



Inspire • Challenge • Achieve

Progression for Design and Technology

Purpose of study

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.

Early Learning Goals	Three – four year olds	Reception
<p><u>Physical Development – Fine Motor Skills</u></p> <ul style="list-style-type: none"> • Use a range of small tools, including scissors, paintbrushes and cutlery. <p><u>Expression Arts and Design – Creating with Materials</u></p> <ul style="list-style-type: none"> • Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. <p>Share their creations, explaining the process they have used.</p>	<p><u>Personal, Social and Emotional Development</u></p> <ul style="list-style-type: none"> • Select and use activities and resources, with help when needed. This helps them to achieve a goal they have chosen or one which is suggested to them. <p><u>Physical Development</u></p> <ul style="list-style-type: none"> • Use large-muscle movements to wave flags and streamers, paint and make marks. • Choose the right resources to carry out their own plan. • Use one-handed tools and equipment, for example, making snips in paper with scissors. <p><u>Understanding the World</u></p> <ul style="list-style-type: none"> • Explore how things work. <p><u>Expressive Arts and Design</u></p> <ul style="list-style-type: none"> • Make imaginative and complex ‘small worlds’ with blocks and construction kits, such as a city with different buildings and a park. • Explore different materials freely, in order to develop their ideas about how to use them and what to make. 	<p><u>Physical Development</u></p> <ul style="list-style-type: none"> • 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. <p><u>Expressive Arts and Design</u></p> <ul style="list-style-type: none"> • 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.

	<ul style="list-style-type: none"> • Develop their own ideas and then decide which materials to use to express them. • Create closed shapes with continuous lines, and begin to use these shapes to represent objects. 	
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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.

Strands	Year 1	Year 2
Design	I can design purposeful, functional, appealing products for themselves and other users based on design criteria I can generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology	
	I can use my own ideas to make something. I can make a simple plan before making.	I can think of an idea and plan what to do next.
Make	I can select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] I can select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics	
	I can make my model stronger	I can join materials and components in different ways.

	I can make a model that moves	I can measure material to use in a model or structure.
Evaluate	I can explore and evaluate a range of existing products I can evaluate their ideas and products against design criteria	
	I can explain to someone else how I want to make my product.	I can explain what went well with my work. I can explain why I have chosen specific textiles
Technical Knowledge	I can build structures, exploring how they can be made stronger, stiffer and more stable I can explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.	
	I can describe how something works I can choose appropriate resources and tools I can describe how freestanding structures can be made stronger, stiffer and more stable I can talk about the simple working characteristics of materials and components	I can choose foods and materials and explain why I have chosen them. I can say how a 3-D textiles product can be assembled from two identical fabric shapes I can use the correct technical vocabulary for the projects they are undertaking I can talk about the movement of simple mechanisms such as levers, sliders, wheels and axles
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.	

	<ul style="list-style-type: none"> - use the basic principles of a healthy and varied diet to prepare dishes - understand where food comes from 	
	<p>I can cut food safely</p> <p>I can identify that all food comes from plants or animals</p> <p>I know that food has to be farmed, grown elsewhere (e.g. home) or caught</p> <p>I can name and sort foods into the five groups in The eatwell plate</p> <p>I can know to eat at least five portions of fruit and vegetables every day</p>	<p>I can describe the ingredients I am using.</p> <p>I can describe that food ingredients should be combined according to their sensory characteristics</p> <p>I can prepare simple dishes safely and hygienically, without using a heat source</p> <p>I can use techniques such as cutting, peeling and grating</p>

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.

Strands	Year 3	Year 4	Year 5
Design	<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 • investigate and analyse a range of existing products 		
	<ul style="list-style-type: none"> • I can gather information about the needs and wants of particular individuals and groups • I can design a product and make sure that it looks attractive. • I can choose a textile for both its suitability and its appearance. • I can model their ideas using prototypes and pattern pieces • I can share and clarify ideas through discussion 	<ul style="list-style-type: none"> • I can use ideas from other people when I am designing. • I can produce a plan and explain it. • I can use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas 	<ul style="list-style-type: none"> • I can come up with a range of ideas after collecting information from different sources. • I can produce a detailed, step-by-step plan. • I can explain how a product will appeal to a specific audience. • I can use computer-aided design to develop and communicate their ideas

Make	<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 		
	<ul style="list-style-type: none"> • I can follow a step-by-step plan, choosing the right equipment and materials. • I can work accurately to measure, make cuts and make holes. 	<ul style="list-style-type: none"> • I can present a product in an interesting way. • I can measure accurately. • I can make a product which uses both electrical and mechanical components 	<ul style="list-style-type: none"> • I can make a prototype before making a final version. • I can use a range of tools and equipment competently.
Evaluate	<ul style="list-style-type: none"> • 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 		
	<ul style="list-style-type: none"> • I can prove that my design meets some set criteria. 	<ul style="list-style-type: none"> • I can evaluate and suggest improvements for my designs. • I can evaluate products for both their purpose and appearance. • I can explain how I have improved my original design 	<ul style="list-style-type: none"> • I can evaluate appearance and function against original criteria. • I can suggest alternative plans; outlining the positive features and draw backs.
Technical Knowledge	<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] 		

	<ul style="list-style-type: none"> • 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. 		
	<ul style="list-style-type: none"> • I can select the most appropriate tools and techniques for a given task. • I can use mechanical systems such as levers and linkages or pneumatic systems create movement • I know how to make strong, stiff shell structures 	<ul style="list-style-type: none"> • I can persevere and adapt my work when my original ideas do not work. • I can make simple electrical circuits and components can be used to create functional products 	<p>I know how to program a computer to control their products</p> <p>I can explain that a single fabric shape can be used to make a 3D textiles product</p>
<p>Cooking and nutrition</p>	<p>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.</p> <p>Across Key stage 2</p> <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. 		
	<ul style="list-style-type: none"> • I can describe how food ingredients come together • I can describe that a healthy diet is made up from a variety and balance of 	<ul style="list-style-type: none"> • I know how to be both hygienic and safe when using food. • I can describe that to be active and healthy, food and 	<ul style="list-style-type: none"> • I can explain that recipes can be adapted to change the appearance, taste, texture and aroma

	<p>different food and drink, as depicted in The eatwell plate</p>	<p>drink are needed to provide energy for the body</p> <ul style="list-style-type: none"> • I can explain that seasons may affect the food available • I can describe how food is processed into ingredients that can be eaten or used in cooking • I can use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking 	<ul style="list-style-type: none"> • I can explain that different food and drink contain different substances – nutrients, water and fibre – that are needed for health • I can describe that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world • I know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source
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