef is from cattle and how beef is reared and processed</p> <p>Write an amended method for a recipe to incorporate the relevant changes to ingredients. Understanding what constitutes a balanced diet</p>	<p><u>Design</u> Writing a recipe, explaining the key steps, method and ingredients, including facts and drawings from research undertaken</p> <p>Learning how to research a recipe by ingredient Recording the relevant ingredients and equipment needed for a recipe</p>

	<p>ingredients to make gingerbread. F2 Discuss what ingredients are needed to make a 'hot chocolate drink' independently follow a recipe step by step to create own drink within the snack area.</p> <p>Summer F1 Fruit Salad- with support children to identify different fruits and chop up the fruit to make a healthy fruit salad. F2 Discuss healthy eating and how to stay healthy by eating more than 5 fruit and vegetables per day, design a healthy fruit smoothie, deciding on which ingredients they would like to add into their smoothie.</p>	<p>Know which fruits and vegetables would combine well by texture and taste to make a smoothie. Can choose 3 or more fruits and vegetables to combine in a smoothie. •Fruits and vegetables from list above</p>	<p>carbohydrates, dairy, fruits/vegetables, fats</p> <p>Know how to design a healthy wrap based on a food combination which work well together from the following ingredients Can design a healthy wrap based on a food combination which work well together from the following ingredients; cheddar, feta, cream cheese, sour cream, chicken, ham, tofu, crab sticks, iceberg, spinach, rocket, tomato, cucumber, pepper, radish, beetroot,</p> <p>Know properties of different foods in order to combine them appropriately. Can make a balance of taste, texture and nutrition. Chicken (protein, textured), avocado (healthy fat, smooth and creamy) and rocket leaves (strong peppery flavour, good source of vitamins, high energy density)</p>	<p>Know fruits and vegetables grow in different seasons. Can identify seasonal fruits and vegetables that can be sourced at that time of year. Understand that these climates enable different fruits and vegetables to grow A selection from below... Autumn- apple, blackberries, butternut squash, pumpkin, spouts, cabbage, carrot, onion, parsnip, potato, spinach, turnip, Winter- apple, cauliflower, leek, pear, rhubarb, swede Spring- asparagus, cucumber, lettuce, parsley, purple sprouting, radish, red onion Summer- Basil, beans, beetroot, celery, courgette, cucumber, fennel, radish, raspberry, rocket, strawberry.</p>		<p>Designing appealing packaging to reflect a recipe Can identify the important information that a consumer will need to know. Promotes the ingredients in the Bolognese.</p>	
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<p>Make</p>	<p><u>Make</u> Adding healthy ingredients into a pumpkin soup/fruit smoothie/ fruit salad. Make healthy food choices</p> <p>Follow basic hygiene rules of hand washing and surface cleaning before preparing food. Understand the importance of clean hands both before and after handling food.</p>	<p><u>Make</u> Know how to chop fruit and vegetables safely to make a smoothie. Can chop fruits and vegetables safely to make a smoothie using bridge cut on pre-cut sticks of fruits and vegetables using a cutlery knife.</p> <p>Know where and how fruits and vegetables grow. (carrots, celery, lettuce, apples, tomatoes) Can name where specific fruits and vegetables grow (named above) Above ground, underground, trees/vines/bushes</p>	<p><u>Make</u> Know how to slice food safely using the bridge or claw grip, and know how to apply this skill with any food suitable for slicing. Can slice food safely using the bridge or claw grip, and know how to apply this skill with any food suitable for slicing. Use bridge and claw grip</p> <p>Know how to construct a wrap that meets a design brief. Can select ingredients from below to make wrap that meets a design brief cheddar, feta, cream cheese, sour cream, chicken, ham, tofu, crab sticks, iceberg, spinach, rocket, tomato, cucumber, pepper, radish, beetroot,</p>	<p><u>Make</u> Know how to prepare themselves and a work space to cook safely in, learning the basic rules to avoid food contamination Can work with cooking equipment safely and hygienically. Can demonstrate how to use, store and clean a knife safely. Know how to carry knives safely Use safe knife grips (bridge, claw, the cross chop) Know to wash hands before and after and when required to in between.</p> <p>Know how to follow the instructions within a printed recipe. Can follow a recipe to make a tart. Filo pastry tart using savoury, autumn seasonal ingredients from above</p>	<p><u>Make</u> Following a baking recipe Can follow a recipe.</p> <p>Cooking safely, following basic hygiene rules Can work with cooking equipment safely and hygienically, including an oven.</p> <p>Adapting a basic biscuit recipe by adding additional ingredients. Can adapt a recipe based on their research and taste preferences. Bake biscuits using their adapted recipe.</p>	<p><u>Make</u> Cutting and preparing vegetables safely Can follow safety instructions.</p> <p>Using equipment safely, including knives, hot pans and hobs. Can follow safety instructions, using oven gloves when handling hot equipment.</p> <p>Knowing how to avoid cross-contamination Understand food hygiene and the importance of keeping raw meat separated from other ingredients.</p> <p>Following a step by step method carefully to make a recipe Can follow a recipe exactly and understand how a finished product can change if the recipe is not followed.</p>	<p><u>Make</u> Following a recipe, including using the correct quantities of each ingredient (See Kapow; pepper starter, salmon main, pineapple dessert)</p> <p>Adapting a recipe based on research Understanding the combinations of food that will complement one another Make a tasty 3 course meal</p> <p>Working to a given timescale as specified within recipe design. Can manage time to ensure recipe can be completed.</p> <p>Working safely and hygienically with independence Can manage ingredients and equipment with less supervision.</p>
<p>Evaluate</p>	<p><u>Evaluate</u> Taste and decide if they enjoy their choice of ingredients. Can say what they do and do not like about the soup/smoothie/fruit salad?</p>	<p><u>Evaluate</u> Know taste combinations of fruits and vegetables to evaluate the overall taste. Can taste combinations of fruits and vegetables to</p>	<p><u>Evaluate</u> Know how to describe the fruit and vegetables that they have used. Can describe the taste, texture and smell of fruits and vegetables. soft, firm, crunchy, crisp, smooth,</p>	<p><u>Evaluate</u> Establishing and using design criteria to help test and review seasonal tarts. Can suggest points for improvement when making a seasonal tart.</p>	<p><u>Evaluate</u> Evaluate a recipe, considering: taste, smell, texture and appearance using own modified recipe. Describe the impact of the budget on the selection of ingredients.</p>	<p><u>Evaluate</u> Identifying the nutritional differences between different products and recipes Comparing two adapted recipes using a nutritional calculator and then identifying the healthier option</p>	<p><u>Evaluate</u> Evaluating a recipe, considering: taste, smell, texture and origin of the food group Understanding where food comes from, describing the process</p>

	<p>To say what they could do differently next time?</p>	<p>evaluate the overall taste. Using a 5-point sliding scale with 1 being disgusting and 5 being delicious.</p> <p>Know how to describe appearance, smell and taste of fruit and vegetables. <i>Can describe appearance, smell and taste of fruit and vegetables.</i> Use vocabulary – sweet, bland, savoury, delicious, disgusting.</p>	<p>tasty, yummy, delicious, sweet, savoury, bland</p> <p>Taste test food combinations and final products <i>Can say which food combinations work well together for their preferences.</i></p> <p>Know the information that should be included on a label. <i>Can find key information about a food nutrition on a label. Using traffic light/percentage information</i></p> <p>Know which grip was most effective in cutting foods. <i>Describe and evaluate which grip worked better for them. Bridge position, the claw and.</i></p> <ul style="list-style-type: none"> • 	<p>Know the benefits of seasonal fruits and vegetables <i>Can describe the impact on the environment, freshness and most nutrient rich.</i> Seasonal produce doesn't need to travel so uses less emissions and retains nutrients and quality.</p>	<p>Evaluate and compare colourings, flavourings and additional ingredients that can be added to a basic biscuit recipe.</p> <p>Suggesting modifications to the finished product. <ul style="list-style-type: none"> • <i>Understands how to improve the product.</i> </p>	<p>Identifying and describing health benefits of all food groups (carbohydrates, fats, fruits and vegetables, dairy, protein). <i>Learning to adapt a recipe to make it healthier</i></p>	<p>of 'Farm to Fork' for a given ingredient</p> <p>Taste testing and scoring final products <i>Can use taste testing and scoring to compare how successful their final product is.</i></p> <p>Suggesting and writing up points of improvements in productions.</p> <p><i>Can contribute a well-written recipe page to a class cookbook using imperative verbs, adjectives and illustrations</i> Class have a cookbook that they can use for future life skills. Evaluating health and safety in production to minimise cross contamination. <ul style="list-style-type: none"> • <i>Can suggest ways to improve minimising cross-contamination.</i> </p>
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Textiles	EYFS	KS1 - Cycle 1	KS1 - Cycle 2	LKS2 - Cycle 1	LKS2 - Cycle 2	UKS2 - Cycle 1	UKS2 - Cycle 1
Vocabulary	Materials such as blocks, clay, play-dough, wood, card,	Decorate, design, fabric, glue, model, hand puppet, safety	Accurate, fabric, knot, pouch, running stitch,	Accurate, appliqué, cross-stitch, cushion, design, embellish,	Aesthetic, assemble, book sleeve, design criteria, evaluation,	Accurate, annotate, appendage, blanket-stitch, design criteria,	Annotate, decorate, design criteria, fabric,

	paper, fabric, textures, tools, scissors, hole punch, stapler, paper clips, treasury tags, split pins, masking tape, cello tape, glue, glue stick, join, attach, model, create, mould, stick,	pin, stencil, technique, template	sew, shape, stencil, template, thimble	fabric, patch, running stitch, seam, stuffing, template, thread	fabric, fastening, prototype, net, running stitch, stencil, target audience, target customer, template	detail, evaluation, fabric, sew, shape, stuffed toy, stuffing, template	target customer, waistcoat, waterproof
Design	<p><u>Design</u> Links to EAD 3-4 -Explore different materials freely, to develop their ideas about how to use them and what to make. -Develop their own ideas and then decide which materials to use to express them. -Join different materials and explore different textures. Links to EAD Reception -Explore, use and refine a variety of artistic effects to express their ideas and feelings. -Return to and build on their previous learning, refining ideas and developing their ability to represent them. -Create collaboratively sharing ideas, resources and skills.</p>	<p><u>Design</u> Using a template to create a design for a puppet Understand the need for a template</p>	<p><u>Design</u> Designing a pouch Can design a pouch that is aesthetically pleasing</p>	<p><u>Design</u> Designing and making a template from an existing cushion and applying individual design criteria Can use research and knowledge of cushion designs to create their own design criteria</p>	<p><u>Design</u> Writing design criteria for a product, articulating decisions made Designing a personalised Book sleeve Can use research to understand what a book sleeve requires in the design criteria. Understanding that there are different types of fastenings and what they are</p>	<p><u>Design</u> Designing a stuffed toy considering the main component shapes required and creating an appropriate template Considering proportions of individual components Design a stuffed toy considering the design criteria</p>	<p><u>Design</u> Designing a waistcoat in accordance to specification linked to set of design criteria to fit a specific theme. Learning different decorative stitches</p>
Make	<p><u>Make</u> Explore different materials (recycled ribbons, nets, felt, recycled clothes, paper, card, foil, junk modelling) freely, to develop their ideas about how to use them and what to make. Can use different materials within their creative play</p>	<p><u>Make</u> Cutting fabric neatly with scissors Uses scissors safely Using joining methods to decorate a puppet Learning different ways in which to join fabrics together: pinning, stapling, gluing</p>	<p><u>Make</u> Selecting and cutting fabrics for sewing Neatly pinning and cutting fabric using a template Decorating a pouch using fabric glue or running stitch Joining items using fabric glue or stitching</p>	<p><u>Make</u> Following design criteria to create a cushion Understanding the need to count the thread on a piece of even weave fabric in each direction to create uniform size and appearance</p>	<p><u>Make</u> Making and testing a paper template with accuracy and in keeping with the design criteria Explore the benefits of different fastenings Buckle, button, toggle, press stud, zip and Velcro</p>	<p><u>Make</u> Creating a 3D stuffed toy from a 2D design Can transfer their design accurately to their stuffed toy Measuring, marking and cutting fabric accurately and independently</p>	<p><u>Make</u> Using template pinning panels onto fabric Marking and cutting fabric accurately, in accordance with a design Can use a template accurately Sewing a strong running stitch, making</p>

	<p>Can use tools safely such as scissors, hole punch, split pins, treasury tags and stapler.</p> <p>Know which tool and technique to use in order to create their representation/join materials together.</p>	<p>Sequencing steps for construction Can follow a set of instructions to create a given outcome</p>	<p>Sewing running stitch, with evenly spaced, neat, even stitches to join fabric Identifying benefits of these techniques Threading a needle</p>	<p>Selecting and cutting fabrics with ease using fabric scissors</p> <p>Sewing cross stitch to join fabric Threading needles with greater independence Decorating fabric using appliqué Sewing cross stitch and appliqué Tying knots with greater independence Completing design ideas with stuffing and sewing the edges Understanding that fabrics can be layered for affect</p>	<p>Measuring, marking and cutting fabric using a paper template Use a temple accurately</p> <p>Selecting a stitch style to join fabric, working neatly sewing small neat stitches Can work neatly and with accuracy to create a quality end product Incorporating fastening to a design</p>	<p>Creating strong and secure blanket stitches when joining fabric Learning to sew blanket stitch to join fabric Applying blanket stitch so the space between the stitches are even and regular Using applique to attach pieces of fabric decoration Threading needles independently</p>	<p>small, neat stitches and following the edge Sewing accurately with even regularity of stiches</p> <p>Tying strong knots</p> <p>Decorating a waistcoat - attaching objects using thread and adding a secure fastening Can use a variety of decorative techniques Application and outcome of the individual technique</p>
Evaluate	<p><u>Evaluate</u> Links to Characteristics of Effective Learning-</p>	<p><u>Evaluate</u> Reflecting on a finished product, explaining likes and dislikes Can identify what went well and how it could be improved</p>	<p><u>Evaluate</u> Evaluating the quality of the stitching on others' work Identifying aspects of their peers' work that they particularly like and why Understand how to give feedback to others</p> <p>Discussing as a class, the success of their stitching against the success criteria</p>	<p><u>Evaluate</u> Evaluating an end product and thinking of other ways in which to create similar items Understand how to apply the skills learned to make the cushion to other projects</p>	<p><u>Evaluate</u> Testing and evaluating an end product against the original design criteria Articulating the benefits and disadvantages of different fastening types Deciding how many of the criteria should be met for the product to be considered successful Understand which are the more important criteria for a successful end product. Suggesting modifications for improvement</p>	<p><u>Evaluate</u> Testing and evaluating an end product and giving points for further improvements Can evaluate critically against the design criteria.</p>	<p><u>Evaluate</u> Evaluating work continually as it is created Can spot errors in their work and can correct and improve it.</p>

Structures and mechanisms	EYFS	KS1 - Cycle 1	KS1 - Cycle 2	LKS2 - Cycle 1	LKS2 - Cycle 2	UKS2 - Cycle 1	UKS2 - Cycle 1
Vocabulary		Client, Design, Evaluation, Net, Stable, Strong, Test, Weak, Windmill	Evaluation, Input, Lever, Linear motion, Linkage, Mechanical, Mechanism, Motion, oscillating motion, Output, Pivot, Reciprocating motion, Rotary motion, Survey	Aesthetic, Cladding, Design criteria, Evaluation, Frame structure, Function, Inspiration, Pavilion, Reinforce, Stable, Structure, Target audience, Target customer, Texture, Theme	Exploded-diagram, Function, Input, Lever, Linkage, Mechanism, Motion, Net, Output, Pivot, Pneumatic system, Thumbnail sketch	Abutment, Accurate, Arched bridge, Beam bridge, coping saw, Evaluation, File, Mark out, Material properties, Measure, Predict, Reinforce, Research, Sandpaper, set square, Suspension bridge, Tenon saw, Test, Truss bridge, Wood	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
Design	<p><u>Design</u> Explore moving objects (vehicles, moving toys) and identify parts that move (wheels, levers). Identify moving parts of an object.</p> <p>Consider what they can do with different materials including boxes, card board, card, bottle tops, lids, paper, string, tubes and pots. Identify a building or vehicle structure, naming the finished result and components used.</p> <p>Develop their own ideas and then decide</p>	<p><u>Design</u> Learning the importance of a clear design criteria, including individual preferences and requirements in a design Describing the purpose of structures, including windmills Can plan a product to suit a consumer</p>	<p><u>Design</u> Creating a class design criteria for a moving monster Using the vocabulary: up, down, left, right, vertical and horizontal to describe movement Designing a moving monster for a specific audience in accordance with a design criteria</p> <p>Selecting a suitable linkage system to produce the desired motions Learning that levers and sliders are mechanisms and can make things move</p>	<p><u>Design</u> Designing a stable pavilion structure that is aesthetically pleasing and selecting materials to create a desired effect Learning what pavilions are and their purpose Learning that architects consider light, shadow and patterns when designing</p> <p>Building frame structures designed to support weight Building on prior knowledge of net structures and</p>	<p><u>Design</u> Designing a toy which uses a pneumatic system Developing design criteria from a design brief Understanding how pneumatic systems work</p> <p>Generating ideas using thumbnail sketches and exploded diagrams Learning that different types of drawings are used in design to explain ideas clearly Can use thumbnail sketches and exploded diagrams to record their ideas.</p>	<p><u>Design</u> Designing a stable structure that is able to support weight Identifying arch and beam bridges and understanding the terms: compression and tension Can use research in their design to plan a strong bridge.</p> <p>Creating frame structure with focus on triangulation Exploring how to create a strong beam Identifying stronger and weaker structures</p>	<p><u>Design</u> After experimenting with a range of cams, creating a design for an automata toy based on a choice of cam to create a desired movement Exploring cams, learning that different shaped cams produce different follower movements Understanding how linkages change the direction of a force Making things move at the same time Exploring types of motions and direction of a motion</p>

	<p>which materials to use to express them. Understanding that structures need a solid base.</p>		<p>Identifying whether a mechanism is a lever or slider and determining what movement the mechanism will make</p> <p>Designing a wheel Identifying what mechanism makes a toy or vehicle roll forwards Learning that for a wheel to move it must be attached to an axle Selecting appropriate materials based on their properties</p>	<p>broadening knowledge of frame structures</p>	<p>Learning that mechanisms are a system of parts that work together to create motion</p>		
Make	<p><u>Make</u> Join different materials Can use a variety of joins (low level – glue, mid-level – tape, stapler, high-level – split pins, treasury tags to join 2 materials)</p> <p>Make models, pictures and collages using junk modelling equipment</p> <p>Make simple models which express their ideas including vehicles and buildings.</p>	<p><u>Make</u> Making stable structures from card, tape and glue Learning how to turn 2D nets into 3D structures Learning that the shape of materials can be changed to improve the strength and stiffness of structures Understanding that cylinders are a strong type of structure that are often used for windmills and lighthouses</p> <p>Following instructions to cut and assemble the supporting structure of a windmill</p>	<p><u>Make</u> Making linkages using card for levers and split pins for pivots Understand how to join materials that create pivots Experimenting with linkages adjusting the widths, lengths and thicknesses of card used Adjust and improve their work as they are making it.</p> <p>Cutting and assembling components neatly</p> <p>Selecting materials according to their characteristics</p>	<p><u>Make</u> Creating a range of different shaped frame structures Building on prior knowledge of net structures and broadening knowledge of frame structures</p> <p>Making a variety of free-standing frame structures of different shapes and sizes Implementing frame and shell structure knowledge</p> <p>Selecting appropriate materials to build a strong structure and for the cladding</p>	<p><u>Make</u> Creating a pneumatic system to create a desired motion Understanding that pneumatic systems can be used as part of a mechanism</p> <p>Building secure housing for a pneumatic system Can secure material together using a variety of methods Tape, glue, hot glue guns, staples.</p> <p>Using syringes and balloons to create different types of pneumatic systems to make a functional and</p>	<p><u>Make</u> Making a range of different shaped beam bridges Articulating the difference between beam, arch, truss and suspension bridges</p> <p>Using triangles to create truss bridges that span a given distance and supports a load Understanding how triangles can be used to reinforce bridges</p> <p>Independently measuring and marking wood accurately</p>	<p><u>Make</u> Measuring, marking and checking the accuracy of the jelutong and dowel pieces required Using a bench hook to saw safely and effectively Measuring, marking and cutting components accurately using a ruler and scissors</p> <p>Assembling components accurately to make a stable frame</p> <p>Understanding that for the frame to function effectively the components must be</p>

	<p>Learning how to use 3D shapes to build effective structures including cube, cuboid, cone, cylinder, pyramid).</p> <p>Join different materials and explore different textures. [smooth, rough, scratchy, soft, hard, bumpy, fluffy] Can join 2 materials using tape, glue and split pins.</p> <p>Make 3D models using junk modelling equipment</p>	<p>Can cut and assemble accurately enough to ensure their structure stand up. Understand the importance of accuracy when making structures.</p> <p>Making functioning turbines and axles which are assembled into a main supporting structure Understanding that axles are used in structures and mechanisms to make parts turn in a circle Understanding that windmill turbines use wind to turn and make the machines inside work Developing awareness of different structures for different purposes</p>	<p>Following a design brief Understand the importance of following the design</p>	<p>Reinforcing corners to strengthen a structure Understand the properties of different materials</p> <p>Learning to create different textural effects with materials Use materials for aesthetic reasons</p>	<p>appealing pneumatic toy Apply pneumatic systems to make their toy move.</p> <p>Selecting materials due to their functional and aesthetic characteristics Manipulating materials to create different effects by cutting, creasing, folding, weaving Can use materials in a variety of ways to create an aesthetically pleasing product</p> <p>Learning that pneumatic systems force air over a distance to create movement</p>	<p>Selecting appropriate tools and equipment for particular tasks Using the correct techniques to saws safely Use tools and equipment safely and accurately</p> <p>Identifying where a structure needs reinforcement and using card corners for support Finding different ways to reinforce structures</p> <p>Building a wooden bridge structure</p>	<p>cut accurately and the joints of the frame secured at right angles</p> <p>Selecting appropriate materials based on the materials being joined and the speed at which the glue needs to dry/set</p>
Evaluate	<p>Return to and build on their previous learning, refining ideas and developing their ability to represent them.</p> <p>Use words including plan, create, change, add</p>	<p><u>Evaluate</u> Evaluating a windmill according to the design criteria, testing whether the structure is strong and stable and altering it if it isn't. Can make judgements against the design criteria to see if it meets it.</p> <p>Suggest points for improvements</p>	<p><u>Evaluate</u> Evaluating own designs against design criteria Testing and adapting a design Can compare the final product to the design criteria and say how it could be improved.</p> <p>Using peer feedback to modify a final design</p>	<p><u>Evaluate</u> Evaluating structures made by the class Can evaluate against the design criteria.</p> <p>Describing what characteristics of a design and construction made it the most effective Considering effective and ineffective designs</p>	<p><u>Evaluate</u> Using the views of others to improve designs Can adapt own work based on feedback from peers Testing and modifying the outcome, suggesting improvements</p>	<p><u>Evaluate</u> Adapting and improving own bridge structure by identifying points of weakness and reinforcing them as necessary Test and evaluate the strength of their structure. Finding different ways to reinforce structures</p>	<p><u>Evaluate</u> Evaluating the work of others and receiving feedback on own work</p> <p>Applying points of improvements</p> <p>Describing changes they would make/ do if they were to do the project again</p>

		Understand the importance of accuracy when making structures.	Evaluating different designs Can explain what they like and do not like about a design			Suggesting points for improvements for own bridges and those designed by others	
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