Design Technology Curriculum Overview Two Year Rolling Programme

	Autumn	Spring	Summer
KS 1 Year A	**Mechanisms** Wheels and axles Making a moving vehicle	**Textiles** Templates and joining techniques	**Food** Prepare fruit and vegetables. Use the basic principles of a healthy and varied diet to prepare dishes. Understand where food comes from.
Vocabulary	axle, axle holder, chassis, friction, dowel	applique, design, fabric, fray, seam, sew, template	fruit, vegetable, pith, salad, core, peel farmed, caught, grown, balanced diet.
Targets Expected	• Identify a purpose for what they intend to design and make. • Design purposeful, functional, appealing products for himself/herself and other users based on design criteria • Develop their ideas through talk and drawings and label parts. • Choose appropriate tools, equipment, techniques and materials from a wide range and use correct vocabulary to name and describe them. • Safely measure, mark out, cut and shape materials and components using a range of tools	• Create simple designs for a product. • Use pictures and words to describe what they want to create. • Ask questions about existing products. • Use simple threading techniques. • Work with a plastic needle. • Use a simple running stitch • Add details to a product using fabric glue.	• Talk about what he/she eats at home. • Say where food comes from and give examples of food which is grown. • Begin to understand that everyone should eat at least five portions of fruit and vegetables every day. • Use simple tools with help to prepare food safely without a heat source. (cut, slice, peel)

	• Ask questions about existing products. • Evaluate and assess existing products and those that he/she has made using design criteria		
Targets Exceeding	• Measure, mark out and create a mock-up of a product design. • Ask simple questions about existing products and those that he/she has made. • Evaluate and improve their existing design. • Investigate different techniques for stiffening a variety of materials. • Measure, cut and score with some accuracy. • Learn to use hand tools safely and appropriately. • Start to evaluate their products as they are developed, identifying strengths and possible changes they might make.	• Thread and knot independently. • Experiment with different stitch types (overstitch, cross stitch)	• Understand the need for a balanced and varied diet. • Understand that all food must be farmed, grown or caught. • Start to understand how to name and sort foods into the five groups in 'The Eat well plate'

KS1 YEAR B	Mechanisms Sliders and Levers	Food Prepare fruit and vegetables. Use the basic principles of a healthy and varied diet to prepare dishes. Understand where food comes from.	Structures Freestanding structures
Vocabulary	mechanism, lever, slider, slot, bridge, cut, join	pith, nutrients, chop, blend, seed, pip, slice	freestanding structure, frame structure, shell structure, stability, buttress, brick bonding, mock-up
Targets Expected	• Use pictures and words to describe what he/she wants to do. • Use a limited number of simple design criteria to develop their ideas. • Create a simple design and annotate where the slider or lever will appear. • Clearly state the purpose of their product. • Clearly state how their product will work. • Mark out and use scissors to cut a slot. • Explore how a lever can be used with and without a slot. • Explore using tools e.g. scissors and a hole punch safely. • Join using a split-pin • Begin to use simple finishing techniques to improve the appearance of their product.	• Understand the need for a varied and balanced diet. • Understand that all food needs to be farmed, grown or caught. • Use simple tools with help to prepare food safely. (cut, slice, peel, grate, juice and blend) • Demonstrate how to prepare simple dishes safely and hygienically, without using a heat source.	• When looking at existing products explain what they like and dislike about the products and why. • Build structures exploring how they can be made stronger, stiffer and more stable • Select and use simple tools to cut, form and shape and join a variety of materials. • Select appropriate materials for building a structure and give reasons. • Begin to assemble, join and combine materials and components together using a variety of temporary methods e.g. glues or masking tape.

Targets Exceeding	• Measure and cut to size strips of card to act as a handle or lever.	• Understand the different food groups. • Name and sort foods into the five groups in 'The Eat well plate'	• Explore and use mechanisms in their product • e.g. a wheel, an axel, a slider or lever. • Evaluate and improve their existing design.
KS2 YEAR A	**Mechanical Systems** Levers and linkages pneumatics	**Electrical Systems** Simple circuits and switches (including programming and control)	**Food** 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. Know where and how a variety of ingredients are grown, reared, caught and processed.
Vocabulary	Lever, linkage, loose pivot, fixed pivot, system, system, input, output, pneumatic	circuit, conductor, insulator, system, output device, input device	texture, taste, sweet, greasy, savoury, hygienic, harvested, tinned, frozen, cut, slice, grate, spread, bake
Targets Expected	• Strengthen frames using diagonal struts. • Start to evaluate their product against original design criteria • Discuss how simple levers are used in existing products.	• Understand that electrical systems have an input, process and output • Understand and use electrical systems in products • Make a variety of switches by using simple classroom materials e.g. card,	• Talk about different food groups and name food from each group. • Understand that food must be grown, farmed or caught in Europe and the wider world. • Begin to combine different ingredients.

	• Understand that mechanical systems have an input, process and output • Explore fixed and moving pivots. • Discuss how mechanical systems such as levers and linkages or pneumatic systems create movement. • Create a detailed annotated diagram which clearly shows where the lever and linkage will be added. • Accurately measure and cut materials. • Decide where to add a lever and how to create a pivot. • Start to think about their ideas as they make progress and be willing to change things if this helps them to improve	corrugated plastic, aluminium foil, paper fasteners and paper clips. • Incorporate a bulb and buzzer in their design. • Discuss, investigate and, where practical, disassemble different examples of relevant battery-powered products.	• Understand how to prepare and cook a variety of predominantly savoury dishes safely and hygienically. • . (cut, slice, grate, spread, bake) •
Exceeding Targets	• Apply techniques from prior learning to strengthen and stiffen materials.	• Make switches that operate in different ways e.g. when you press them, when you turn them, when you push them from side to side.	• Understand different substances that the body needs to stay healthy.

	• Add multiple linkages to alter input/output. • Evaluate their products carrying out appropriate tests. • Consider how existing products and his/her own finished products might be improved and how well they meet the needs of the intended user		• Understand seasonality and the benefits of eating seasonal and locally produced foods. • Create exploded diagrams.
KS2 YEAR B	**Textiles** 2D shape to 3D product	**Structures** Shell structures (including computer aided design)	**Food** 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. Know where and how a variety of ingredients are grown, reared, caught and processed.
Vocabulary	pattern, template, seam, seam allowance, aesthetics, stitch, sew	edge, face, net, join, scoring, shell structure	sensory, texture, appearance, fresh, slice, peel, garnish, chop, grate, processed
Targets Expected	• Use knowledge of existing products to design their own product for a purpose. • Create designs using annotated sketches and diagrams.	• Understand how well products have been designed and made, what materials have been used and the construction technique.	• Know that a healthy diet is made up from a variety and balance of different food and drink, as depicted in 'The Eat well plate' • Know that to be active and healthy, food and drink are

	• Safely measure, mark, tape or pin, cut and join fabric with some accuracy. • Discuss functionality and aesthetics. • Use a chenille needle to sew a range of fabrics. • Use a needle-threader.	• Begin to disassemble and evaluate familiar products and consider how to improve them. • Identify a purpose and establish criteria for a successful product. • Use knowledge of existing products to design a functional product. • Create a design using an annotated sketch and cross-sectional diagrams. • Make suitable choices from a wider range of tools and unfamiliar materials and plan out the main stages of using them. • Safely measure, mark, cut and construct with accuracy	needed to provide energy for the body. • Understand that food must be grown, farmed or caught in Europe and the wider world. • Begin to combine different ingredients. (cut, chop, slice, grate, spread, knead, bake, juice, peel, mix, garnish) • Understand how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source.
Exceeding Targets	• Measure and pin a seam allowance • Use a wider range of stitch types (over-stitch, cross stitch, running stitch)	• Cut internal shapes and include slots in framework. • When planning, explain their choice of materials and	• Understand seasonality and the benefits of eating seasonal and locally produced foods.

	• Evaluate how the key designs of individuals in design and technology have helped shape the world.	components including function and aesthetics. • Understand the function of a wide range of materials and explore using them. • Start to think about their ideas as they make progress and be willing to change things if this helps them to improve their work.	

Intent

Design and technology is an inspiring, 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.

Attainment targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Implementation

The teaching of Design Technology across the school follows the National Curriculum. Children design products with a purpose in mind and an intended user of the products. Food technology is implemented across the school with children developing an understanding of where food comes from, the importance of a varied and healthy diet and how to prepare this.

Subject Content

Key stage 1

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

Across KS1 pupils should explore:

- what products are

- who products are for
- what products are for
- how products work
- how products are used
- where products might be used
- what materials products are made from
- what they like and dislike about products

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

Key stage 2

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
  pupils should investigate and analyse:
  • who designed and made the products
  • where products were designed and made
  • when products were designed and made
  • whether products can be recycled or reused

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:

Key stage 1

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

Key stage 2

- 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.

Impact

Assessment of children's learning in Design Technology is an ongoing monitoring of children's understanding, knowledge and skills by the class teacher, throughout lessons. This assessment is then used to inform differentiation, support and challenge required by the children.
Design Technology is also monitored by the subject leader throughout the year in the form of book monitoring, observations of children working, looking at outcomes and pupil interviews to discuss their learning and understanding and establish the impact of the teaching taking place.