Design and Technology Medium Term Plan

	Autumn	Spring	Summer
	Personal, Social and Emotional Development:		
Reception	Select and use activities and resources, with help v	when needed. This helps us to achieve a	goal we have chosen or one which is suggested to u
	Physical Development:		
	Develop our small motor skills so that we can use a	a range of tools competently, safely and c	onfidently.
	Use a range of small tools, including scissors, pain	tbrushes and cutlery.	
	Understanding the World:		
	Explore how things work.		
	Funnacia Arts and Decision		
	Expressive Arts and Design:Explore, use and refine a variety of artistic effects t	to express our ideas and feelings	
	Return to and build on our previous learning, refinir		esent them
	Create collaboratively, sharing ideas, resources an		
	 Safely use and explore a variety of materials, tools 		ur design texture form and function
	 Share our creations and explain the process we ha 		ar, design, texture, form and function.
	Share our creations and explain the process we have	ave used.	

	Autumn	Spring	Summer
	Free Standing Structures: A Home For	Sliders and Levers: Mother's Day Card	Preparing Fruit and Vegetables: A
Year 1	My Teddy Bear	Parallel and a second a second and a second	<u>Healthy Fruit Salad</u>
	DesigningGenerate ideas based on simple design criteria and	Designing • Generate ideas based on simple design criteria and	Designing
	our own experiences, explaining what we could make.	our own experiences, explaining what we could make.	Design appealing products for a particular user based on simple design criteria.
	 Develop, model and communicate our ideas through talking, mock-ups and drawings. 	 Develop, model and communicate our ideas through drawings and mock-ups with card and paper. 	Generate initial ideas and design criteria through investigating a variety of fruit and vegetables.
	Making	Making	Communicate these ideas through talk and drawings.
	Plan by suggesting what to do next.	Plan by suggesting what to do next.	
	 Select and use tools, skills and techniques, explaining our choices. 	 Select and use tools, explaining our choices, to cut, shape and join paper and card. 	Making Use simple utensils and equipment to e.g. peel,
	 Select new and reclaimed materials and construction kits to build our structures. 	 Use simple finishing techniques suitable for the product we are creating. 	cut, slice, squeeze, grate and chop safely. • Select from a range of fruit and vegetables
	 Use simple finishing techniques suitable for the structure we are creating. 	Evaluating	according to their characteristics e.g. colour, texture and taste to create a chosen product.
	Evaluating	 Explore a range of existing books and everyday products that use simple sliders and levers. 	Evaluating
	 Explore a range of existing freestanding structures in the school and local environment e.g. everyday products and buildings. 	 Evaluate our product by discussing how well it works in relation to the purpose and the user and whether it meets design criteria. 	Taste and evaluate a range of fruit and vegetables to determine the intended user's preferences.
	 Evaluate our product by discussing how well it works in relation to the purpose, the user and whether it meets the original design criteria. 	Technical Knowledge and Understanding • Explore and use sliders and levers.	 Evaluate ideas and finished products against design criteria, including intended user and purpose.
	Technical Knowledge and Understanding • Know how to make freestanding structures stronger, stiffer and more stable.	 Understand that different mechanisms produce different types of movement. Know and use technical vocabulary relevant to the 	Technical Knowledge and Understanding • Understand where a range of fruit and vegetables
	Know and use technical vocabulary relevant to the project.	project.	 come from e.g. farmed or grown at home. Understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of the eat well plate.
			Know and use technical and sensory vocabulary relevant to the project.

Wheels and Axles: A Van for Postman Pat

Designing

- Generate initial ideas and simple design criteria through talking and using own experiences.
- Develop and communicate ideas through drawings and mock-ups.

Making

- Select from and use a range of tools and equipment to perform practical tasks such as cutting and joining to allow movement and finishing.
- Select from and use a range of materials and components such as paper, card, plastic and wood according to their characteristics.

Evaluating

- Explore and evaluate a range of products with wheels and axles.
- Evaluate their ideas throughout and their products against original criteria.

Technical Knowledge and Understanding

- Explore and use wheels, axles and axle holders.
- Distinguish between fixed and freely moving axles.
- Know and use technical vocabulary relevant to the project.

Templates and Joining Techniques: Glove Puppet

Designing

- Design a functional and appealing product for a chosen user and purpose based on simple design criteria.
- Generate, develop, model and communicate their ideas as appropriate through talking, drawing, templates, mock-ups and information and communication technology.

Making

- Select from and use a range of tools and equipment to perform practical tasks such as marking out, cutting, joining and finishing.
- Select from and use textiles according to their characteristics.

Evaluating

- Explore and evaluate a range of existing textile products relevant to the project being undertaken.
- Evaluate their ideas throughout and their final products against original design criteria.

Technical Knowledge and Understanding

- Understand how simple 3-D textile products are made, using a template to create two identical shapes.
- Understand how to join fabrics using different techniques e.g. running stitch, glue, over stitch, stapling.
- Explore different finishing techniques e.g. using painting, fabric crayons, stitching, sequins, buttons and ribbons.
- Know and use technical vocabulary relevant to the project.

Preparing Fruit And Vegetables: A Vegetable Kebab

Designing

- Design appealing products for a particular user based on simple design criteria.
- Generate initial ideas and design criteria through investigating a variety of fruit and vegetables.
- Communicate these ideas through talk and drawings.

Making

- Use simple utensils and equipment to e.g. peel, cut, slice, squeeze, grate and chop safely.
- Select from a range of fruit and vegetables according to their characteristics e.g. colour, texture and taste to create a chosen product.

Evaluating

- Taste and evaluate a range of fruit and vegetables to determine the intended user's preferences.
- Evaluate ideas and finished products against design criteria, including intended user and purpose.

- Understand where a range of fruit and vegetables come from e.g. farmed or grown at home.
- Understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of The eatwell plate.
- Know and use technical and sensory vocabulary relevant to the project.

2-D Shape to 3-D Product: Purse

Designing

- Generate realistic ideas through discussion and design criteria for an appealing, functional product fit for purpose and specific user/s.
- Produce annotated sketches, prototypes, final product sketches and pattern pieces.

Making

- Plan the main stages of making.
- Select and use a range of appropriate tools with some accuracy e.g. cutting, joining and finishing.
- Select fabrics and fastenings according to their functional characteristics e.g. strength, and aesthetic qualities e.g. pattern.

Evaluating

- Investigate a range of 3-D textile products relevant to the project.
- Test the product against the original design criteria and with the intended user.
- Take into account others' views.
- Understand how a key event/individual has influenced the development of the chosen product and/or fabric.

Technical Knowledge and Understanding

- Know how to strengthen, stiffen and reinforce existing fabrics.
- Understand how to securely join two pieces of fabric together.
- Understand the need for patterns and seam allowances.
- Know and use technical vocabulary relevant to the project.

Healthy and Varied Diet: Pitta Pockets

Designing

- Generate and clarify ideas through discussion with peers and adults to develop design criteria including appearance, taste, texture and aroma for an appealing product for a particular user and purpose.
- Use annotated sketches and appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas.

Making

- Plan the main stages of a recipe, listing ingredients, utensils and equipment.
- Select and use appropriate utensils and equipment to prepare and combine ingredients.
- Select from a range of ingredients to make appropriate food products, thinking about sensory characteristics.

Evaluating

- Carry out sensory evaluations of a variety of ingredients and products. Record the evaluations using e.g. tables and simple graphs.
- Evaluate the ongoing work and the final product with reference to the design criteria and the views of others.

Technical Knowledge and Understanding

- Know how to use appropriate equipment and utensils to prepare and combine food.
- Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught.
- Know and use relevant technical and sensory vocabulary appropriately.

Levers and Linkages: Interactive Poster

Designing

- Generate realistic ideas and our own design criteria through discussion, focusing on the needs of the user.
- Use annotated sketches and prototypes to develop, model and communicate ideas.

Making

- · Order the main stages of making.
- Select from and use appropriate tools with some accuracy to cut, shape and join paper and card.
- Select from and use finishing techniques suitable for the product we are creating.

Evaluating

- Investigate and analyse books and, where available, other products with lever and linkage mechanisms.
- Evaluate own products and ideas against criteria and user needs, as we design and make.

- Understand and use lever and linkage mechanisms.
- · Distinguish between fixed and loose pivots.
- Know and use technical vocabulary relevant to the project.

Healthy and Varied Diet: A Healthy Pizza

Designing

- Generate and clarify ideas through discussion with peers and adults to develop design criteria including appearance, taste, texture and aroma for an appealing product for a particular user and purpose.
- Use annotated sketches and appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas.

Making

- Plan the main stages of a recipe, listing ingredients, utensils and equipment.
- Select and use appropriate utensils and equipment to prepare and combine ingredients.
- Select from a range of ingredients to make appropriate food products, thinking about sensory characteristics.

Evaluating

- Carry out sensory evaluations of a variety of ingredients and products. Record the evaluations using e.g. tables and simple graphs.
- Evaluate the ongoing work and the final product with reference to the design criteria and the views of others.

Technical Knowledge and Understanding

- Know how to use appropriate equipment and utensils to prepare and combine food.
- Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught.
- Know and use relevant technical and sensory vocabulary appropriately.

Shell Structures: Gift Box

Designing

- Generate realistic ideas and design criteria collaboratively through discussion, focusing on the needs of the user and the functional and aesthetic purposes of the product.
- Develop ideas through the analysis of existing shell structures and use computer-aided design to model and communicate ideas.

Making

- Plan the order of the main stages of making.
- Select and use appropriate tools and software to measure, mark out, cut, score, shape and assemble with some accuracy.
- Explain our choice of materials according to functional properties and aesthetic qualities.
- Use computer-generated finishing techniques suitable for the product we are creating.

Evaluating

- Investigate and evaluate a range of shell structures including the materials, components and techniques that have been used.
- Test and evaluate own products against design criteria and the intended user and purpose.

Technical Knowledge and Understanding

- Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes.
- Develop and use knowledge of how to construct strong, stiff shell structures.
- Know and use technical vocabulary relevant to the project.

Simple Circuits and Switches: Bedroom Nightlight

Designing

- Gather information about users' needs and wants, and develop design criteria to inform the design of products that are fit for purpose.
- Generate, develop, model and communicate realistic ideas through discussion and, as appropriate, annotated sketches, cross-sectional and exploded diagrams.

Making

- · Order the main stages of making.
- Select from and use tools and equipment to cut, shape, join and finish with some accuracy.
- Connect simple electrical components and a battery in a series circuit to achieve a functional outcome.
- Program a standalone control box, microcontroller or interface box to enhance the way the product works.

Evaluating

- Investigate and analyse a range of existing battery-powered products, including preprogrammed and programmable products.
- Evaluate ideas and products against our own design criteria and identify the strengths and areas for improvement in our work.

- Understand and use computing to program and control products containing electrical systems, such as series circuits incorporating switches, bulbs and buzzers.
- Know and use technical vocabulary relevant to the project.

Combining Different Fabric Shapes: Advent Calendar

Designing

- Generate innovative ideas by carrying out research including surveys, interviews and questionnaires.
- Develop, model and communicate ideas through talking, drawing, templates, mock-ups and prototypes and, where appropriate, computer-aided design.
- Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification.

Making

- Produce detailed lists of equipment and fabrics relevant to their tasks.
- Formulate step-by-step plans and, if appropriate, allocate tasks within a team.
- Select from and use a range of tools and equipment to make products that are accurately assembled and well finished. Work within the constraints of time, resources and cost.

Evaluating

- Investigate and analyse textile products linked to our final product.
- Compare the final product to the original design specification.
- Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose.
- Consider the views of others to improve our work.

Technical Knowledge and Understanding

- A 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics.
- Fabrics can be strengthened, stiffened and reinforced where appropriate.

Celebrating Culture and Seasonality: Baking Bread

Designing

- Generate innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification.
- Explore a range of initial ideas, and make design decisions to develop a final product linked to user and purpose.
- Use words, annotated sketches and information and communication technology as appropriate to develop and communicate ideas.

Making

- Write a step-by-step recipe, including a list of ingredients, equipment and utensils
- Select and use appropriate utensils and equipment accurately to measure and combine appropriate ingredients.
- Make, decorate and present the food product appropriately for the intended user and purpose.

Evaluating

- Carry out sensory evaluations of a range of relevant products and ingredients. Record the evaluations using e.g. tables/graphs/charts such as star diagrams.
- Evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying improvements.
- Understand how key chefs have influenced eating habits to promote varied and healthy diets.

Technical knowledge and understanding

- Know how to use utensils and equipment including heat sources to prepare and cook food.
- Understand about seasonality in relation to food products and the source of different food products.
- Know and use relevant technical and sensory vocabulary.

Gears and Pulleys: Fun Fair Ride or Ferris Wheel

Designing

- Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources.
- Develop a simple design specification to guide our thinking.
- Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views.

Making

- Produce detailed lists of tools, equipment and materials. Formulate step-by-step plans and, if appropriate, allocate tasks within a team.
- Select from and use a range of tools and equipment to make products that that are accurately assembled and well finished. Work within the constraints of time, resources and cost.

Evaluating

- Compare the final product to the original design specification.
- Test products with the intended user, where safe and practical, and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose.
- Consider the views of others to improve our work.
- Investigate famous manufacturing and engineering companies relevant to the project.

- Understand that mechanical systems have an input, process and an output.
- Understand how cams can be used to produce different types of movement and change the direction of movement.
- Know and use technical vocabulary relevant to the project.

Frame Structures: Build a Kite

Designing

- Carry out research into user needs and existing products, using surveys, interviews, questionnaires and web-based resources.
- Develop a simple design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost.
- Generate, develop and model innovative ideas, through discussion, prototypes and annotated sketches.

Making

- Formulate a clear plan, including a step-by-step list of what needs to be done and lists of resources to be used.
- Competently select from and use appropriate tools to accurately measure, mark out, cut, shape and join construction materials to make frameworks.
- Use finishing and decorative techniques suitable for the product we are designing and making.

Evaluating

- Investigate and evaluate a range of existing frame structures.
- Critically evaluate our products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests.
- Research key events and individuals relevant to frame structures.

Technical Knowledge and Understanding

- Understand how to strengthen, stiffen and reinforce 3-D frameworks.
- Know and use technical vocabulary relevant to the project.

Monitoring and Control: Garden Light

Designing

- Use research to develop a design specification for a functional product that responds automatically to changes in the environment. Take account of constraints including time, resources and cost.
- Generate and develop innovative ideas and share and clarify these through discussion.
- Communicate ideas through annotated sketches, pictorial representations of electrical circuits or circuit diagrams.

Making

- Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components.
- Competently select and accurately assemble materials, and securely connect electrical components to produce a reliable, functional product.
- Create and modify a computer control program to enable an electrical product to work automatically in response to changes in the environment.

Evaluating

- Continually evaluate and modify the working features of the product to match the initial design specification.
- Test the system to demonstrate its effectiveness for the intended user and purpose.
- Investigate famous inventors who developed groundbreaking electrical systems and components.

Technical Knowledge and Understanding

- Understand and use electrical systems in our products.
- Apply our understanding of computing to program, monitor and control their products.
- Know and use technical vocabulary relevant to the project.

Celebrating Culture and Seasonality: Fruit Scones

Designing

- Generate innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification.
- Explore a range of initial ideas, and make design decisions to develop a final product linked to user and purpose.
- Use words, annotated sketches and information and communication technology as appropriate to develop and communicate ideas.

Making

- Write a step-by-step recipe, including a list of ingredients, equipment and utensils
- Select and use appropriate utensils and equipment accurately to measure and combine appropriate ingredients.
- Make, decorate and present the food product appropriately for the intended user and purpose.

Evaluating

- Carry out sensory evaluations of a range of relevant products and ingredients. Record the evaluations using e.g. tables/graphs/charts such as star diagrams.
- Evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying improvements.
- Understand how key chefs have influenced eating habits to promote varied and healthy diets.

- Know how to use utensils and equipment including heat sources to prepare and cook food.
- Understand about seasonality in relation to food products and the source of different food products.
- Know and use relevant technical and sensory vocabulary.