DESIGN & TECHNOLOGY CURRICULUM

Purpose of Study

Design and technology is an aspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

Aims

The National Curriculum for design and technology aims to ensure that all pupils:

- Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world.
- Build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users.
- Critique, evaluate and test their ideas and products and the work of others.
- Understand and apply the principles of nutrition and learn how to cook.

Design & Technology	**Year 1 Objectives**						
Design, make, evaluate & improve	• To design, make and evaluate products that have a clear purpose or intended user.						
	• To make products, adapting and refining their design as their work progresses.						
	• To explore and evaluate a range of existing products, identifying likes and dislikes and suggesting improvements.						
	• To be able to use a range of tools safely and accurately.						
Cooking and nutrition	• To follow safe procedures for food safety and hygiene.						
	• To cut, slice, peel, grate and juice ingredients safely.						
	• To combine ingredients in different ways, *eg mixing, stirring, folding, etc*.						
	• To use the basic principles of a healthy and varied diet to prepare dishes.						
	• To demonstrate an understanding of where food comes from.						
Structures & mechanisms	• To build structures, exploring how they can be made stronger, stiffer and more stable.						
	• To demonstrate a range of cutting and shaping techniques, *eg tearing, cutting, folding, etc.*						
	• To demonstrate a range of joining techniques *eg gluing, hinges or combining materials to strengthen.*						
	• To explore and use mechanisms in their products *eg levers and sliders.*						

Design & Technology	**Year 2 Objectives**						
Design, make, evaluate & improve	• To design, make and evaluate products that have a clear purpose or intended user.						
	• To make products, adapting and refining their design as their work progresses.						
	• To explore and evaluate a range of existing products, identifying likes and dislikes and suggesting improvements.						
	• To be able to use a range of tools safely and accurately.						
Cooking and nutrition	• To follow safe procedures for food safety and hygiene.						
	• To cut, slice, peel, grate and juice ingredients safely.						
	• To combine ingredients in different ways, *eg mixing, stirring, folding, etc*.						
	• To use the basic principles of a healthy and varied diet to prepare dishes.						
	• To demonstrate an understanding of where food comes from.						
Structures & mechanisms	• To explore and use mechanisms in their products *eg wheels and axles.*						
	• To measure and mark out to the nearest centimetre.						
	• To demonstrate a range of cutting and shaping techniques, eg *tearing, cutting, folding, etc.*						
	• To demonstrate a range of joining techniques *eg gluing, hinges or combining materials to strengthen.*						
Textiles	• To shape textiles using templates.						
	• To join textiles using different joining techniques *eg stapling, pinning, weaving, running stitch.*						
	• To colour and decorate using a range of techniques.						

Design & Technology	**Year 3 Objectives**						
Design, make, evaluate & improve	• To design, make and evaluate products that have a clear purpose or intended user.						
	• To make products, adapting and refining their design as their work progresses.						
	• To communicate their ideas through discussions, annotated sketches/diagrams, prototypes, pattern pieces and Computer Aided Design (CAD) *eg J2E.*						
	• To explore and evaluate a range of existing products, identifying likes and dislikes and suggesting improvements.						
	• To identify some great designers in order to generate ideas for designs.						
	• To be able to use a range of tools safely and accurately.						
Cooking and nutrition	• To follow safe procedures for food safety and hygiene.						
	• To measure ingredients to the nearest gram or millilitre accurately.						
	• To follow a recipe to assemble or make a healthy meal (controlling timing and the temperature of the oven or hob if cooking).						
	• To be able to use different food preparation techniques, *eg cutting (bridge and claw), grating, spreading, etc.*						
	• To demonstrate an understanding of where food comes from and seasonality.						
Structures & mechanisms	• To select and use a wider range of materials and components, including functional properties, recyclability and aesthetic qualities.						
	• To apply their understanding of how to strengthen, stiffen and reinforce more complex structures *eg nets, food packaging.*						
	• To measure and mark out to the nearest millimetre.						
	• To select the appropriate cutting, shaping, joining and finishing techniques and apply them with increasing accuracy.						
	• To understand and use mechanical systems in their products, eg levers, pneumatics, gears and pulleys, winding mechanisms.						

Design & Technology	**Year 4 Objectives**						
Design, make, evaluate & improve	• To design, make and evaluate products that have a clear purpose or intended user.						
	• To make products, adapting and refining their work as it progresses.						
	• To communicate their ideas through discussions, annotated sketches/diagrams, prototypes, pattern pieces and Computer Aided Design (CAD) *eg J2E.*						
	• To explore and evaluate a range of existing products, identifying likes and dislikes and suggesting improvements.						
	• To identify some great designers in order to generate ideas for designs.						
	• To be able to use a range of tools safely and accurately.						
Cooking and nutrition	• To follow safe procedures for food safety and hygiene.						
	• To measure ingredients to the nearest gram or millilitre accurately.						
	• To follow a recipe to assemble or make a healthy meal (controlling timing and the temperature of the oven or hob if cooking).						
	• To be able to use different food preparation techniques, *eg cutting (bridge and claw), grating, spreading, etc.*						
	• To demonstrate an understanding of where food comes from and seasonality.						
Structures & mechanisms	• To select and use a wider range of materials and components, including functional properties, recyclability and aesthetic qualities.						
	• To measure and mark out to the nearest millimetre.						
	• To select the appropriate cutting, shaping, joining and finishing techniques and apply them with increasing accuracy.						
	• To apply scientific knowledge to use simple electrical components in their products.						
	• To explore the properties of different textiles.						
	• To join textiles with appropriate stitching, *eg back stitch, backward running stitch, oversew stitch, blanket stitch, running stitch.*						
	• To select the most appropriate techniques to decorate textiles and add functionality *eg Velcro, buttons, zips.*						

Design & Technology	**Year 5 Objectives**						
Design, make, evaluate & improve	• To design (or redesign), make and evaluate innovative products in response to a brief.						
	• To communicate their ideas through discussions, annotated sketches/diagrams, prototypes, pattern pieces and Computer Aided Design (CAD) *eg J2E*.						
	• To ensure products have a high quality finish, using art skills where appropriate.						
	• To combine elements of design from a range of inspirational designers throughout history, giving reasons for choices.						
	• To be able to use a range of tools and equipment safely and accurately.						
Cooking and nutrition	• To follow safe procedures for food safety and hygiene (using knowledge of microorganisms).						
	• To measure accurately and calculate ratios of ingredients to scale up or down from the recipe.						
	• To create and refine recipes, including ingredients, methods, cooking times and temperatures.						
	• To demonstrate a range of baking and cooking techniques, *eg mixing, rubbing, kneading, rolling, folding, etc.*						
	• To demonstrate an understanding of where food comes from, including sustainability, seasonality and cultural origins.						
Structures & mechanisms	• To select and use a range of materials and components, considering their functional properties, recyclability and aesthetic qualities.						
	• To cut materials with precision and refine the finish with appropriate tools.						
	• To select the appropriate cutting, shaping, joining and finishing techniques and apply them accurately.						
	• To convert rotary motion to linear using cams.						
	• To create products using electrical circuits that employ a number of components, eg LEDs, bulbs, buzzers, motors and switches.						
Textiles	• To select different textiles according to their properties when designing and making products.						
	• To join textiles with a combination of stitching techniques, eg back stitch, backward running stitch, oversew stitch, blanket stitch, running stitch.						
	• To create objects that employ a seam allowance.						

	• To use the qualities of materials to create suitable visual and tactile effects in the decoration of textiles.						

Design & Technology	**Year 6 Objectives**						
Design, make, evaluate & improve	• To design (or redesign), make and evaluate innovative products in response to a brief.						
	• To communicate their ideas through discussion, annotated sketches/diagrams, prototypes, pattern pieces and Computer Aided Design (CAD) *eg J2E*.						
	• To ensure products have a high quality finish, using art skills where appropriate.						
	• To combine elements of design from a range of inspirational designers throughout history, giving reasons for choices.						
	• To be able to use a range of tools and equipment safely and accurately.						
Cooking and nutrition	• To follow safe procedures for food safety and hygiene (using knowledge of microorganisms).						
	• To measure accurately and calculate ratios of ingredients to scale up or down from the recipe.						
	• To create and refine recipes, including ingredients, methods, cooking times and temperatures.						
	• To demonstrate a range of baking and cooking techniques, *eg mixing, rubbing, kneading, rolling, folding, etc.*						
	• To demonstrate an understanding of where food comes from, including sustainability, seasonality and cultural origins.						
Computing & Nutrition	• To apply their understanding of computing to program, monitor and control models and products *eg robots, Lego Mindstorm, etc.*						
Structures & mechanisms	• To select and use a range of materials and components, considering their functional properties, recyclability and aesthetic qualities.						
	• To cut materials with precision and refine the finish with appropriate tools.						
	• To select the appropriate cutting, shaping, joining and finishing techniques and apply them accurately.						
	• To convert rotary motion to linear using cams.						
	• To create products using electrical circuits that employ a number of components, eg LEDs, bulbs, buzzers, motors and switches.						