DESIGN TECHNOLOGY SKILLS PROGRESSION

Characteristics of a Design Technologist:

- Significant levels of originality and the willingness to take creative risks to produce innovative ideas and prototypes.
- An excellent attitude to learning and independent working.
- 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.

Milestones: **To take inspiration from design throughout history**				
Milestone 1 **By the end of Year 2**		**Milestone 2** **By the end of Year 4**		**Milestone 3** **By the end of Year 6**
▪ Explore objects and designs to identify likes and dislikes of the designs. ▪ Suggest improvements to existing designs. ▪ Explore how products have been created.		▪ Identify some of the great designers in all of the areas of study (including pioneers in horticultural techniques) to generate ideas for designs. ▪ Improve upon existing designs, giving reasons for choices. ▪ Disassemble products to understand how they work.		▪ Combine elements of design from a range of inspirational designers throughout history, giving reasons for choices. ▪ Create innovative designs that improve upon existing products. ▪ Evaluate the design of products so as to suggest improvements to the user experience.
To master practical skills:				
Milestone 1 **By the end of Year 2**		**Milestone 2** **By the end of Year 4**		**Milestone 3** **By the end of Year 6**
Food				
▪ Cut, peel or grate ingredients safely and hygienically. ▪ Measure or weigh using measuring cups or 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 the temperature of the oven		▪ Understand the importance of correct storage and handling of ingredients (using knowledge of micro-organisms). ▪ Measure accurately and calculate ratios of ingredients to scale up or down from a recipe.

		or hob, if cooking).		▪ Demonstrate a range of baking and 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 centimetre. ▪ Demonstrate a range of cutting and shaping techniques (such as tearing, cutting, folding and curling). ▪ Demonstrate a range of joining techniques (such as gluing, hinges or combining materials to strengthen).		▪ Cut materials accurately and safely by selecting appropriate tools. ▪ Measure and mark out to the nearest millimetre. ▪ Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut outs). ▪ Select appropriate joining techniques.		▪ Cut materials with precision and refine the finish with appropriate tools (such as sanding wood after cutting or a more precise scissor cut after roughly cutting out a shape). ▪ Show an understanding of the qualities of materials to choose appropriate tools to cut and shape (such as the nature of fabric may require sharper scissors than would be used to cut paper).
Textiles				
▪ Shape textiles using templates. ▪ Join textiles using running stitch. ▪ Colour and decorate textiles using a number of techniques (such as dyeing, adding sequins or printing).		▪ Understand the need for a seam allowance. ▪ Join textiles with appropriate stitching. ▪ Select the most appropriate techniques to decorate textiles.		▪ Create objects (such as a cushion) that employ a seam allowance. ▪ Join textiles with a combination of stitching techniques (such as back stitch for seams and running stitch to attach decoration). ▪ Use the qualities of materials to create suitable visual and tactile effects in the decoration of textiles (such as a soft decoration for comfort on a cushion).
Electricals and electronics				
▪ Diagnose faults in battery operated devices (such as low battery, water damage or battery terminal damage).		▪ Create series and parallel circuits		▪ Create circuits using electronics kits that employ a number of components (such as LEDs, resistors, transistors and chips).

Computing				
▪ Model designs using software.		▪ Control and monitor models using software designed for this purpose.		▪ Write code to control and monitor models or products.
Construction				
▪ Use materials to practise drilling, screwing, gluing and nailing materials to make and strengthen products.		▪ Choose suitable techniques to construct products or to repair items. ▪ Strengthen materials using suitable techniques.		▪ Develop a range of practical skills to create products (such as cutting, drilling and screwing, nailing, gluing, filling and sanding).
Mechanics				
▪ Create products using levers, wheels and winding mechanisms.		▪ Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears).		▪ Convert rotary motion to linear using cams. ▪ Use innovative combinations of electronics (or computing) and mechanics in product designs.