Lunt's Heath Primary School
Design and Technology Curriculum Map and Statutory Requirements

Design Technology
Whole School Overview 2024-2025

	Autumn	Spring	Summer
EYFS	**Structures: Junk Modelling** *Making verbal plans and material choices to create a junk model house for the three little pigs to protect them from the big bad wolf.*	**Textiles: Bookmarks** *Discuss what a good design needs and make a simple design. Choose from available materials and develop fine motor / cutting skills.*	**Cooking and Nutrition: Soup** *Designing a soup recipe as a class; chopping vegetables with support. To know that different vegetables taste different.*
Year 1	**Mechanisms: Moving Storybook** *Designing a moving story book for a given audience which follows a design to create moving models that use levers, slides and pivots.*	**Cooking and Nutrition: Fruit Smoothies** *Gather ideas and design through investigating a variety of fruit and vegetable and use simple utensils and equipment to peel, cut, slice, squeeze, grate and chop safely.*	**Structures: Create a Tudor House** *Gathering ideas from history topic for designing and making a stable house structure from card, tape and glue. Learning how to turn 2D nets into 3D structures.*
Year 2	**Cooking and Nutrition: A Balanced Diet** *Designing a healthy wrap based on a food combination which works well together. Use the bridge and claw grip when slicing food safely.*	**Mechanisms: Wheels and Axles** *Designing a vehicle that includes wheels, axles and axle holders, that when combined, will allow the wheels to move. Adapting mechanisms to improve how they work.*	**Textiles: Pouches** *Designing a pouch by selecting and cutting fabrics for sewing. Decorate using fabric glue, with evenly spaced neat, even stitches to join fabric.*
Year 3	**Cooking and Nutrition: Seasonal Tarts** *Follow the instructions in a recipe to create a healthy and nutritious recipe for a savoury tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish.*	**Mechanisms: Pneumatics** *Designing and making a toy which uses a pneumatic system. Manipulating materials to create different effects by cutting, creasing, folding and weaving.*	**Digital World: Wearable technology** *Write a program that initiates a flashing LED panel, or another pattern, on the virtual micro:bit when a button is pressed. Suggest key features for a way to attach the product to the user, with some consideration for the overall theme and the user. Follow basic design requirements using computer-aided design, drawing at least one shape with a text box and bright colours, following a demonstration.*
Year 4	**Cooking and Nutrition: Adapting a recipe** *Following a baking recipe, from start to finish, including the preparation of ingredients to design a biscuit within a given budget and draw upon previous taste testing judgements.*	**Electrical Systems: Torches** *Identify the difference between electrical and electronic products. Evaluate a range of existing torches and their features, then develop a new functional torch design.*	**Textiles: Egyptian Collars** *Designing and making an Egyptian Collar applying individual design criteria. Knowing how to thread needles and tying knots with greater independence. Use cross stitch to join fabrics together and embellish using appliqué to attach pieces of fabric decoration.*
Year 5	**Cooking and Nutrition: What could be healthier?** *Adapting a traditional recipe, understanding that the nutritional value of a recipe alters if you remove, substitute or add additional ingredients.*	**Textiles: 3D Stuffed Toys** *Designing a stuffed toy, considering the main component shapes required and creating an appropriate template.*	**Mechanisms: Automata Toys** *Experimenting with a range of cams, creating a design for an automata toy based on a choice of cam to create a desired movement. Understanding how linkages change the direction of a force and make things move at the same time.*
Year 6	**Structures: Bridges** *Designing and making a stable structure that is able to support weight, creating a frame structure with a focus on*	**Cooking and Nutrition: Come Dine with Me** *Writing a recipe, explaining the key steps, method and ingredients including facts and drawings from research undertaken; working safely and hygienically with independence. Consider costings and plan to a budget.*	**Digital World: Monitoring devices** *Researching (books, internet) for a particular (user's) animal's needs. Developing design criteria based on research. Understanding what a virtual model is and the pros and cons of traditional and CAD modelling.*

	triangulation. Select tools and equipment independently and adapt/improve where necessary.		

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Purpose and Aims

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.

KEY VOCABULARY					
	Structures	**Textiles**	**Mechanisms**	**Electrical Systems**	**Cooking and Nutrition**
EYFS Reception	join, stick, cut, bend, slot, scissors, measure, materials, fix	fabric, stitch, thread, weave, pattern, sew, sewing, needle, design, evaluate, join			fruit, vegetables, safety, knife, blade, tool, edge, handle, chop, slice, cut, saucepan, blender, chopping board, hob, boil, blend, mix, packaging, recyclable, metal, plastic, reusable
Year 1	design, evaluation, net, stable, strong, test, weak, shell structure, three-dimensional (3-D) shape, cube, cuboid, prism, vertex, edge, face, length, width		mechanism, lever, linkage, pivot, slot, slider, design, assemble, target audience bridge, guide system, stencil, template, test		blender, carton, fruit, healthy, Ingredients, peel, peeler, recipe, slice, smoothie, stencil, template, vegetable
Year 2		accurate, fabric, join, knot, pouch, running-stitch, sew, shape, stencil, template, applique	axle, axle holder, chassis, design, evaluation, fix, mechanic, mechanism, model, test, stable, strong, test, weak wheels		alternative, diet, balanced diet, evaluation, healthy, Ingredients, meat, nutrients, packaging refrigerator, sugar, substitute, wrap, vegetables
Year 3	design, evaluation, net, stable, strong, test, weak, shell structure, three-dimensional (3-D) shape, cube, cuboid, prism, vertex, edge, face, length, width		exploded-diagram, function, input, lever, linkage, mechanism, motion, net, output, pivot, pneumatic system, thumbnail sketch		climate, dry, exported, imported, Mediterranean, nationality, nutrients, polar, recipe, seasonal food, seasons, tarts, temperate, tropical climate vegetable names

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KEY VOCABULARY					
	Structures	**Textiles**	**Mechanisms**	**Electrical Systems**	**Cooking and Nutrition**
Year 4		accurate, applique, cross-stitch, cushion, decorate, detail, fabric, patch, running-stitch, seam, stencil, stuffing, target audience, target customer, template		battery, bulb, buzzer, cell, component, conductor, copper, design criteria, electrical item, electricity, electronic item, function, insulator, series circuit, switch, test, torch, wire	adapt, budget, cooling rack creaming, equipment, evaluation, flavour, ingredients, method, net packaging, prototype, quantity, recipe, rubbing, sieving, target audience, unit of measurement, utensils
Year 5		accurate, annotate, appendage, blanket-stitch, design criteria, detail, evaluation, fabric, sew, shape, stuffed toy, stuffing, template	accurate, assembly-diagram, automata, axle, bench hook, cam clamp, component, cutting list, diagram, dowel, drill bits, exploded-diagram, finish, follower, frame, function, hand drill, jelutong, linkage, mark out, measure, mechanism, model, research, right-angle, set square, tenon saw		beef, cross-contamination, diet, ethical issues, farm, healthy, ingredients, method, nutrients, packaging, reared, recipe, research, substitute, supermarket, vegan, vegetarian, welfare
Year 6	abutment, accurate, arched bridge, beam bridge, coping saw, evaluation, file, mark out, material properties, measure, predict, reinforce, research, sandpaper, set square, suspension bridge, tenon saw, test, truss bridge, wood		3D CAD, application (apps), biodegradable, Boolean, cardinal compass, client, compass, concept, convince, corrode, duplicate, environmentally friendly, equipment, feature, finite, function, functional, GPS tracker IF statement, infinite, investment, lightweight, loop, manufacture, materials (wood, metal, plastic etc.), mouldable, navigation, non-recyclable, product lifecycle, product lifespan, program, recyclable, smart, sustainable, sustainable design, unsustainable design, variable, work plane		accompaniment, collaboration, cookbook, cross-contamination, equipment, farm, flavour, illustration, imperative-verb, ingredients, method, nationality, preparation, processed, reared, recipe, research, storyboard, target audience, top tips, unit of measurement

Lunt's Heath Primary School
Design and Technology Curriculum Map and Statutory Requirements

EYFS

Design and Technology Knowledge and Skills	
Physical Development – Reception • Progress towards a more fluent style of moving, with developing control and grace. • Develop their small motor skills so that they can use a range of tools competently, safely and confidently. • Use their core muscle strength to achieve a good posture when sitting at a table or sitting on the floor.	**Expressive Arts and Design – Reception** • Explore, use and refine a variety of artistic effects to express their ideas and feelings. • Return to and build on their previous learning, refining ideas and developing their ability to represent them. • Create collaboratively, sharing ideas, resources and skills.
Physical Development – ELG **Fine Motor Skills** • Use a range of small tools, including scissors, paintbrushes and cutlery.	**Expressive Arts and Design – ELG** **Creating with Materials** • Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. • Share their creations, explaining the process they have used.

Key Stage 1

Design and Technology Knowledge and Skills				
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]. 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.				
Design	**Make**	**Evaluate**	**Technical Knowledge**	**Cooking and Nutrition**
Pupils will be taught to: • 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	Pupils will be taught to: • 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	Pupils will be taught to: • explore and evaluate a range of existing products • evaluate their ideas and products against design criteria	Pupils will be taught to: • 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.	Pupils will be taught to: • use the basic principles of a healthy and varied diet to prepare dishes • understand where food comes from.

Lunt's Heath Primary School
Design and Technology Curriculum Map and Statutory Requirements

Key Stage 2

Design and Technology Knowledge and Skills				
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]. 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.				
Design	**Make**	**Evaluate**	**Technical Knowledge**	**Cooking and Nutrition**
Pupils will be taught to: • 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	Pupils will be taught to: • 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	Pupils will be taught to: • 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 will be taught to: • 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.	Pupils will 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.