Design and Technology Knowledge Progression Map

	KS1	KS2	KS3
Designing	At the end of KS1, pupils should know: • What they are designing and making • Who they are designing a product for • What their product is for • How their product works • How they will make their products suitable for the intended users • What a simple design criteria is • How to generate ideas by drawing on their own experiences • How to communicate ideas by talking and drawing • How to model ideas by making templates and mock-ups • How to use ICT to develop and communicate their ideas	At the end of KS2, pupils should know: • How to work within a range of contexts, such as home, school, leisure, culture, enterprise, industry and the wider environment • How to describe the purpose of their products • How to indicate the design features of their products that will appeal to intended users • How to gather information about the needs and wants of particular individuals and groups • How to develop their own design criteria and use these to inform their own ideas • How to carry out surveys, interviews, questionnaires, etc. • How to identify the needs, wants, preferences and values of particular individuals and groups • How to model their ideas using prototypes and pattern pieces • How to use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas • How to generate realistic ideas, focusing on the needs of the user • How to draw on their research, generating innovative ideas	At the end of KS3, pupils should know: • How to consider the influence of a range of lifestyle factors and consumer choices when designing products • That human values may conflict and compromise has to be made • How to develop detailed design specifications to guide their thinking • How to use research including the study of different cultures, to identify and understand user needs • How to identify and solve their own design problems • That design specifications include a wider range of requirements such as environmental, aesthetic, cost, maintenance, quality and safety • That they need to consider the health and wellbeing, cultural, religious and socio-economic contexts of their intended users • How to reformulate design problems given to them • How to combine ideas from a variety of sources • How to produce 3D models to develop and communicate ideas

Design and Technology Knowledge Progression Map

Making	At the end of KS1, pupils should know: • How to plan by suggesting what to do next • How to select from a range of tools, explaining their choices • Which materials and components are best for their task, according to their characteristics • The procedures for safety and hygiene • How to measure, mark out, cut and shape materials and components • How to assemble, join and combine materials and components • How to use finishing techniques, including those from art and design	At the end of KS2, pupils should know: • Which tools and equipment are suitable for the task • Which materials and components are suitable for the task, according to functional properties and aesthetic qualities • What the main stages of making are, in the correct order • How to formulate a step-by-step plan as a guide to making • How to measure, mark out, cut and shape materials and components with some accuracy • How to assemble, join and combine materials and components with some accuracy • How to apply a range of finishing techniques accurately • How to demonstrate resourcefulness	At the end of KS3, pupils should know: • How to produce ordered sequences and schedules for manufacturing products they design • How to produce costings for products they design and make • How their plans can be clearly communicated so that others can implement them • How to match and select suitable materials considering their fitness for purpose • The purpose of a risk assessment • How to apply a range of finishing techniques, including those from art and design, to a broad range of materials including textiles and woods • How to safely use a broad range of joining techniques, including stitching, mechanical fastenings, heat processes and adhesives • How to modify the appearance of materials including textiles and other manufactured materials, e.g. dying and appliqué • To adapt their methods of manufacture to changing circumstances

Design and Technology Knowledge Progression Map

Evaluating	At the end of KS1, pupils should know: • How to make simple judgements about their products and ideas against design criteria • How to suggest improvements to their products • What products are • Who products are for • What products are for • How products work • Where products might be used • What materials products are made from • What they like and dislike about products	At the end of KS2, pupils should know: • How to identify the strengths and areas for development in their ideas and products • To consider the views of others, including intended users, to improve their work • To refer to their design criteria as they design and make • To use their design criteria to evaluate their completed products • How to critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make • How well products have been designed • How well products have been made • Why materials have been chosen • What methods of construction have been used • How well products work • How well products achieve their purposes • How well products meet their needs and wants • Whether products can be recycled or reused • How innovative products are • What impacts products have beyond their intended purpose • About inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products	At the end of KS3, pupils should know: • How to test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups • How to identify ways of improving their products • How to actively involve others in the testing of their products • Which methods are most appropriate for evaluating their products in use and modifying them to improve performance • About new and emerging technologies • How to disassemble a product to determine how they are constructed and function • The positive and negative impact that products can have in the wider world • About the concept of circular economy approaches in relation to product development and consumption • About an increasing range of designers, engineers, chefs, technologists and manufacturers and know how their products relate to their own designing and making

Design and Technology Knowledge Progression Map

Technical Knowledge	At the end of KS1, pupils should know: • About the simple working characteristics of materials and components • About the movement of simple mechanisms such as levers, sliders, wheels and axles • How freestanding structures can be made stronger, stiffer and more stable • That food ingredients should be combined according to their sensory characteristics • The correct technical vocabulary for the projects they are undertaking	At the end of KS2, pupils should know: • How to use their learning from science to help design and make products that work • How to use learning from maths to help design and make products that work • That materials have both functional properties and aesthetic qualities • That materials can be combined and mixed to create more useful characteristics • That mechanical and electrical systems have an input, process and output • The correct technical vocabulary for the projects they are undertaking • How mechanical systems such as levers create movement • How simple electrical circuits and components can be used to create functional products • That food ingredients can be fresh, pre-cooked and processed • How mechanical systems such as cams or pulley or gears create movement • How to strengthen and reinforce a 3D framework • That a recipe can be adapted by adding or substituting one or more ingredients	At the end of KS3, pupils should know: • How to use their learning from science and maths to help design and make products that work • About the properties of materials and how they can be used to advantage • How to competently use a range of cooking techniques for example, selecting and preparing ingredients, using utensils and electrical equipment • How to classify materials by structure, e.g. hard woods, soft woods, etc. • About the physical properties of materials, e.g. grain, brittleness, flexibility, elasticity, malleability, etc. • How to use simple electronic circuits incorporating inputs and outputs • About textile fibre sources, e.g. natural and synthetic and fabrics, e.g. plain and woven • How to select and modify patterns and use in textile construction • How to make adjustments to the settings of equipment and machinery such as sewing machines

Design and Technology Knowledge Progression Map

Cooking and Nutrition	At the end of KS1, pupils should know: • That all food comes from plants or animals • That food has to be farmed, grown elsewhere or caught • That there are five food groups on the Eatwell Plate • That everyone should eat at least five portions of fruit and vegetables a day • How to prepare simple dishes safely and hygienically, without using a heat source • How to use techniques such as cutting, peeling and grating •	At the end of KS2, pupils should know: • That a recipe can be adapted by adding or substituting one or more ingredients • That food is grown, reared and caught in the UK, Europe and the wider world • That seasons may affect the food available • How food is processed into ingredients that can be eaten or used in cooking • How to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source • How to use a range of techniques, such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking • That a healthy diet is made up from a variety and balance of different food and drink, as depicted in the Eatwell Plate • That to be active and healthy, food and drink are needed to provide energy for the body • That recipes can be adapted to change the appearance, taste, texture and aroma • That different food and drink contain different substances – nutrients, water and fibre – that are needed for health	At the end of KS3, pupils should know: • That food is produced, processed and sold in different ways • That people choose different types of food and that this may be influenced by availability, season, need, cost, where the food is produced, culture and religion • How to compare the cost of food when planning to eat out or cook at home • About the influence of food marketing, advertising and promotion on their own diet and purchasing behaviour • How to store, prepare and cook food safely and hygienically • How to select and prepare ingredients • How to use utensils and electrical equipment • How to apply heat in different ways • How to use taste, texture and smell to decide how to season dishes and combine ingredients • How to adapt and use their own recipes • How to cook a repertoire of predominantly savoury dishes to feed themselves and others a varied and healthy diet • The importance of a healthy and varied diet as depicted in the Eatwell Plate • That food provides energy and nutrients in different amounts and that people require different amounts during their life

Design and Technology Knowledge Progression Map

			• How to taste and cook a broader range of ingredients and healthy recipes, accounting for a range of needs, wants and values • How to actively reduce food waste such as composting fruit and vegetable peelings and recycling food packaging • How to use nutrition information and allergy advice panels on food labels to make informed food choices • How to use a broader range of preparation techniques and methods when cooking, e.g. stir-frying, steaming, blending • The principles of cleaning, preventing cross-contamination, chilling, cooking food thoroughly and reheating food until it is steaming hot