

Summerseat Steps in Learning – Design and Technology

Summerseat Steps in Learning – Design and Technology					
Nursery	Reception	Key Stage One		Lower Key Stage Two	Upper Key Stage Two
Designing					
<i>Designing</i>		<i>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.</i>		<i>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.</i>	
<p>Explore how things work.</p> <p>Explore different materials freely, to develop their ideas about how to use them and what to make.</p>	<p>Talk about ideas. Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</p>	<p>Use own ideas to design something and describe how their own idea works. Design products that appeal to other users based on design criteria. Explain to someone else how they want to make their product and make a simple plan before making. Make a basic next step planning sheet. Use drawings to communicate ideas. Explain why they have chosen specific materials. Use a computer programme to support planning. Use a template to aid accuracy of design. Make a mock design before the final product.</p>	<p>Use ideas from other people and designs when planning and designing. Produce a plan and explain the design with reasons why it meets the criteria. Communicate ideas in a range of different ways including working drawings and annotation on drawings to generate, develop and extend ideas. Ensure product design is attractive and materials have been chosen for appearance and suitability. Demonstrate an ability to adapt original ideas if they do not work.</p>	<p>Form ideas through research and collecting information from a range of different sources including market research where appropriate in order to create functional and appealing products. Produce a detailed, step by step plan. Use working drawings, annotated sketches, cross-sectional and exploded diagrams to generate, develop and communicate ideas. Explain how the product will appeal to others with a specific audience in mind. Refine and adapt planning during designing process and use planning during making process. Make a prototype before making a final product.</p>	
Making					
<i>Exploring and making</i>		<i>When making, select from and use a range of tools and equipment to perform practical tasks for example, cutting, shaping, joining and finishing. According to their characteristics, select from and use a wide</i>		<i>When making, select from and use a wider range of tools and equipment to perform practical tasks accurately for example when cutting, shaping, joining and finishing. According to their functional properties and aesthetic qualities, select from and use a wide range of materials and components, including construction materials, textiles and ingredients.</i>	

		<i>range of materials and components including construction materials, textiles and ingredients.</i>		
<p>Use one-handed tools and equipment, for example, making snips in paper with scissors.</p> <p>Select shapes appropriately: flat surfaces for building, a triangular prism for a roof, etc.</p> <p>Combine shapes to make new ones – an arch, a bigger triangle, etc.</p> <p>Develop their own ideas and then decide which materials to use to express them.</p> <p>Join different materials and explore</p>	<p>Make models using different construction materials such as construction kits and reclaimed materials.</p> <p>Experiment with different ways to build, construct and join resources.</p> <p>Use manipulation and control when using tools and equipment.</p> <p>Create collaboratively, sharing ideas, resources and skills.</p> <p>Develop their small motor skills so that they can use a range of tools competently, safely and confidently.</p> <p>Use a range of small tools, including scissors, paint brushes and cutlery.</p>	<p>Choose appropriate materials, tools and equipment to perform practical tasks and explain why they have chosen them.</p> <p>Use measurement for accuracy.</p> <p>Join materials and components together using different ways.</p> <p>Make a finished product which moves.</p> <p>Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.</p>	<p>Follow a step-by-step plan, choosing the right equipment and materials.</p> <p>Know which tools and equipment to use to perform practical tasks and show knowledge of handling the tool. (e.g. when cutting, shaping, joining, finishing)</p> <p>Know which material is likely to give the best outcome.</p> <p>Work accurately to measure, make cuts and make holes.</p> <p>Make a product which uses both electrical and mechanical component.</p> <p>Select materials and components appropriately from a wide range based on their appearance and function including construction materials, textiles and ingredients.</p>	<p>Know what tools are used for and explain why it is being used for a specific action.</p> <p>Use a range of tools and equipment competently and safely to perform practical tasks and know which tool is most suitable for the task (i.e. when cutting, shaping, joining and finishing)</p> <p>Select materials and components appropriately from a wide range based on their appearance and function including construction materials, textiles and ingredients.</p>

different textures.								
Evaluating								
<i>Evaluating</i>		<i>Explore and evaluate a range of existing products as well as evaluating their ideas and products against design criteria.</i>		<i>Investigate and analyse a range of existing products. Evaluating their ideas and products against their own design criteria as well as considering the views of others to improve their work. Understand how key events and individuals in design and technology have helped shape the world.</i>				
Share their creations with peers and adults.	Share their creations, explaining the process they have used. Return to and build on their previous learning, refining ideas and developing their ability to represent them.	Explore and evaluate existing products. Explain how their finished product works. Explain what went well or works well in their finished product. Explain what has not worked well or challenges faced in their finished product. Evaluate against a design criterion.	Explore and evaluate existing products. Evaluate and know why a finished product has, or has not, been successful. Evaluate products for both their purpose and appearance. Evaluate and suggest improvements for design. Explain how the original design has been improved. Understand how key inventors and developers have shaped the world. Present a finished product in an interesting way such as through the use of packaging.	Explore and evaluate existing products. Suggest alternative plans; outlining the positive features and draw backs. Evaluate appearance and function against original, clear criteria. Know how to test and evaluate designed products. Consider the views of others in evaluation. Explain how products should be stored and give reasons. Present a finished product in an interesting way such as through the use of packaging. Understand how key inventors and developers have shaped the world.				
Technical Knowledge								
<i>Tools, equipment and safety</i>		<i>Build structures by exploring how they can be made stronger, stiffer and more stable. Explore and use mechanisms such as levers, sliders, wheels and axles in their products.</i>		<i>Apply their understanding of how to strengthen, stiffen and reinforce more complex structures. Understand and use mechanical systems in their products such as gears, pulleys, cams, levers and linkages. Understand and use electrical systems in their products such as series circuits incorporating switches, bulbs, buzzers and motors. Apply their understanding of computing to program, monitor and control their products.</i>				
Nursery	Reception	KS1 A	KS1 B	LKS2 A	LKS2 B	UKS2 A	UKS2 B	
Structures								
Select shapes appropriately: flat	Use equipment and tools to build,	Make their own product stronger,	Make their own product stronger,	Know how to strengthen a product	Know how to strengthen a product	Use knowledge to improve a made	Use knowledge to improve a made	

<p>surfaces for building, a triangular prism for a roof, etc.</p> <p>Combine shapes to make new ones – an arch, a bigger triangle, etc.</p> <p>Use equipment and tools to build, construct and make simple models and constructions.</p> <p>Choose the right resources to carry out their own plan. For example, choosing a spade to enlarge a small hole they dug with a trowel.</p> <p>Collaborate with others to manage large items, such as moving a long plank safely, carrying large hollow blocks.</p>	<p>construct and make simple models and constructions.</p> <p>Safely use and explore a variety of materials, tools and techniques, experimenting with design, form and function.</p>	<p>stiffer and more stable.</p> <p>Use materials to practise drilling, screwing, gluing and nailing materials to make and strengthen products.</p>	<p>stiffer and more stable.</p>	<p>by stiffening a given part or reinforce a part of a more complex structure.</p> <p>Choose suitable techniques to construct products or to repair items.</p>	<p>by stiffening a given part or reinforce a part of a more complex structure.</p>	<p>product by strengthening, stiffening or reinforcing.</p> <p>Develop a range of practical skills to create products (such as cutting, drilling and screwing, nailing, gluing, filing and sanding).</p>	<p>product by strengthening, stiffening or reinforcing.</p> <p>Develop a range of practical skills to create products (such as cutting, drilling and screwing, nailing, gluing, filing and sanding).</p>
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Mechanisms							
<p>Use small construction to investigate working mechanisms.</p> <p>Make pop-up mechanisms.</p> <p>Use split pins.</p>	Use a hinge in a product.	Use levers and sliders in a product.	<p>Use wheels and axels in a product.</p> <p>Explore winding mechanisms.</p>	<p>Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears).</p>	<p>Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears).</p>	<p>Know how to link scientific knowledge with design by using mechanical systems.</p> <p>Convert rotary motion to linear using cams.</p> <p>Understand and use mechanical systems in their products such as gears, pulleys, cams, levers and linkage.</p>	<p>Know how to link scientific knowledge with design by using mechanical systems.</p> <p>Convert rotary motion to linear using cams.</p> <p>Understand and use mechanical systems in their products such as gears, pulleys, cams, levers and linkage.</p>
Electrical Systems							
	/	/	/		<p>Know how to link scientific knowledge with design by using lights, switches or buzzers.</p> <p>Use electrical systems to enhance the quality of the product.</p>		<p>Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]</p> <p>Apply their understanding of computing to program, monitor and control their products.</p>

IT to Support							
				<p>Use a simple IT program within the design. Use IT, where appropriate, to add to the quality of the product.</p>	Use IT, where appropriate, to add to the quality of the product.	<p>Use a simple IT program within the design. Use more complex IT program to help enhance the quality of the product produced.</p>	Know which IT product would further enhance a specific product.
Textiles							
<p>Join different materials and explore different textures.</p> <p>Develop their own ideas and then decide which materials to use to express them.</p>	<p>Show experience in simple weaving techniques.</p> <p>Develop their small motor skills so that they can use a range of tools competently, safely and confidently.</p>	<p>Shape textiles using templates.</p> <p>Join textiles using running stitch.</p> <p>Colour and decorate textiles using a number of techniques (<i>such as dyeing, adding sequins or printing</i>).</p>			<p>Understand the need for a seam allowance.</p> <p>Join textiles with appropriate stitching.</p> <p>Select the most appropriate techniques to decorate textiles.</p>		<p>Create objects (such as a cushion) that employ a seam allowance.</p> <p>Join textiles with a combination of stitching techniques (such as back stitch for seams and running stitch to attach decoration).</p> <p>Use the qualities of materials to create suitable visual and tactile effects in the decoration of textiles</p>
Food Technology							
<i>Tools</i>		<i>Use the basic principles of a healthy and varied diet to prepare dishes as well as understanding where food comes from.</i>		<i>Understand and apply the principles of a healthy and varied diet to 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.</i>			
Use handwashing techniques before	Safely use and explore a variety	Use the basic principles of a healthy and varied diet to prepare dishes.		Describe how food ingredients come together. Weigh out ingredients and follow a given recipe	Be both hygienic and safe in the kitchen. Know how to prepare a meal by collecting		

<p>preparing snack during their daily routine.</p> <p>Have knowledge of fruits and vegetables that need peeling and preparing.</p> <p>Develop their small motor skills so that they can use a range of tools during role play.</p>	<p>of tools and equipment linked to food preparation in role play.</p> <p>Develop their small motor skills so that they can use a range of tools competently, safely and confidently.</p> <p>Use a range of small tools, including scissors, paint brushes and cutlery.</p>	<p>Know where the ingredients used in the recipe come from.</p> <p>Cut and chop food safely.</p> <p>Weigh ingredients to use in a recipe.</p> <p>Describe the ingredients being used in a recipe.</p>	<p>to create a dish.</p> <p>Talk about which food is healthy and which food is not and know the importance of a varied diet.</p> <p>Know when food is ready for harvesting.</p> <p>Know how to be both hygienic and safe when using food.</p> <p>Bring a creative element to the food product being designed.</p> <p>Begin to know how a variety of ingredients are grown, reared, caught and processed.</p>	<p>the ingredients in the first place.</p> <p>Know which season various foods are available for harvesting.</p> <p>Explain how food ingredients should be stored and give reasons.</p> <p>Work within a budget to create a dish.</p> <p>Understand the difference between a savoury and sweet dish.</p> <p>Know how a variety of ingredients are grown, reared, caught and processed.</p>
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