



Design and Technology Progression Grid: Implementation

Design and Technology

Our narrative...

From little ideas and small creative steps; nurtured in St Mary Magdalen's, Seaham to the grand global designs which can make a world of difference. Creativity is allowing yourself to make mistakes; design is knowing which ones to keep.

	EYFS	Year 1 / 2	Year 3 / 4	Year 5 / 6
Design Contexts, uses and purposes	Pupils should be taught to: Select appropriate resources <ul style="list-style-type: none"> Use gestures, talking & arrangements of materials & components to show design Use language of designing & making (join, build, shape, longer, shorter, heavier etc.) 	Pupils should be taught to: <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 	Pupils should be taught to: <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 	
		To state the purpose of the design and the intended user To explore materials , make templates and mock- ups e.g. moving picture / lighthouse To generate own ideas for design by drawing on own experiences or from reading	To gather information about the needs and wants of particular individuals and groups To develop their own design criteria and use these to inform their ideas To research designs To share and clarify ideas through discussion To model their ideas using prototypes and pattern pieces 5,6,7 To use annotated sketches, cross-sectional drawings and diagrams To use computer-aided design	To carry out research , using surveys, interviews, questionnaires and web-based resources To identify the needs, wants , preferences and values of particular individuals and groups 23, 24, 25, 26, 27 To develop a simple design specification to guide their thinking To recognise when their products have to fulfil conflicting requirements To generate innovative ideas, drawing on research To make design decisions, taking account of constraints such as time, resources and cost To develop prototypes 10,11,12, 13, 14, 15



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Make		<ul style="list-style-type: none"> Construct with a purpose using a variety of resources Use simple tools and techniques Build construct with a wide range of objects Select tools & techniques to shape, assemble & join Discuss how to make an activity safe & hygienic Record experiences by drawing, writing & voice recording. Understand different media can be combined for a purpose 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> select from and use a range of tools and equipment to perform practical tasks [e.g. 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 characteristic 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> select from and use a wider range of tools and equipment to perform practical tasks [e.g. cutting, shaping, joining and finishing], accurately <p>5,6,7,8,9</p> <ul style="list-style-type: none"> 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 15,16, 17
	Planning		<p>To select from a range of tools and equipment explaining their choices</p> <p>To select from a range of materials and components according to their characteristics</p>	<p>To select tools and equipment suitable for the task</p> <p>To explain their choice of tools and equipment in relation to the skills and techniques they will be using</p> <p>To select materials and components suitable for the task</p> <p>Explain their choice of materials and components according to functional properties and aesthetic qualities</p> <p>To order the main stages of making</p> <p>To produce detailed lists of tools, equipment and materials that they need</p>
	Practical skills & techniques		<p>To follow procedures for safety</p> <p>To use and make own templates</p> <p>To measure, mark out, cut out and shape materials</p>	<p>Follow procedures for safety</p> <p>Use a wider range of materials and components, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components</p> <p>10,11,12, 13, 14, 15</p>



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			<p>and components</p> <p>To assemble, join and combine materials and components 15,16, 17</p> <p>To use simple fixing materials e.g. temporary – paper clips tape and permanent – glue, staples</p> <p>To use finishing techniques, including those from art and design</p>	<p>To measure, mark out, cut and shape materials and components with some accuracy</p> <p>To assemble, join and combine materials and components with some accuracy apply a range of finishing techniques, include those from art and design, with some accuracy</p>	<p>To accurately measure to nearest mm, mark out, cut and shape materials and components</p> <p>To accurately assemble, join and combine materials/ components</p> <p>To accurately apply a range of finishing techniques, including those from art and design</p> <p>To use techniques that involve a number of steps To demonstrate resourcefulness, e.g. make refinements</p>
Evaluate		<p>Adapt work if necessary</p> <p>Dismantle, examine talk about objects / structures</p> <p>Consider & manage some appropriate safety measures independently</p> <p>Talk about how things work</p> <p>Look at similarities / differences between objects/ materials/ tools</p> <p>Show an interest in technical toys</p> <p>Describe textures</p>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> • explore and evaluate a range of existing products • evaluate their ideas and products against design criteria 	<p>Pupils should be taught to:</p> <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 23, 24, 25, 26, 27 • understand how key events and individuals in design and technology have helped shape the world <p>10,11,12, 13, 14, 15</p>	
	Own ideas and Products		<p>To talk about their design ideas and what they are making</p> <p>To make simple judgements about their products and ideas against design criteria</p>	<p>To identify the strengths and weaknesses of their ideas and products</p> <p>To consider the views of others, including intended users, to improve their work</p> <p>To refer back to their design criteria as they design and make</p> <p>To use their design criteria to evaluate their completed products</p>	



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		<p>To suggest how their products could be improved</p> <p>To evaluate products and components used</p>	<p>To identify the strengths and weaknesses of their ideas and products</p> <p>To consider the views of others, including intended users, to improve their work</p>	<p>To critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make</p> <p>To compare their ideas and products to their original design specification</p>
	Existing Products		<p>To investigate - what products are, who they are for, how they are made and what materials are used 5,6,7</p>	<p>To investigate - how well products have been designed, how well products have been made, why materials have been chosen, what methods of construction have been used, how well products work, how well products achieve their purposes and how well products meet user needs and wants</p>
				<p>To investigate - who designed and made the products, where products were designed and made, when products were designed and made and whether products can be recycled or reused</p>
	Key events/ individuals			<p>Identify great designers and their work and use research of designers to influence work 17, 18, 20</p>



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<p>Technical knowledge</p>	<p>Making Products Work</p>		<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> • build structures, exploring how they can be made stronger, stiffer and more stable • explore and use mechanisms [e.g. levers, sliders, wheels and axles], in their products <p>For instance:</p> <p>To understand about the simple working characteristics of materials and components</p> <p>To understand about the movement of simple mechanisms including levers, sliders (Year 1) wheels and axles (Year 2)</p> <p>To understand that food ingredients should be combined according to their sensory characteristics</p> <p>To know the correct technical vocabulary for the projects they are undertaking</p> <p>To understand how freestanding structures can be made stronger, stiffer and more stable 5,6,7</p>	<p>Pupils should be taught to:</p> <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 [e.g. series circuits incorporating switches, bulbs, buzzers and motors] • apply their understanding of computing to program, monitor and control their products <p>For instance:</p> <p>To understand how to use learning from science and maths to help design and make products that work</p> <p>To know that materials have both functional properties and aesthetic qualities</p> <p>To know that materials can be combined and mixed to create more useful characteristics</p> <p>To know that mechanical and electrical systems have an input, process and output</p> <p>To use the correct technical vocabulary for the projects they are undertaking</p>



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				<p>To understand how levers and linkages or pneumatic systems create movement</p> <p>To understand how simple electrical circuits and components can be used to create functional products</p> <p>To understand how to program a computer to control their products</p> <p>To know how to make strong, stiff shell structures</p> <p>To know that a single fabric shape can be used to make a 3D textiles product</p> <p>To know that food ingredients can be fresh, pre-cooked and processed</p>	<p>To understand how cams, pulleys and gears create movement</p> <p>To understand how more complex electrical circuits and components can be used to create functional products</p> <p>To understand how to program a computer to monitor changes in the environment / control their products 32</p> <p>To know how to reinforce/strengthen a 3D framework</p> <p>To know that a 3D textiles product can be made from a combination of fabric shapes</p> <p>To know that a recipe can be adapted a by adding or substituting one or more ingredients</p>
Cooking and Nutrition	<p>Begin to understand some food preparation tools, techniques & processes</p> <p>Practice stirring, mixing, pouring, blending</p> <p>Discuss how to make an activity safe & hygienic</p> <p>Discuss use of senses</p> <p>Understand need for variety in food</p> <p>Begin to understand that eating well contributes to good health</p>	<p>Pupils should be taught to:</p> <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>Pupils should be taught to:</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 		



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	Where Food Comes From		To know where food comes from	To know 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	
	Food Preparation, Cooking and Nutrition		To use appropriate equipment to weigh and measure ingredients	To know that seasons may affect the food available 30, 31 Understand how food is processed into ingredients that can be eaten or used in cooking	
			To prepare simple dishes safely and hygienically , without using a heat sources	To know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source 33, 34	
			To use techniques such as cutting	To know how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking 28, 29	
			To name and sort foods into the five groups of the 'eat well' plate	To know that a healthy diet is made up from a variety and balance of different foods and drinks, as depicted in the 'eat well' plate	To know that recipes can be adapted to change the appearance, taste, texture and aroma
			To know that everyone should eat at least five portions of fruit and vegetables every day	To know that to be active and healthy , food is needed to provide energy for the body	To know that different foods contain different substances - nutrients, water and fibre - that are needed for health
				To measure - using grams	To understand the need for correct storage
				To follow a recipe	To measure accurately To work out ratios in recipes

Links to our school & community

1. Seaham Lighthouse & pier
2. The Lookout
3. St Mary Magdalen's Church
4. Seaham Hall
5. Ray Lonsdale (2 Rubber Things) Tommy, The Coxwain & Gan Canny
6. The Brothers- waitin' t gan down
7. Totem Pole –
8. Haiku Post –
9. Funky Chunky – handcrafted wood specialists
10. Nissan- Monozukuri caravan
11. NSK
12. Liebherr
13. Caterpillar
14. Dyson Challenge



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15. Pit Banners – St John's
16. Textiles display – the Art Block
17. Sunderland Winter Gardens Museum- Grayson Perry
18. Pyrex
19. Funky sustainable street style clothing

20. Glass Centre – glass demonstrations & fusing, sea sculptures, sand casting
21. Gavin Hardy – Seaham Waves Sea glass
22. Middlesbrough MIMA
23. Michelle Harland Seaham projects
24. Rochelle Charlton Lainé
25. Liz Million
26. Helen Pickard ceramics
27. Mark Domenech
28. David Spence Seaham High
29. St Bede's
30. Lobster & Crab fishers@marina
31. Hall St allotment association
32. SockMonkey studios – independent design game studio
33. Ozone Hemp Café
34. Clean Bean