

## Implementation - Skills

	Design	Make	Evaluate	Technical knowledge	Cooking and Nutrition
<b>Nursery</b>	Develop ideas and then decide which materials to use to express them	Use large and small motor skills to do things independently Use one handed tools and equipment and show a preference for a dominant hand Select and use activities and resources, with help when needed Make imaginative and complex 'small worlds' with blocks and construction kits	Talk about patterns around them Talk about problems and how they can solve them	Explore how things work Build independently with a range of appropriate resources Join different materials and explore different textures Combine shapes to make new ones	Make healthy choices about food and drink
<b>Reception</b>	Think ahead about how they will explore or play with objects	Develop small motor skills so they can use a range of tools competently, safely and confidently Combine shapes to make new ones	Show resilience and perseverance in the face of challenge.	Solve real problems Select shapes appropriately; flat surfaces for building, a triangular prism for a roof, etc.	Know and talk about the different factors that support their overall health and wellbeing: healthy eating
<b>Year 1</b>	Design products that have a clear purpose and an intended user Explore objects and identify likes and dislikes of the designs Communicate their ideas through talking and drawing	Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]	Evaluate their ideas and products Suggest improvements to existing designs	Build basic structures Explore and use mechanisms [for example, levers, sliders, wheels and axles] in their products	Use the basic principles of a healthy and varied diet to prepare dishes Understand where food comes from
<b>Year 2</b>	Design purposeful, functional, appealing products for themselves and other users based on design criteria Generate, develop, model and communicate their ideas through talking and drawing	Disassemble simple products to understand how they work Use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]	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	Cut, peel or grate ingredients safely and hygienically Measure or weigh using measuring cups or electronic scales Understand where food comes from
<b>Year 3</b>	Design with purpose by identifying opportunities to design. Explore objects and identify likes and dislikes of the designs	Disassemble products to understand how they work. Use basic material to complete practical task Use basic tools and equipment to perform practical tasks	Refine work and techniques as work progresses, evaluating the product design. Suggest improvements to existing designs Explore how products have been created	Understand how gears and pulleys work Understand the terms circuits, switches, bulbs, buzzers and motors	Prepare ingredients hygienically using appropriate utensils. Assemble or cook ingredients
<b>Year 4</b>	Design with purpose by identifying opportunities to design. Use software to design and represent product designs Generate a selection of design ideas	Disassemble products to understand how they work Use a range of tools and material to complete practical task	Refine work and techniques as work progresses, continually evaluating the product design	Understand the terms circuits, switches, bulbs, buzzers and motors Understand how simple mechanical system work (for example, gears, pulleys, cams, levers and linkages)	Prepare ingredients hygienically using appropriate utensils. Measure ingredients to the nearest gram Assemble and cook ingredients (controlling the temperature of the oven or hob, if cooking)
<b>Year 5</b>	Design with the user in mind, motivated by the service a product will offer Create innovative designs that improve upon existing products Use designers work to help generate ideas for designs	Ensure products have a high-quality finish, using art skills where appropriate Make products through stages of prototypes, making continual refinements Use a selection of tools and material to complete practical task.	Analyse a range of existing products Evaluate their ideas and products against their own design criteria	Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] Understand and use of basic mechanical systems in their products.	Understand the importance of correct storage and handling of ingredients (knowledge of micro-organisms) Demonstrate a range of baking and cooking techniques
<b>Year 6</b>	Design with the user in mind, motivated by the service a product will offer (rather than simply for profit). Combine elements of design from a range of inspirational designers throughout history, giving reasons for choices. Generate design ideas and communicate them through discussion, annotated sketches, cross-sectional, exploded diagrams, prototypes, pattern pieces and computer-aided design	Use a wide range of tools and equipment to perform practical tasks accurately, for example, cutting, shaping, joining and finishes. Select materials according to their functional properties and aesthetic qualities	Evaluate the design of products to suggest improvements to the user experience Investigate and analyse a range of existing products Understand how key events and individuals in design technology have helped shape the world	Understand and use mechanical systems (for example, gears, pulleys, cams, levers and linkages) Apply their understanding of how to strengthen, stiffen and reinforce more complex structures	Measure accurately and calculate ratios of ingredients to scale up or down from recipe. Create and refine recipes, including ingredients, methods, cooking times and temperatures Understand seasonality, and know where and how a variety of ingredients are grown and reared
<b>Year 7</b>	Use research and exploration, to identify and understand user needs. Develop a basic specification Generate creative ideas and communicate these by using basic annotated sketches	Use a range of tools and equipment and operate them safely Use a range of materials to make a product	Analyse the work of past and present professionals Evaluate and refine design ideas	Understand the properties of different types materials Understand how mechanical systems can be used in their products	Cook basic dishes so that they are able to feed themselves and others Use a range of cooking techniques Understand the term seasonal foods and know how a variety of ingredients are grown and reared
<b>Year 8</b>	Use research and exploration, such as the study of different cultures, to identify and understand user needs Identify and solve design problems. Develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations Use a variety of approaches to generate ideas. Use a variety of approaches to generate ideas.	Use a range of tools and equipment and operate them safely a precisely Use a range of materials considering their properties	Evaluate and refine design ideas against a specification Understand developments in design and technology, its impact on individuals, society and the environment.	Understand and use the properties of materials and the performance of structural elements. Understand how mechanical systems can be used in products.	Understand and apply the principles of nutrition and health Cook a variety of dishes so that they are able to feed themselves and others a healthy and varied diet Cook using a range of methods Using awareness of taste, texture and smell to decide how to season dishes Understand the source, seasonality and characteristics of a broad range of ingredients
<b>Year 9</b>	Use research and exploration, such as the study of different cultures, to identify and understand user needs Identify and solve design problems Develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations Use a variety of approaches to generate creative ideas Develop and communicate design ideas using annotated sketches.	Use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture Use complex range of materials considering their properties	Analyse the work of past and present professionals. Investigate new and emerging technologies Test, evaluate and refine their ideas and products against a specification, considering the views of intended users. Understand developments in design and technology, its impact on individuals, society and the environment.	Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions Understand how more advanced mechanical systems can be used in products to enable changes in movement and force	Understand and apply the principles of nutrition and health Cook a range of dishes so that they are able to feed themselves and others a healthy and varied diet Use a range of cooking techniques to prepare dishes Using awareness of taste, texture and smell to decide how to season dishes
<b>Year 10</b>	Use research to understand design possibilities and show an understanding of the problems/opportunities. Identify a user/client that is mostly relevant to the design brief Develop a design specification with justification linking to the needs and wants of the client/user. Develop a range of ideas. freehand sketching, isometric and perspective 2D and 3D drawings	Use tools, materials and equipment (including CAM where appropriate) safely and precisely showing a high level of skill. Evaluation throughout the project to ensure the product matches the design brief and specification.	Analyse the work of past and present professionals Test most aspects of the final prototype against the design brief and specification.	Forces and stresses Ecological and social footprint Stock forms, types and sizes Scales of production Specialist techniques and processes Surface treatments and finishes.	Food, nutrition and health Food science Food safety Food choice Food preparation skills
<b>Year 11</b>	Use research to fully understand design possibilities and show a good understanding of the problems/opportunities. Identify a user/client that is mostly relevant to the design brief Develop a detailed design specification with good justification linking to the needs and wants of the client/user. Develop a range of imaginative ideas. Investigation, primary and secondary data Exploded diagrams to show constructional detail or assembly	Use a selection of tools, materials and equipment (including CAM where appropriate) safely and precisely showing a high level of skill. Evaluation throughout the project to ensure the product matches the design brief and specification. Understand how to select and use specialist techniques and processes appropriate for the material and/or task.	Analyse the work of past and present professionals. Test all aspects of the final prototype against the design brief and specification Understand new and emerging technologies	Ecological and social footprint measurement/reference points, templates, jigs and patterns where suitable. Environmental, social and economic challenge	Food preparation skills Environmental impact and sustainability of food Food processing and production Sensory evaluation