Design Technology

Curriculum Intent:

To master practical skills	To design make and evaluate and improve	To take inspiration from design throughout history

National Curriculum

Key Stage 1	Key Stage 2
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	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

• use the basic principles of a healthy and varied diet to prepare dishes • understand where food comes from.	• 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 • 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.

We intend the Design Technology Curriculum to develop the pupils:

- Significant levels of originality and the willingness to take creative risks and produce innovative results.
- An excellent attitude to learning and independent learning.
- The ability to use time efficiently and work constructively and productively with others.
- The ability to carry out thorough research, show initiative and ask questions to develop an exceptionally detailed knowledge of users' needs.
- The ability to act as responsible designers and makers, working ethically, using finite materials carefully and working safely.
- A thorough knowledge of which tools, equipment and materials to use to make their products.
- The ability to apply mathematical knowledge.
- The ability to manage risks exceptionally well to manufacture products safely and hygienically.
- A passion for the subject and knowledge of up-to-date technological innovations in materials , products and systems

- **Curriculum Implementation, using above list to enhance learning:**

		Year 1 & 2	Year 3 & 4	Year 5 & 6
To master practical skills	Food	• Cut, peel or grate ingredients safely and hygienically. • Measure or weigh using measuring cups of electronic scales. • Assemble or cook ingredients.	• Prepare ingredients hygienically using appropriate utensils. • Measure ingredients to the nearest gram accurately. • Follow a recipe. • Assemble or cook ingredients (controlling temp of the oven or hob if cooking).	• Understand the importance of correct storage and handling of ingredient (knowledge of micro-organisms). • Measure accurately and calculate ratios of ingredients to scale up or down from a recipe. • Demonstrate a range of baking or cooking techniques. • Create and refine recipes including ingredients, methods, cooking times and temperatures.
	Materials	• Cut materials safely using tools provided. • Measure and mark out to the nearest cm. • Demonstrate a range of cutting and shaping techniques (such as tearing, cutting, folding and curling).	• Cut materials accurately and safely by selecting appropriate tools. • Measure and mark out to the nearest mm. • Apply appropriate cutting and shaping techniques that include cuts within a	• Cut materials with precision and refine the finish with appropriate tools (sanding after cutting a shape). • Show an understanding of the qualities of materials to choose appropriate tools to cut and shape

		• Demonstrate a range of joining techniques (such as gluing, hinges, or combining materials to strengthen).	perimeter of a material (slots of cut outs). • Select appropriate joining techniques.	(nature of fabric-sharper scissors).
	Textiles	• Colour and decorate textiles using a number of techniques (printing).	• Select the most appropriate techniques to decorate textiles.	• Create objects (such as cushion) that employ a seam allowance. • Join textiles with a combination of stitching techniques (back stich for seams running seam to attach decoration). • Use the qualities of material to create suitable visual and tactile effects in the decoration of textiles.
	Electricals and electronics		• Diagnose faults in battery operated devices (low battery, water damage, battery terminal damage). • Create series and parallel circuits.	• Create circuits using electronics kits that employ a number of components (LEDs, Resistors, transistors, and chips).
	Construction	• Use materials to practise drilling, screwing, gluing and nailing materials to	• Choose suitable techniques to construct products. • Strengthen materials using suitable techniques.	• Develop a range of practical skills to create products (cutting, drilling and

		make and strengthen products.		screwing, nailing, gluing, filing and sanding).
	Mechanics	• Create products using leavers and wheels.	• Innovative combinations of electronics (or computing) and mechanics in product design.	• Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (leavers, winding mechanisms, pulleys and gears). • Convert rotary motion to linear using cams. • Innovative combinations of electronics (or computing) and mechanics in product design.
	Computing	• Draw or paint using software.	• Control and monitor models using software.	• Write code to control and monitor models or product.
To design make, evaluate and improve	• Design products that have a clear purpose and an intended user. • Make products refining the design as work progresses. • Use software to design draw and paint.		• Design with purpose. • Make products to word efficiently (carefully selecting materials). • Refine work and techniques as work progresses, continually evaluating the product design.	• Design with the user in mind motivated by the service a product will offer (rather than for profit). • Make products through stages of

		• Use software to design and represent product designs.	prototypes making continual refinements. • Ensure products have high quality finish, using art skills where appropriate. • Use software to design and represent product designs.
To take inspiration from design throughout history	• Explore objects and designs to identify likes and dislikes of a design. • Suggest improvements to existing designs. • Explore how products have been created.	• Improve upon existing designs giving reasons for choices. • Disassemble products to understand how they work.	• Combine elements from a range of inspirational designers throughout history, giving reasons for choices. • Crete innovative designs that improve upon existing products. • Evaluate the design of products to suggest improvements to the user experience.