

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	Festivals and Celebrations Food Healthy Food Choices Moving picture - flap	Festivals and Celebrations Food Healthy Food Choices Envelope puppet	Making bread Moving pictures Playground structure	Healthy Pizza Space Rover Pirate Puppets	Nutritious Sandwich Library card purse Product packaging- Roman Artefact	Explorer's Nutritious Soup Wrekin Giant Moving pictures Explorer's torch	Seasonal Stew Controllable battery-operated vehicle Pedestrian Bridge	Pasta sauce for home cooking RAF Cosford- pulley, levers and gears Christmas stockings	
NC Attainment targets Subject content	Personal, Social and Emotional development. 0 - 3 years and 3-4 years Development matters Birth to 5.	Personal, Social and Emotional development Reception ELG. Development matters Birth to 5.	<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 Subject content		Expressive arts and design 0-3 years and 3-4 years Development matters Birth to 5.	Expressive Arts and Design - Creating with materials Reception ELG. Development matters Birth to 5.	<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, templates, mock-ups and, where appropriate, information and communication technology 		<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 			
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 using all senses. To manipulate and play with different materials. To use imagination to consider what can be done with different materials.	Explore different materials freely, in order to develop their ideas about how to use them and what to make. To develop own ideas and then decide which materials to use to express them.	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		Expressive arts and design 0-3 years and 3-4 years Development matters Birth to 5.	Expressive Arts and Design - Creating with materials Reception ELG. Development matters Birth to 5.	<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 make simple models which express ideas.</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 return to and build on previous learning, refining ideas and developing abilities to represent them.</p> <p>To create collaboratively sharing ideas, resources and skills.</p> <p>Create closed shapes with continuous lines, and begin to use these shapes to represent objects.</p> <p>To join materials and explore different textures.</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		Expressive Arts and Design - Creating with materials Reception ELG . Development matters Birth to 5.	<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.	To explore objects and designs to identify likes and dislikes To disassemble products to evaluate the product prior to designing own model To evaluate their own ideas and products	To explore and evaluate a range of existing products, suggesting improvements To evaluate their own ideas and products against design criteria	To investigate existing products To self-evaluate own products made	To investigate and analyse existing products To evaluate their ideas and products against their own design criteria	To investigate and analyse a range of existing products To evaluate their ideas and products against their own design criteria and consider the views of others to improve their work	To research, investigate and analyse a range of existing products To self and peer evaluate ideas and products against design criteria to improve product
NC Attainment targets Subject content		Expressive arts and design 0-3 years and 3-4 years Development matters Birth to 5.	Expressive Arts and Design - Creating with materials Reception ELG. Development matters Birth to 5. 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 computing to program, monitor and control their products (Crumble Kit)	To understand electrical systems to support product	To understand mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
	Skills	To use one-handed tools and equipment, for example, making snips in paper with scissors. To explore different materials freely, in order to develop their ideas about how to use them and what to make.	To safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function To use a range of small tools, including scissors and paint brushes	To build structures, exploring how they can be made stronger and stiffer To explore and use mechanisms [levers and sliders], in their products.	To build or make products, exploring how they can be made stronger, stiffer and more stable To explore and use mechanisms [wheels and axles], in their products.	To use their understanding of how to strengthen and reinforce structures	To apply their understanding of how to strengthen and stiffen products To use electrical systems in their products [for example, series circuits incorporating switches and bulbs] To apply their understanding of computing to program, monitor and control their products	To apply their understanding of how to strengthen, stiffen and reinforce more complex structures To understand and use electrical systems in their products [for example, series circuits incorporating switches and motors]	To apply their understanding of how to strengthen, and reinforce more complex products To use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
Vocabulary		Healthy Material safely	Hygiene Purpose Responsibly	Stable Slider, lever, mechanism, strengthen, weak	Varied diet Function Axle, chassis	Seasonality Technique, purpose	Utensil Cross sectional Control	Reared Hygienically Computer aided design (CAD) Motor	Gears, pulleys, linkages

Tools, materials and equipment	Cooking equipment introduced in N <ul style="list-style-type: none"> • mixing bowls • mixing spoons 	Cooking equipment introduced in R <ul style="list-style-type: none"> • child-safe food knives 	Cooking equipment introduced in Y1 <ul style="list-style-type: none"> • measuring cups • hands to mix • grater 	Cooking equipment introduced in Y2 <ul style="list-style-type: none"> • oven • chopping boards • electric weighing scales 	Cooking equipment introduced in Y3 <ul style="list-style-type: none"> • vegetable holder 	Cooking equipment introduced in Y4 <ul style="list-style-type: none"> • thermometer 	Cooking equipment introduced in Y5 <ul style="list-style-type: none"> • oven gloves • food hygiene equipment (sponges, soap, towels) 	Cooking equipment introduced in Y6 <ul style="list-style-type: none"> • hob • analogue weighing scales •
	Materials introduced in N <ul style="list-style-type: none"> • junk modelling card and plastics • playdough • PVA, glue stick, tape 	Materials introduced in R <ul style="list-style-type: none"> • wider choice of material textures • treasury tags • split pins • wider choice of tape 	Materials introduced in Y1 <ul style="list-style-type: none"> • art straws • lolly sticks • finished card 	Materials introduced in Y2 <ul style="list-style-type: none"> • felt • staples • thread • sequins • wooden dowling • wooden wheels 	Materials introduced in Y3 <ul style="list-style-type: none"> • cotton fabric 	Materials introduced in Y4 <ul style="list-style-type: none"> • a wider range of card 	Materials introduced in Y5 <ul style="list-style-type: none"> • corrugated plastic • electrical motors 	Materials introduced in Y6 <ul style="list-style-type: none"> • buttons • templates
	Tools introduced in N <ul style="list-style-type: none"> • easy-grip scissors • dough knives 	Tools introduced in R <ul style="list-style-type: none"> • hole punch 	Tools introduced in Y1	Tools introduced in Y2 <ul style="list-style-type: none"> • needles • saws • vices 	Tools introduced in Y3 <ul style="list-style-type: none"> • measuring tape 	Tools introduced in Y4 <ul style="list-style-type: none"> • scoring tool • electrical circuit tools and equipment 	Tools introduced in Y5 <ul style="list-style-type: none"> • hot-glue gun • soft wood cutting shears • hand drill 	Tools introduced in Y6 <ul style="list-style-type: none"> • STEM kit for mechanisms project