Curriculum Progression - Design and Technology

Design and Technology	Key Stage 1	Key Stage 2
National Curriculum	Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment]. When designing and making, pupils should be taught to: Design ● 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. Make ● 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 ● explore and evaluate a range of existing products ● evaluate their ideas and products against design criteria Technical knowledge ● 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 Cooking and nutrition As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life. Pupils should be taught to: ● use the basic principles of a healthy and varied diet to ● prepare dishes to understand where food comes from.	Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment]. When designing and making, pupils should be taught to: Design ● 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 Make ● 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 Evaluate ● 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 Technical knowledge ● apply their understanding of how to strengthen, stiffen and reinforce more complex structures understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] ● understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] ● apply their understanding of computing to program, monitor and control their products. Cooking and nutrition As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life. Pupils should be taught to: ● understand and apply the principles of a healthy and varied diet ● prepare and cook a 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.

	Year 1/2	Year 3/4	Year 5/6
Mechanisms **Textiles** **Structures** **Electrical Systems (KS2)**	Children should be able to: **Technical knowledge** • Understand the movement of simple mechanisms including levers, sliders, wheels and axles • Know how freestanding structures can be made stronger, stiffer and more stable. • Use the technical vocabulary for the projects they are undertaking **Design** • Know that a design needs to have a purpose, thinking about the intended user • Think about different materials and how to make templates **Make** • Select from a range of tools, equipment and materials, explaining their choice • Use and make own templates • Measure, mark out and cut materials and components • Assemble, join and combine materials and components, using simple fixing materials. **Evaluate** • Talk about their design and what they are making • Suggest how they could improve their products • Existing products - what products are, who they are for, how they are made and what materials are used	Children should be able to: **Technical knowledge** • Understand how levers or pneumatic systems create movement • Understand how simple electrical circuits and components can be used to create functional products. • Know how to make string, stiff shell structures • Know that a single fabric shape can be used to create a 3D textile product. **Design** • Collect information about the needs and wants of individuals and groups. • Develop their own design criteria allowing them to develop ideas • Research designs • Develop annotated sketches and diagrams of their design • Produce a detailed list of equipment and materials they will need **Make** • Use a wider range of construction materials • Select tools, equipment and materials that are suitable for the task in relation to skills and techniques they will be using. • Measure, mark out and cut materials and components with increasing accuracy • Assemble, join and combine materials and components, with some accuracy, applying a range of finishing techniques. **Evaluate** • Identify strengths and weaknesses of their ideas and products • Consider the views of others, including intended users, to improve their work • Existing products - who designed and made the products, where products were designed and made, when products were designed and made and whether products can be recycled/reused	Children should be able to: **Technical vocabulary** • Understand how cams, pulleys and gears create movement • Understand how complex electrical circuits and components can be used to create functional products • Know how to reinforce a 3D framework • Know that a 3D textiles product can be made from a combination of fabric shapes **Design** • Carry out research eg using questionnaires to identify needs, wants and preferences of others and to develop designs • Develop a simple design specification to help guide their thinking • Develop prototypes **Make** • Use a wider range of construction materials • Select tools, equipment and materials that are suitable for the task in relation to skills and techniques they will be using. • Accurately measure, mark out and cut materials and components • Accurately assemble, join and combine a range of materials/components, applying a range of finishing techniques • Make refinements. **Evaluate** • Critically evaluate the quality of the design, manufacture and fitness for the purpose of their products as they design and make. • Compare their ideas and products to their original design specification. • Existing products - how much products cost to make, how innovative products are and how sustainable the materials in products are
Food and Nutrition	Children should be able to: • Use appropriate equipment to weigh and measure ingredients • Know where food comes from • Prepare simple and healthy dishes, safely and hygienically without using a heat source • Use techniques such as cutting	Children should be able to: • Understand that food is grown, reared and caught (Uk, Europeand worldwide) and the impact of the seasons • Follow a recipe measuring in grams • Prepare and cook a savoury dish safely and hygienically including, where appropriate, using a heat source. • Begin to use peeling, chopping, slicing, grating, mixing, spreading and kneading. • Know that food ingredients can be fresh, pre-cooked or processed	Children should be able to: • Measure with increasing accuracy • Work out ratios in a recipe • Secure with preparing a dish safely and hygienically using a heat source. • Confident using a variety of techniques including peeling, chopping, slicing, grating, mixing, spreading and kneading. • Know that a recipe can be adapted by adding or substituting ingredients