



TGPAMV Design and Technology Curriculum Map

	0 – 3 Preschool	3 – 4 EYFS 1	Reception EYFS 2	Links to KS1 Curriculum
EYFS area of Learning				
Foundational Knowledge	Uses 3D and 2D structures to explore materials and/or to express ideas	Talks about their plans Uses different materials, tools and techniques in a variety of ways to join and make structures Talks about their ideas, solve problems and tries different ways of doing things	Plans before they make Chooses the most appropriate materials and tools for a task, manipulating materials and joining materials in different ways Talks about their design, solves problems, makes changes and modifies their designs when necessary	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. Select from and use a range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing). Select from and use a wide variety of materials and components, including construction materials, textiles and ingredients, according to their characteristics. Explore and evaluate a range of existing products. Evaluate their ideas and products against design criteria. 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.
Early Learning Goal	Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Share their creations, explaining the process they have used. Make use of props and materials when role playing characters in narratives and stories.			



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	Autumn (1.1)	Spring (1.2)	Summer (1.3)
Year 1	Moving Pictures (Mechanisms)	Fruit Salad (Cooking and Nutrition)	Baby Bear's Chair (Structures)
National Curriculum	❖ 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 ❖ Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]. ❖ Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. ❖ Explore and evaluate a range of existing products. ❖ Evaluate their ideas and products against design criteria. ❖ Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.	❖ 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 ❖ Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]. ❖ Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. ❖ Evaluate their ideas and products against design criteria. ❖ Understand where food comes from	❖ 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 ❖ Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]. ❖ Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics ❖ Evaluate their ideas and products against design criteria. ❖ Build structures, exploring how they can be made stronger, stiffer and more stable.
Design Knowledge	• Explaining how to adapt mechanisms, using bridges or guides to control the movement. • Designing a moving story book/ Christmas card for a given audience.	• Designing fruit salad packaging by-hand or on ICT software.	• Generating and communicating ideas using sketching and modelling. • Learning about different types of structures, found in the natural world and in everyday objects.
Construction Knowledge	• Following a design to create moving models that use levers and sliders.	• Chopping fruit and vegetables safely to make a fruit salad	• 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.



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Evaluation Knowledge	• 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.	• Tasting and evaluating different food combinations. • Describing appearance, smell and taste. • Suggesting information to be included on packaging.	• 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.
Technical Knowledge	• 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	• 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).	• 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 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.
Background Knowledge	• To know that in Design and technology we call a plan a 'design'.	• To know that a fruit salad is made of different fruits.	• To know that natural structures are those found in nature. • To know that man-made structures are those made by people.
Vocabulary	• Evaluation • Input • Lever • Linear motion • Linkage • Mechanical • Mechanism • Motion • Oscillating motion • Output • Pivot • Reciprocating motion • Rotary motion • Survey	• Fruit • Healthy • Ingredients • Recipe • Smoothie • Vegetable • Seed • Root • Leaf • Stem • Flavour • Design • Cut • Juice • Table knife • Juicer • Plant • Bush • Tree • Vine • Chopping board • Fork • Taste • Select • Evaluate • Compare	• Function • Man-made • Mould • Natural • Stable • Stiff • Strong • Structure • Test • Weak



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	Autumn (2.1)	Spring (2.2)	Summer (2.3)
Year 2	Animal Puppets (Textiles)	Balanced Diet Pizzas (Cooking and Nutrition)	Windmills (Structures)
National Curriculum	❖ 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 ❖ Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]. ❖ Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. ❖ Explore and evaluate a range of existing products. ❖ Evaluate their ideas and products against design criteria.	❖ 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 ❖ Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]. ❖ Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. ❖ Explore and evaluate a range of existing products. ❖ Evaluate their ideas and products against design criteria. ❖ Use basic principles of a healthy and varied diet to prepare dishes. ❖ Understand where food comes from.	❖ 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 ❖ Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]. ❖ Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. ❖ Explore and evaluate a range of existing products. ❖ Evaluate their ideas and products against design criteria. ❖ 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.
Design Knowledge	Using a template to create a design for a puppet	Designing a pizza-based food combinations which work well together.	• Learning the importance of a clear design criteria. • Including individual preferences and requirements in a design.
Construction Knowledge	• Cutting fabric neatly with scissors. • Using joining methods to decorate a puppet. • Sequencing steps for construction.	• Chopping foods safely to make a pizza. • Constructing a pizza that meets a design brief. • Grating foods to make a pizza. • Snipping smaller foods instead of cutting.	• 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.



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Evaluation Knowledge	• Reflecting on a finished product, explaining likes and dislikes.	• 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 food by giving a score	• 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.
Technical Knowledge	• To know that 'joining technique' means connecting two pieces of material together. • To know that 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. • To understand the importance of tying a knot after sewing the final stitch.	• 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 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 'ingredients' means the items in a mixture or recipe.	• 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.
Background Knowledge	• To know that sewing is a method of joining fabric. • To know that different stitches can be used when sewing.	• To know that a recipe is a list of ingredients needed to make their foods.	• To know that a windmill is powered by wind. • To know that a windmill is a structure with sails that are moved by the wind.
Vocabulary	• Accurate • Fabric • Knot • Pouch • Running-stitch • Sew • Shape • Stencil • Template • Thimble	• Appearance • Balanced • Carbohydrates • Combination • Dairy • Design • Design brief • Diet • Feel • Grate • Grater • Menu • Oils • Prepare • Proteins • Review • Scissors • Smell • Snip • Spread • Spreads	• Client • Design • Evaluation • Net • Stable • Strong • Test • Weak • Windmill



TGPAMV Design and Technology Curriculum Map

	Autumn (3.1)	Spring (3.2)	Summer (3.3)
Year 3	Pneumatic Toys (Mechanical Systems)	Eating Seasonally (Cooking and Nutrition)	Egyptian Collars (Textiles)
National Curriculum	❖ 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. ❖ 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 wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. ❖ 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. ❖ Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages].	❖ Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer- aided design. ❖ 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 wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. ❖ Understand and apply principles of a healthy and varied diet. ❖ Prepare and cook variety of predominantly savoury dishes using a range of cooking techniques. ❖ Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.	❖ 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. ❖ 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 wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. ❖ Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.
Design Knowledge	• 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	• Designing a recipe for a savoury tart.	• Designing and making a template and applying individual design criteria.
Construction Knowledge	• Creating a pneumatic system to create a desired motion.	• Following the instructions within a recipe. • Tasting seasonal ingredients. • Selecting seasonal ingredients.	• Following design criteria to create a cushion or Egyptian collar.



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	• 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.	• Peeling ingredients safely. • Cutting safely with a vegetable knife.	• 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 by embellishing the collars based on design ideas.
Evaluation Knowledge	• 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.	• Cutting safely with a vegetable knife. • Following a baking recipe, including the preparation of ingredients. • Cooking safely, following basic hygiene rules. • Adapting a recipe to meet the requirements of a target audience. Evaluate • 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 an end product and thinking of other ways in which to create similar items.
Technical Knowledge	• 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 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 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.



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		• To know that eating seasonal foods can have a positive impact on the environment. • To know that similar coloured fruits and vegetables often have similar nutritional benefits. • To know that the appearance of food is as important as taste.	
Background Knowledge		• To know that the five main food groups are: Carbohydrates, fruits and vegetables, protein, dairy and foods high in fat and sugar.	• Know that the Egyptians wore broad necklaces that we now call collars. • The more important the person was, the more embellished the collar.
Vocabulary	• Pneumatic toys • Exploded-diagram • Function • Input • Lever • Linkage • Mechanism • Motion • Net • Output • Pivot • Pneumatic system • Thumbnail sketch	• Arid • Climate • Complementary • Country • Export • Import • Mediterranean • Mock-up • Mountain • Peel • Polar • Seasonal • Seasons • Snip • Temperate • Texture • Tropical • Weather	• Accurate • Applique • Cross-stitch • Cushion • Decorate • Detail • Fabric • Patch • Running-stitch • Seam • Stencil • Stuffing • Target audience • Target customer • Template



TGPAMV Design and Technology Curriculum Map

	Autumn (4.1)	Spring (4.2)	Summer (4.3)
Year 4	Torches (Electrical Systems)	Adapting a recipe (Cooking and Nutrition)	Fastenings (Textiles)
National Curriculum	❖ 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 computeraided design. ❖ 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 wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. ❖ 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. ❖ Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors].	❖ 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 computeraided design. ❖ 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 wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. ❖ 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. ❖ Prepare and cook variety of predominantly savoury dishes using a range of cooking techniques.	❖ 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 computeraided design. ❖ 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 wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. ❖ 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.
Design Knowledge	Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas.	• Designing a biscuit within a given budget, drawing upon previous taste testing judgements.	• Writing design criteria for a product, articulating decisions made. • Designing a personalised book sleeve.



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Construction Knowledge	• 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.	• Following a baking recipe, including the preparation of ingredients. • Cooking safely, following basic hygiene rules. • Adapting a recipe to meet the requirements of a target audience.	• 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.
Evaluative knowledge	• Evaluating electrical products. • Testing and evaluating the success of a final product.	• 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).	• 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.
Technical Knowledge	• 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.	• To know that the amount of an ingredient in a recipe is known as the 'quantity.' • To know that safety and hygiene are important when cooking. • To know the following cooking techniques: sieving, measuring, stirring, cutting out and shaping. • To understand the importance of budgeting while planning ingredients for biscuits. • To know that products often have a target audience.	• To know that a fastening is something which holds two pieces of material together for example a 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.



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Background Knowledge			
Vocabulary	• Battery • Bulb • Buzzer • Cell • Component • Conductor • Copper • Design criteria • Electrical item • Electricity • Electronic item • Function • Insulator • Series circuit • Switch • Test • Torch • Wire	• Adapt • Addition • Budget • Buttery • Combine • Comment • Construct • Cream • Crunchy • Cuboid • Fold • Hygiene • Layout • Market research • Modify • Multiplication • Opinion • Pounds • Sieve • Sift • Target audience • Texture • Unique • Wooden spoon	• Aesthetic • Assemble • Book sleeve • Design criteria • Evaluation • Fabric • Fastening • Mock-up • Net • Running-stitch • Stencil • Target audience • Target customer • Template



TGPAMV Design and Technology Curriculum Map

	Autumn (5.1)	Spring (5.2)	Summer (5.3)
Year 5	Monitoring devices	Developing a recipe (cooking and nutrition)	Bridges (structures)
National Curriculum	❖ 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 ❖ 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. ❖ Apply their understanding of how to strengthen, stiffen and reinforce more complex structures. ❖ Apply their understanding of computing to program, monitor and control their products.	❖ 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. ❖ 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. ❖ 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. ❖ Apply their understanding of computing to program, monitor and control their products. ❖ Understand and apply principles of a healthy and varied diet. ❖ Prepare and cook variety of predominantly savoury dishes using a range of cooking techniques. ❖ Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.	❖ 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. ❖ 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. ❖ 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. ❖ Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.
Design Knowledge	• Researching (books, internet) for a particular (user's) animal's needs. • Developing design criteria based on research. • Generating multiple housing ideas using building bricks.	• 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. • Researching existing recipes to inform ingredient choices.	• Designing a stable structure that is able to support weight. • Creating a frame structure with a focus on triangulation.



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	• 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.		
Construction Knowledge	• Understanding the functional and aesthetic properties of plastics. • Programming to monitor the ambient temperature and coding an (audible or visual) alert when the temperature rises above or falls below a specified range.	• 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.	• 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
Evaluative knowledge	• 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 program (audible alert, visuals). • Explaining how my product would be useful for an animal carer including programmed features.	• Identifying the nutritional differences between different products and recipes. • Identifying and describing healthy benefits of food groups.	• 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.



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Technical Knowledge	• To know that a 'device' means equipment created for a certain 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 know the 6Rs of sustainability. • To understand what a virtual model is and the pros and cons of traditional vs CAD modelling.	• To understand where meat comes from - learning that beef is from cattle and how beef is reared and processed. • To know that recipes can be adapted to suit nutritional needs and dietary requirements. • 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. • To know that coloured chopping boards can prevent cross-contamination. • To know that nutritional information is found on food packaging. • To know that food packaging serves many purposes.	• 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.
Background Knowledge			
Vocabulary	• 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	• Abattoir • Adaptation • Balanced • Beef • Brand • Cook • Cross-contamination • Develop • Enhance • Equipment • Farm • Label • Measure • Nutrient • Nutrition • Nutritional value • Preference • Press • Process • Safety • Theme	• 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



TGPAMV Design and Technology Curriculum Map

	• Replica • Research • Sensor • Strong • Sustainability • Synthetic • Thermometer • Thermoscope • Value • Variable • Versatile • Water-resistant • Workplane		
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TGPAMV Design and Technology Curriculum Map

	Autumn (6.1)	Spring (6.2)	Summer (6.3)	
Year 6	Navigating the world (Digital World)	Come dine with me (Cooking and nutrition)	Steady hand game (electrical systems)	Automata toys (mechanisms)
National Curriculum	❖ 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. ❖ Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. ❖ Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. ❖ Apply their understanding of computing to program, monitor and control their products.	❖ 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. ❖ 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. ❖ 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. ❖ Understand and apply principles of a healthy and varied diet. ❖ Prepare and cook variety of predominantly savoury dishes using a range of cooking techniques.	❖ 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. ❖ 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. ❖ 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.	❖ 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. ❖ Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. ❖ 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. ❖ Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages].



TGPAMV Design and Technology Curriculum Map

		❖ Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.		
Design Knowledge	• 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. • 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.	• Writing a recipe, explaining the key steps, method and ingredients. • Including facts and drawings from research undertaken.	• 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 (toys), including what is meant by 'fit for purpose' and 'form over function'	• 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.
Construction Knowledge	• 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.	• 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.	• 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.	• 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.



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				• Selecting appropriate materials based on the materials being joined and the speed at which the glue needs to dry/set.
Evaluative knowledge	• 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. • 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.	• 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.	• 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	• 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.



TGPAMV Design and Technology Curriculum Map

Technical Knowledge	• 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	• 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).	• To know that batteries contain acid, which can be dangerous if they leak. • To know the names of the components in a basic series circuit, including a buzzer.	• 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. • 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.
Background Knowledge			• To know that 'form' means the shape and appearance of an object. • 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'	



TGPAMV Design and Technology Curriculum Map

Vocabulary	• 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 • 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	• Balance • Bitter • Bridge method • Complement • Cookbook • Farm to fork • Method • Nationality • Reared • Research • Pairing • Preparation • Salty • Sour • Storyboard • Sweet • Umami	• 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	• 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
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