

Design Technology subject progression of knowledge and skills

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.

Year Group	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	
Units			Eating more Fruit and Veg Homes Flying Kites	Perfect Pizzas Puppets Vehicles	Moving monsters Photograph Frames Sandwich Snacks	Pencil Cases Seasonal Food Torches	Biscuits Moving Toys Pedestrian Bridge	Burgers Fairgrounds Shelters	
NC Attainment targets Subject content	Development matters 3-4 years Personal, Social and Emotional development.	ELG: Personal, Social and Emotional development	<ul style="list-style-type: none"> • use the basic principles of a healthy and varied diet to prepare dishes • understand where food comes from. 	<ul style="list-style-type: none"> • 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. 					
Cooking and nutrition	Knowledge	To understand why we brush our teeth	To understand why it is important to be clean	To know about a balanced diet To understand and know where food comes from	To know about the principles of a balanced and varied diet	To understand seasonality, and where ingredients come from	To understand seasonality, where ingredients come from, and how they are grown	To understand seasonality, where ingredients come from, how they are reared, caught or grown To understand a healthy and varied diet and demonstrate this through project design	To understand and apply the principles of a healthy and varied diet and demonstrate this through project design To understand seasonality, where ingredients come from, how they are reared, caught, grown or processed
	Skills	To make healthy choices about food, drink, activity and toothbrushing.	To manage their own basic hygiene and personal needs including dressing, going to the toilet and understanding the importance of healthy food choices.	To prepare ingredients safely and hygienically with support To measure and assemble ingredients	To cut, peel or grate ingredients safely and hygienically with support To measure, assemble and cook ingredients using measures To understand where food comes from	To prepare ingredients safely and hygienically To apply knowledge of a healthy and varied diet	To prepare and assemble ingredients hygienically using appropriate utensils and cooking methods To measure ingredients using scales and follow a recipe To apply growing knowledge of a healthy and varied diet	To prepare and cook a variety of savoury ingredients hygienically using appropriate utensils and cooking methods To measure accurately and calculate ratios of ingredients to scale up from a recipe	To use a range of cooking techniques to cook a variety of savoury ingredients hygienically using appropriate utensils and cooking methods To measure accurately to the nearest gram and calculate ratios of ingredients to scale up or down from a recipe
NC Attainment targets	Development matters Expressive arts and design 3-4 years	ELG Expressive Arts and Design	<ul style="list-style-type: none"> • design purposeful, functional, appealing products for themselves and other users based on design criteria • generate, develop, model and communicate their ideas through talking, drawing, 	<ul style="list-style-type: none"> • 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 					

Subject content				templates, mock-ups and, where appropriate, information and communication technology					
Design	Knowledge	To know the names of different materials	To know that different materials have different purposes	To understand structures need to be strong and stable To know materials have different properties	To understand how materials can be combined for different functions	To understand the purpose of a design criteria To know the 3 key aims for a design criteria (something for someone for some purpose)	To know the fundamentals of creating a design (features - diagram with labels)	To understand computing applications that support design.	To know the fundamentals of creating a design to support annotated sketch and exploded diagrams
	Skills	To explore different materials freely, to develop their ideas about how to use them and what to make	Safely explore a variety of materials to plan	To design products that have a clear purpose and an intended user through talking and drawing To demonstrate a range of joining techniques (such as gluing or combining materials to strengthen) - mock-up	To design functional products through talking and drawing that meets a design criteria To demonstrate a range of joining techniques for a mock up and develop design accordingly To use computers to design where appropriate	To develop a design criteria to develop with purpose To generate and develop ideas through annotated sketches and prototypes	To develop a design for a functional and appealing product aimed at a specific audience To generate an annotated cross-sectional diagram to communicate ideas	To develop a design for a functional, appealing and fit for purpose product aimed at a specific audience To generate, develop, model and communicate their ideas through computer-aided design To consider and use scientific knowledge of forces when designing for a function	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 To generate, develop, model and communicate their ideas through annotated sketches, exploded diagrams and pattern pieces
NC Attainment targets Subject content		Development matters Expressive arts and design 3-4 years	ELG: Creating with Materials	<ul style="list-style-type: none"> 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 		<ul style="list-style-type: none"> 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 			
Make	Knowledge	To know glue can join materials together To know how to use equipment (scissors) safely	To know a range of ways to join materials (glue, split pins, tape) To know how to use equipment safely and responsibly when exploring	To understand methods for strengthening materials	To know which materials and joining techniques will be most effective for the product outcome	To know and be aware of different tools that will support an informed choice when making	To understand purposes of different tools and utensils	To understand purposes and practicalities of a wider range of tools To understand the properties of a wider range of materials	To know purposes and practicalities of a wider range of tools To know the properties of a wider range of materials

	Skills	<p>To develop their own ideas and then decide which materials to use to express them</p> <p>To join different materials and explore different textures</p>	<p>To safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</p>	<p>To cut and join materials safely using tools provided with support</p> <p>To use materials such as: glue, split pins and single hole punches and materials to make and strengthen products</p> <p>To make products, discussing the design as work progresses</p>	<p>To select from and use a range of tools and equipment to perform practical tasks (cutting, joining, shaping and finishing)</p> <p>To select from and use a wide range of materials and components, including construction materials and textiles according to their characteristics</p> <p>To make products, refining the design as work progresses</p>	<p>To choose suitable techniques, tools and materials to construct products or to repair items</p> <p>To refine work and techniques as work progresses, continually evaluating the product design</p>	<p>To select from and use a range of tools, materials and equipment to perform practical tasks</p> <p>To refine work and techniques as work progresses, continually evaluating the product design and suggesting improvements</p>	<p>To select from and use a range of tools and equipment to perform practical tasks for example, cutting, shaping, joining and finishing</p> <p>To select from and use a wider range of materials and components, including construction materials, and, according to their functional properties</p>	<p>To select from and use a wider range of tools and equipment to perform practical tasks for example, cutting, shaping, joining and finishing accurately</p> <p>To select from and use a wider range of materials and components, including construction materials, textiles and, according to their functional properties and aesthetic qualities</p>
NC Attainment targets Subject content			ELG: Creating with Materials	<ul style="list-style-type: none"> explore and evaluate a range of existing products evaluate their ideas and products against design criteria 	<ul style="list-style-type: none"> 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 				
Evaluate	Knowledge		To know sequencing vocabulary (first I, then I...)	To understand the concept of evaluation	To understand why we evaluate	<p>To know some key individuals that have helped shape the world of DT</p> <p>To understand how to evaluate</p>	<p>To understand how key individuals in design and technology have helped shape the world</p> <p>To understand how to evaluate constructively</p>	<p>To understand how key events and individuals in design and technology have helped shape the world</p> <p>To understand the concept of being analytical about products</p> <p>To understand how to evaluate constructively and suggest improvements</p>	<p>To understand how key events and individuals in design and technology have helped shape the world and justify how this impact life today</p> <p>To understand how to evaluate constructively and suggest improvements for others</p>
	Skills		To share their creations, explaining the process they have used.	<p>To explore objects and designs to identify likes and dislikes</p> <p>To disassemble products to evaluate the product prior to designing own model</p> <p>To evaluate their own ideas and products</p>	<p>To explore and evaluate a range of existing products, suggesting improvements</p> <p>To evaluate their own ideas and products against design criteria</p>	<p>To investigate existing products</p> <p>To self-evaluate own products made</p>	<p>To investigate and analyse existing products</p> <p>To evaluate their ideas and products against their own design criteria</p>	<p>To investigate and analyse a range of existing products</p> <p>To evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</p>	<p>To research, investigate and analyse a range of existing products</p> <p>To self and peer evaluate ideas and products against design criteria to improve product</p>

NC Attainment targets Subject content		Development Matters 3-4 years Physical development Expressive arts and design	ELG: Creating with Materials ELG: Fine Motor Skills	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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 				
Technical knowledge	Knowledge	To know how to use equipment correctly	To know how to use equipment correctly and responsibly when exploring	To name simple mechanisms	To understand a product/ material can be adapted to make it more functional	To understand how to strengthen and reinforce	To understand electrical systems to support product	To understand computing to program, monitor and control their products	To understand mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
	Skills	<p>To use one-handed tools and equipment, for example, making snips in paper with scissors.</p> <p>To explore different materials freely, in order to develop their ideas about how to use them and what to make.</p>	<p>To safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function</p> <p>To use a range of small tools, including scissors and paint brushes</p>	<p>To build structures, exploring how they can be made stronger and stiffer</p> <p>To explore and use mechanisms [levers and sliders], in their products.</p>	<p>To build or make products, exploring how they can be made stronger, stiffer and more stable</p> <p>To explore and use mechanisms [wheels and axles], in their products.</p>	<p>To use their understanding of how to strengthen and reinforce structures</p> <p>To explore and use mechanisms [pneumatic systems], in their products.</p>	<p>To apply their understanding of how to strengthen and stiffen products</p> <p>To use electrical systems in their products [for example, series circuits incorporating switches and bulbs]</p> <p>To apply their understanding of computing to program, monitor and control their products</p>	<p>To apply their understanding of how to strengthen, stiffen and reinforce more complex structures</p> <p>To understand and use electrical systems in their products [for example, series circuits incorporating switches and motors]</p> <p>To know how a wide range of cams work and use them in their products.</p>	<p>To apply their understanding of how to strengthen, and reinforce more complex products</p> <p>To use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]</p>
Tools, materials and equipment		<p>Cooking equipment introduced in N</p> <ul style="list-style-type: none"> mixing bowls mixing spoons <p>Materials introduced in N</p> <ul style="list-style-type: none"> junk modelling card and plastics playdough PVA, glue stick, tape <p>Tools introduced in N</p> <ul style="list-style-type: none"> easy-grip scissors dough knives 	<p>Cooking equipment introduced in R</p> <ul style="list-style-type: none"> child-safe food knives <p>Materials introduced in R</p> <ul style="list-style-type: none"> wider choice of material textures treasury tags split pins wider choice of tape <p>Tools introduced in R</p> <p>hole punch</p>	<p>Cooking equipment introduced in Y1</p> <ul style="list-style-type: none"> measuring cups hands to mix grater <p>Materials introduced in Y1</p> <ul style="list-style-type: none"> art straws lolly sticks finished card <p>Tools introduced in Y1</p>	<p>Cooking equipment introduced in Y2</p> <ul style="list-style-type: none"> oven chopping boards electric weighing scales <p>Materials introduced in Y2</p> <ul style="list-style-type: none"> felt staples thread sequins wooden dowling wooden wheels <p>Tools introduced in Y2</p> <ul style="list-style-type: none"> plastic needles saws vices 	<p>Cooking equipment introduced in Y3</p> <ul style="list-style-type: none"> vegetable holder <p>Materials introduced in Y3</p> <ul style="list-style-type: none"> cotton fabric corrugated plastic <p>Tools introduced in Y3</p> <ul style="list-style-type: none"> measuring tape syringes tubing 	<p>Cooking equipment introduced in Y4</p> <ul style="list-style-type: none"> thermometer vegetable peeler <p>Materials introduced in Y4</p> <ul style="list-style-type: none"> a wider range of card finer thread <p>Tools introduced in Y4</p> <ul style="list-style-type: none"> smaller metal needles scoring tool electrical circuit tools and equipment 	<p>Cooking equipment introduced in Y5</p> <ul style="list-style-type: none"> oven gloves food hygiene equipment (sponges, soap, towels) <p>Materials introduced in Y5</p> <ul style="list-style-type: none"> corrugated plastic electrical motors cams <p>Tools introduced in Y5</p> <ul style="list-style-type: none"> hot-glue gun soft wood hack saw/bradle hand drill 	<p>Cooking equipment introduced in Y6</p> <ul style="list-style-type: none"> hob analogue weighing scales <p>Materials introduced in Y6</p> <ul style="list-style-type: none"> buttons templates <p>Tools introduced in Y6</p> <ul style="list-style-type: none"> STEM kit for fairground mechanisms project

Vocabulary	<p>Healthy</p> <p>Material</p> <p>safely</p>	<p>Hygiene</p> <p>Purpose</p> <p>Responsibly</p>	<p>Favourite, present, pictogram, examine, taste, describe, variety, design, evaluate, fruit, vegetable, safe/safely, hygienic.</p> <p>Kite, flown, image, detail, shape, colour, diamond, sleds, cellulars, rokkakus, deltas, para foils, inflatables, carp, Stunt, novelty, explore, materials, predict, festival, symbolises, instructions, construct, design, discuss, evaluate, recap.</p> <p>Explore, different, identify, investigate, combine, model, designing, materials, interior, features, create, construct, evaluate, product.</p>	<p>Different, favourite, healthy, food group, balanced diet, balanced plate, variety, food hygiene, toppings, important, design, instructions.</p> <p>Investigate, range, puppets, features, explanation, explore, material, sewing, skills, develop, fabric, running stitch, over stitch, material, decoration, needle, template, finger puppet, designing, product.</p> <p>Investigate, variety, vehicle, feature, definition, lorry, ambulance, car, wheels, axel, chassis, static axel, decorate, create, design.</p>	<p>Investigate, variety, familiar, object, techniques, pneumatic system, syringe, tubing, attached, preparation, creating, product, effectively, controlled, designing, making, evaluating, appearance, finished product.</p> <p>Photograph, frame, stable, design, investigate, free - standing, structure, objects, variety, identify, strengthening, joining, rolling, folding, layering, techniques, purpose, decorate, creative, evaluate, functional, stable, sturdy, wide base, purpose, high - quality, finished product.</p> <p>Sandwiches, healthy diet, favourite, discuss, healthiest, food pyramid, food group, balanced, vegetarian, breads, variety, examine, flavours, textures, granary, naan, pitta, baguette, packets, appealing, packaged, tasting, exploring, smell, purpose, designing, making, evaluating, instructions, demonstrate.</p>	<p>Investigate, range, pencil cases, designing, making, evaluating, practise, compare, sewing, stitches, joining, needles, pins, scissors, running stitch, back stitch, whip stitch, embellishments, attractive, functional, patterns, colours, designs, secure join, thread.</p> <p>Cook, British, ingredients, available, seasonal, Northern hemisphere, Southern hemisphere, globe, supermarkets, availability, benefits, problems, processed, commercially, climate, weather conditions, harvested, storing, ripening, healthy and varied diet, categorise, vitamins, minerals, fibres, food calendar, versatile, raw, cooked, products, dairy products, fish stocks, production, limited seasonality</p> <p>Features, torches, investigate, casing, switch, bulb, circuit, switches, conduct electricity, safe sturdy, insulating, battery, wires, bulb, safe, purpose, designing, making, evaluate, finished product.</p>	<p>Investigate, compare, describe, variety, invited, sensory characteristics, crunchy, sweet, savoury, plain, crumbly, mind map, taste, texture, appearance, particular purpose, chocolate chips, raisins, ginger, cocoa powder, recipe, decorate, specification, evaluate, finished product.</p> <p>Explore, pillars, beams, span, bridge, complex, supported, construction, purpose, cross - section, strongest, material, foundation, footbridge, investigate, effectiveness, trusses, strengthen, engineers, distributed, stone arch bridges, tension, compression, suitable material, distances, abutments, distributes, criteria, prototype, power station, analyse, evaluate.</p> <p>Investigate, movement, cam mechanism, cam, follower, rotary, linear, strengthening, structures, designing, sturdy structure, materials, card, dowelling, wood, boxes, decorated, evaluate, finished product</p>	<p>Nutrition facts, restaurant, prefer, healthy, predict, fat, carbohydrates, protein, calories, energy, balanced diet, patties, ingredients, chicken, beef, lamb, pork, vegetarian, pan-fried, grilled, oven-baked, steamed, sauces, side dishes, layers, toppings, suitability, gluten allergies, planning, designing, food safety, hygiene, instructions, recipes, evaluate.</p> <p>Familiar, products, rotating, fairground, mechanism, electric motors, electrical circuit, parts, pulley and belt systems, transfer, axle, various, preparation, examine.</p> <p>Range, shelter, materials, strongest, explore, combine materials, reinforce structures, straws, pipe cleaners, sculpture wire, sticky tape, strips of card, blu-tack, unsteady, sturdier, texture, fabric, evaluate, improve</p>
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