

Design Technology Progression

KS1:

Unit Name			Year 1		Year 2	
Strand	National Curriculum Objective		Freestanding Sculptures	Salads – Fruit and Veg.	Textiles	Mechanisms
Thinking like a Design Technician	Engage with creative and practical activities	Engage successfully and with increasing independence in the process of designing and making				
	Taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making	Ideas are communicated and clarified through action. Thought leads to action, resulting in further thought and action as pupils resolve design problems and address design opportunities				
	work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment	Carry out projects within contexts that add meaning, relevance and create motivating opportunities for learning. Engaging with contexts may involve visiting locations and people outside school, inviting experts into school and using media to enable pupils to explore less familiar surroundings. For example, in KS1 pupils may also work in contexts that are imaginary or story-based				
Design	design purposeful, functional, appealing products for themselves and other users based on design criteria	think about what their products are for, how they will work and whether they will be liked by intended users				
		think about who their products will be for. In KS1, users might include themselves, imaginary or story-based characters				
		think about what their product must do to be successful and use these criteria to inform their evaluation throughout the designing and making process				
	generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology	Learn a range of ways to develop their ideas. The techniques chosen should be appropriate for the product they are designing and making and the needs of the individual pupil. Some pupils may find it easier to develop this technique retrospectively by drawing their product when it has been completed				
		– when designing, KS1 pupils could, for example, use a basic paint program to draw the design for a coat for Teddy				
Make	select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]	have the opportunity to select from a range of tools, equipment and materials provided by their teacher				
		The range of tools and equipment used should be determined by the school. These should match the fine motor skills of the pupils.				
	select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics	design and make with all the materials specified. 'Ingredients' means food ingredients. Construction kits should be added to the list to help pupils design and make structures and mechanisms.				
Evaluate	explore and evaluate a range of existing products	opportunities to handle collections of existing products related to their projects.				
	evaluate their ideas and products against design criteria	Learn how to ask questions such as who the products are for, what they are for and how they work				

Technical Knowledge	build structures, exploring how they can be made stronger, stiffer and more stable	predominantly freestanding, including walls, towers and frameworks. Through exploring and assembling they should learn how to make structures stronger, stiffer and more stable.				
	explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.	advisable for pupils to use wheels and axles, and levers and sliders in KS1				

KS2

Unit Name			Year 3		Year 4		Year 5		Year 6	
Strand	National Curriculum Objective		Healthy and Varied Diets	Levers and Linkages	Electronics	Structures	Cooking and Nutrition	Control	Textiles	CAD
Think like a Design Technician	Engage with creative and practical activities	Engage successfully and with increasing independence in the process of designing and making								
	Taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making	Ideas are communicated and clarified through action. Thought leads to action, resulting in further thought and action as pupils resolve design problems and address design opportunities								
	work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment	Carry out projects within contexts that add meaning, relevance and create motivating opportunities for learning. Engaging with contexts may involve visiting locations and people outside school, inviting experts into school and using media to enable pupils to explore less familiar surroundings. For example, in KS1 pupils may also work in contexts that are imaginary or story-based								
Design	use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at individuals or groups	Could include the use of secondary sources, relevant websites, questionnaires, surveys and interviews								
		Develop and prioritise their own criteria and use these to evaluate their ideas and products throughout the designing and making process								
		Pupils given scope and encouraged to be original with their thinking, create products that are required to work in some way to be successful, and think about the features of their products that will be interesting and engaging for intended users								
		always think about the tasks that their products should perform								

		always create products with a specific client, consumer or a target group in mind								
	generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design	use of sketching techniques with related notes to develop, record and communicate their thinking								
		cross-sectional drawings are an effective technique when pupils want to show what their products will look like inside, for example the parts of a torch. Exploded diagrams enable pupils to communicate the components that will be used to build their products and the order of assembly, for example when designing battery-powered vehicles.								
		Draw shapes accurately, for example the nets for packaging. With the addition of text and graphics it can also help to ensure pupils' products have a high quality finish								
Make	select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately	pupils should be using appropriate tools, equipment and techniques with accuracy.								
	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 should design and make with all the materials specified, adding to those used in KS1. 'Ingredients' means food ingredients. Construction kits should be added to the list to help pupils design and make structures and mechanical systems.								
		functional properties – characteristics of materials and components that enable products to work effectively, for example strength, flexibility and electrical conductivity.								
		aesthetic qualities – characteristics of materials and components that make products pleasing to the user, for example, colour, pattern and texture.								
Evaluate	investigate and analyse a range of existing products	through asking a range of questions pupils should investigate, analyse and evaluate a range of existing products related to the product they will be designing and making.								
	evaluate their ideas and products against their own design criteria and consider the views of others to improve their work	wherever possible pupils should ask for feedback on their ideas and products from intended users								
	understand how key events and individuals in design and technology have helped shape the world	opportunities for pupils to research famous designers and inventors, and ground-breaking products should be integrated into investigative and evaluative activities								

Technical Knowledge	apply their understanding of how to strengthen, stiffen and reinforce more complex structures	include shell structures which have an outer skin to provide strength (e.g. packaging) and frame structures (e.g. tent frame) which are constructed using an arrangement of thin components.								
	understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]	think about the related components that make up mechanical systems, for example the levers, linkages and pivots in a moving picture. They should also think about the input movement used to operate the mechanism, the output movement produced by the mechanism and the process – how the mechanism changes the input movement into the output movement								
	understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]	think about the related components that make up electrical systems, for example the switch, bulb and batteries. They should also think about what type of input device, for example a toggle switch or push-to-make switch, they will use to control their product, what output device will be operated, for example a bulb or buzzer, and the process that causes input devices to control output devices.								
	apply their understanding of computing to program, monitor and control their products.	opportunities to use a computer to operate electrical products they design and make, for example creating a sequence to make an illuminated sign flash on and off in a repeating pattern. As they progress through KS2 they should also use switches or sensors to monitor products, for example a delayed reaction burglar alarm they have created and programmed								