Design and Technology								
	Nursery	**Reception**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Main focus			**Freestanding structure**s – design and make a stable model spacecraft **Mechanisms** – sliders and levers - design and make a card or winter scene **Cooking and nutrition – preparing fruit and vegetables** - design and make fruit kebabs, prepare vegetables	**Cooking and nutrition – preparing fruit and vegetables** - design and make a salad using some food from the school garden **Mechanisms – wheels and axles** - design and make a moving vehicle **Textiles – templates and joining** - design and make a hanging poppy for Remembrance	**Cooking and nutrition** – **healthy and varied diet** - make soup **Structures – shell structures** - design and make food packaging **Textiles – 2D shape to 3D product** - design and make a pennant/flag advertising Cheltenham	**Electrical systems** – **simple circuits and switches –** burglar alarm **Mechanical systems** - **pneumatics** - moving monsters **Cooking and nutrition – healthy and varied diet** - make bread	**Cooking and nutrition** – celebrating culture - design and make a Mexican dish(es) **Mechanical system**s – **pulleys** - design and make a shaduf **Structures – frame structures** - building based on Greek designs	**Electrical systems** – **more complex switches and circuits** - make a board game with lights, buzzers **Textiles** – **combining different fabric shapes** – make a phone case with a fastening **Food and nutrition – celebrating culture and seasonality** – design and make a pizza for end of term party
AREAS OF STUDY								

Designing	2-3 Use their imagination as they consider what to do with different materials. 3-4 Explore different materials freely to develop their ideas about how to use them and what to make. 3-4 Develop their own ideas and decide which materials to use to express them.	Create collaboratively, sharing ideas, resources and skills.	Explain what they are making and which materials they are using. Design products that have a clear purpose and an intended user with support Use pictures and words to convey what they want to make	Use their knowledge of existing products and their own experience to help generate their ideas Design products that have a purpose and are aimed at an intended user Explain how their products will look and work through talking and annotated drawings	Investigate existing products, including drawing them to analyse and understand how they are made Begin when designing, to explore an initial idea before coming up with a final design Plan a sequence of actions to make a product – use annotated sketches Develop and follow simple design criteria	Use their knowledge of a range of existing products to help generate their ideas Design appealing products that have a clear purpose and are aimed at a specific user When designing, explore different initial ideas before coming up with a final design Explain how particular parts of products work; use annotated sketches and cross-sectional drawings to develop and communicate their ideas When planning, start to explain their choice of materials and components including function and aesthetics Test ideas out through using prototype Develop and follow simple design criteria	Begin to use research to inform and develop detailed design criteria to inform the design process Begin to use their knowledge of a broad range of existing products to help generate their ideas Begin to design products that have a clear purpose and indicate the design features of their products that will appeal to the intended user Begin to explain how particular parts of their products work; use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas Begin to generate a range of design ideas and clearly	Use research to inform and develop detailed design criteria to inform the design of products that are fit for purpose and aimed at a target market Use their knowledge of a broad range of existing products to help generate their ideas Design products that have a clear purpose and indicate the design features of their products that will appeal to the intended user Explain how particular parts of their products work; use annotated sketches, cross-sectional drawings and exploded diagrams (possibly including computer-aided design) to develop and communicate their ideas Generate a range of design ideas and clearly communicate final designs

							communicate final design	

Making	2-3 Make simple models which express their ideas. 3-4 Make imaginative and complex small worlds with blocks and construction kits. 3-4 Join different materials and explore different textures.	Explore, use and refine a variety of artistic effects to express their ideas and feelings.	**Plan:** with support, follow a simple plan begin to use a range of tools to cut, shape, join and finish begin to select from a range of materials, textiles and components according to their characteristics **Practical skills and techniques:** learn to use hand tools safely cut and shape materials with some accuracy with support assemble, join and combine materials, components – gluing, taping begin to use simple finishing techniques to improve the appearance of their product	**Plan:** follow a simple plan select from a range of hand tools and equipment to cut, shape, join and finish select from a range of materials, textiles and components according to their characteristics **Practical skills and techniques:** learn to use hand tools safely and appropriately with help, measure and mark out cut, shape and score materials with some accuracy – cut fabric and wood with supervision assemble, join and combine materials and components – use gluing, taping, use simple finishing techniques to improve the appearance of their product by following their design	**Plan:** with growing confidence, carefully select from a range of tools and equipment, beginning to explain their choices Begin to select from a range of materials and components according to their functional properties and aesthetic qualities place the main stages of making in order and list what tools and resources needed **Practical skills and techniques:** learn to use a range of tools and equipment safely and appropriately use a wider range of materials and components measure and mark out to the nearest cm Begin to assemble, join and combine	**Plan:** carefully select from a range of tools and equipment, explaining their choices select from a range of materials and components according to their functional properties and aesthetic qualities place the main stages of making in a systematic order, list the tools and resources needed and be able to explain it **Practical skills and techniques:** use a range of tools and equipment safely, appropriately and accurately use a wider range of materials and components measure and mark out to the nearest cm / mm cut, shape and score materials with some degree of accuracy; assemble, join and combine material and components with some degree of accuracy select and use different and appropriate finishing techniques appropriate to the product	**Plan:** independently plan by suggesting what to do next with growing confidence, select from a wide range of tools and equipment, explaining their choices select from a range of materials and components according to their functional properties and aesthetic qualities; with support where needed create step-by-step plans as a guide to making **Practical skills and techniques:** <u>With moderate supervision</u> use a wider range of tools and equipment safely and appropriately including using a saw to cut wood, and a glue gun to join independently take exact	**Plan:** independently plan by suggesting what to do next select from a wide range of tools and equipment, explaining their choices; select from a range of materials and components according to their functional properties and aesthetic qualities; create step-by-step plans as a guide to making **Practical skills and techniques:** use a wider range of tools and equipment safely and appropriately independently take exact measurements and mark out, to within 1 millimetre cut, shape, score and join a range of materials with precision and accuracy refine the finish using techniques to improve the appearance of their product

					material and components with some degree of accuracy begin to select and use different and appropriate finishing techniques appropriate to the product		measurements and begin to mark out, to within 1 millimetre cut, shape, score and join materials with precision and accuracy refine the finish using techniques to improve the appearance of their product	
Evaluating		Return to and build on their previous learning, refining ideas and developing their ability to represent them.	Say what they like and don't like about their product and begin to explain why Begin to evaluate their products and ideas against their simple design criteria	As they work, start to identify strengths and possible changes they might make to refine their existing design Evaluate their products and ideas against their simple design criteria	Consider their design criteria as they make and alter their plans to improve their product Evaluate their product against their original design criteria	Consider their design criteria as they make progress and are willing to alter their plans, sometimes considering the views of others if this helps them to improve their product Evaluate their product against their original design criteria	Evaluate the quality of design, manufacture and fitness for purpose of products as they design and make Begin to evaluate their ideas and products against the original design criteria, making changes as needed	Critically evaluate the quality of design, manufacture and fitness for purpose of products as they design and make Evaluate their ideas and products against the original design criteria, making changes as needed and consider the views of others

Technical knowledge making products work - structures			<u>Free-standing structures</u> Build simple freestanding structures, exploring how they can be made stronger, stiffer and more stable Fold paper or card to make it stronger Roll paper to make tubes		<u>Shell structures</u> Apply their understanding of how to strengthen, stiffen and reinforce shell structures in order to make their product better Begin to measure, cut, shape and score materials with some degree of accuracy to make a net with tabs		<u>Frame structures</u> Apply their understanding of how to strengthen, stiffen and reinforce frame structures Triangular pieces of card to join wood / strengthen joints Diagonal struts to strengthen frame structures	
Technical knowledge making products work - Textiles				How to cut, shape and join fabric to make a simple product - use a basic running stitch	How to measure, cut, shape and join fabric with some accuracy to make a simple product Join textiles with an appropriate sewing technique – running stitch, cross stitch to add decoration			How to measure, make a seam allowance, tape, pin, cut, shape and join fabric with precision to make a more complex product Join textiles using a greater variety of stitches, such as backstitch, whip stitch, blanket stitch – include a fastening on the product – attach appropriately

Technical knowledge making products work - Mechanical systems			Explore and create a product using mechanisms, such as sliders and levers Cut a slot in a piece of paper or card	Explore and create products using mechanisms, such as wheels and axles – use construction kits to explore fixed and free-wheeling axles Create a free-wheeling axle using dowel and wheels as part of the moving model		Understand and demonstrate how mechanical systems have an input and output process Explain how mechanical systems such as pneumatics create movement Use mechanical systems – pneumatics - in their products	Understand and demonstrate that mechanical systems have an input, process and output Explain how mechanical systems, such as pulleys, gears, levers create movement and use pulleys in their product	
Technical knowledge making products work - Electrical systems						Understand and demonstrate how electrical systems have an input and output process Represent simple electrical circuits, such as a series and parallel, and another component to create a functional product		Understand and demonstrate that electrical systems have an input and output process. Use series and parallel circuits and a range of components to create a functional product

Vocabulary			cut, fold, join, fix structure, wall, weak, strong, base, top, underneath, side, edge, surface, thinner, thicker, corner, point, straight, curved metal, wood, plastic circle, triangle, square, rectangle, cuboid, cube, cylinder design, make, evaluate, user, purpose, ideas, template, pattern pieces, mark out, join, decorate, finish card, masking tape, paper fastener, join	design, make, evaluate, user, purpose, ideas, design criteria, product, function vehicle, wheel, axle, axle holder, chassis, body, cab assembling, cutting, joining, shaping, finishing, fixed, free, moving, mechanism template, pattern pieces, mark out, join, decorate, stitch, sew, thread, needle	planning, design criteria shell structure, three-dimensional (3-D) shape, net, cube, cuboid, prism, vertex, edge, face, length, width, breadth, capacity marking out, scoring, shaping, tabs, adhesives, joining, assemble, accuracy, material, stiff, strong, decision, evaluating, design brief design criteria, planning, design criteria	components, fixing, attaching, tubing, syringe, plunger, split pin, paper fastener pneumatic system, input movement, process, output movement, control, compression, pressure, inflate, deflate, pump, seal, air-tight user, purpose, function, prototype, design criteria, innovative, appealing, design brief, research, evaluate, ideas, constraints, investigate series circuit, fault, connection, push-to-make switch, battery, battery holder, bulb, bulb holder, wire, insulator, conductor, crocodile clip	varied, combine, pulley frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent	series circuit, parallel circuit, names of switches and components, input device, output device, system, monitor, control, program, flowchart seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces name of textiles and fastenings used, pins
Cooking and nutrition								

Healthy and varied diet **Where food comes from**			Name and sort foods into the 5 groups in the Eatwell guide Begin to understand that everyone should eat at least five portions of fruit and vegetables every day Begin to understand that all food comes from plants or animals and that it has to be farmed, grown or caught and begin to give examples With support follow a simple recipe	Understand that everyone should eat at least five portions of fruit and vegetables every day and start to explain why Use what they know about the Eatwell Guide to design and prepare a salad dish Understand that all food comes from plants or animals and that it has to be farmed, grown or caught give examples Follow a simple recipe – some support may be needed	Explain that a healthy diet is made up of a variety and balance of different food and drink, as represented in the Eatwell Guide and be able to apply these principles when planning and cooking dishes Understand that to be active and healthy, nutritious food and drink are needed to provide energy for the body Understand how to prepare and cook a variety of predominantly, simple savoury dishes safely and hygienically Prepare ingredients using appropriate cooking utensils Measure and weigh ingredients to the nearest gram and millilitre With support, use a heat source to cook ingredients showing awareness of the need to control the temperature of the hob and/or oven Independently follow a simple recipe	Explain that foods contain different substances, such as protein, that are needed for health and be able to apply these principles when planning and preparing dishes Understand about seasonality, how this may affect the food availability and plan recipes according to seasonality Demonstrate how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source Independently follow a recipe

Key Skills			Use kitchen equipment safely and appropriately and learn to follow hygiene procedures <u>Cutting / knife skills with close supervision</u> Use the bridge hold (harder foods) and claw grip (softer foods) to cut fruits and vegetables Peel fruit and vegetables using a peeler Grate food eg cheese, carrot Cut food into pieces	Use kitchen equipment safely and appropriately and learn to follow hygiene procedures <u>Cutting / knife skills with close supervision</u> Use the bridge hold and claw grip to cut fruits and vegetables Cut food into fairly even sized pieces <u>Cutting/ knife skills with moderate supervision</u> Peel fruit and vegetables using a peeler Grate food eg cheese, carrot	Use a range of techniques such as grating, cutting, chopping <u>Cutting / knife skills with close or moderate supervision</u> Use bridge hold and claw grip to cut a range of vegetables Cut food into evenly sized cubes <u>Independently</u> Peel using a peeler a range of vegetables <u>Heating</u> Observe adults heating using the hob <u>With close supervision</u> toast some bread in a toaster to eat with the soup Use a ladle to serve soup	Use a range of techniques such as kneading and baking <u>Mixing and moulding with moderate supervision</u> Mix stir and combine liquid and dry ingredients uniformly to create a dough Accurately measure to the nearest gram and millilitre <u>Independently</u> Sieve flour, raising agents in a bowl Shape dough using flour on hands into evenly sized shapes or roll with a rolling pin to create flat bread <u>Heating</u> Observe adults putting food into and removing from the oven	Use a range of techniques <u>Cutting / knife skills with moderate supervision</u> Use the bridge hold and claw grip to cut vegetables and fruit Grate food using a grater – coarse and fine grating Dice foods and cut them into evenly sized, fine pieces With support use a tin opener <u>Independently</u> Confidently use a peeler	Use a range of techniques <u>Cutting / knife skills with moderate supervision</u> Use the bridge hold and claw grip to cut vegetables Grate food using a grater – coarse and fine grating Dice foods and cut them into evenly sized, fine pieces With support use a tin opener <u>Independently</u> Confidently use a peeler <u>Mixing and moulding</u> Mix stir and combine liquid and dry ingredients uniformly to create a dough Accurately measure to the nearest gram and millilitre Sieve flour, raising agents in a bowl Shape dough using flour on hands into evenly sized shapes or roll with a rolling pin to a specific thickness <u>Heating</u> Observe adults putting food into and removing from the oven Use oven gloves and a fish slice to remove hot food with supervision

Key Vocabulary		Scissors Glue String Join Tape Fold Cut stick	fruit and vegetable names, names of equipment and utensils sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard flesh, skin, seed, pip, core, slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients, planning, investigating tasting, arranging, popular, design, evaluate, criteria	fruit and vegetable names, names of equipment and utensils sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard flesh, skin, seed, pip, core, slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients, planning, investigating tasting, arranging,	name of products, names of equipment, utensils, techniques and ingredients texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested healthy/varied diet	fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape,	fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy,	varied, gluten, dairy, allergy, intolerance, savoury, source, seasonality
School context			Using items from the recycling box – reduce, reuse, recycle	Food grown in school garden Using items from the recycling box – reduce, reuse, recycle	Food grown in school garden	Using items from the recycling box – reduce, reuse, recycle		Fiver challenge – enterprise Using items from the recycling box – reduce, reuse, recycle

Cross curricular			History – link to Moon landings RE – link to Christmas or other religious celebration Science – link to plants	Science – link to plants and animals including humans English - link to book Zeraffa Giraffa or Geography India History – link to Remembrance	Geography – link to food and Cheltenham Science – link to animals including humans	Science – link to electricity History – link to Anglo-Saxons and Vikings	Geography - link to South America History – link to Ancient Egyptians	Science – link to electricity and animals including humans