

DESIGN AND TECHNOLOGY – PROGRESS MAP

	FS1	FS2	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
<u>Context of study</u>	The Three Little Pigs, Barry fish with fingers, Recycling, Three Billy Goats Gruff, Gruffalo, Supertato, Bear Hunt, Very Hungry Caterpillar , Goldilocks		Structures (London landmarks)		Structures (Egyptians)		Structures (air raid shelters)	
			Mechanical Systems (The Journey)		Mechanical Systems (linkages)		Mechanical Systems (Cam mechanisms and automatons)	
			Textiles (puppet making)		Textiles (hunter/gather bags)		Computer aided design	
			Food (Chinese)		Food (Ancient Greeks)		Food (nutritional meals)	
<u>National Curriculum</u>	<p>DM Use one-handed tools and equipment, for example, making snips in paper with scissors. (PD)</p> <p>Select shapes appropriately: flat surfaces for building, a triangular prism for a roof etc. (M)</p> <p>Combine shapes to make new ones – an arch, a bigger triangle etc. (M)</p> <p>Make imaginative and complex ‘small worlds’ with blocks and</p>	<p>ELG Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. (EAD)</p> <p>Share their creations, explaining the process they have used. (EAD)</p>	<p>DESIGN 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</p> <p>MAKE Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]</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>EVALUATE</p>	<p>DESIGN 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.</p> <p>MAKE 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.</p> <p>EVALUATE 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.</p> <p>TECHNICAL KNOWLEDGE 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].</p>				

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	<p>construction kits, such as a city with different buildings and a park. (EAD)</p> <p>Explore different materials freely, to develop their ideas about how to use them and what to make. (EAD)</p> <p>Develop their own ideas and then decide which materials to use to express them. (EAD)</p> <p>Join different materials and explore different textures. (EAD)</p> <p>Make healthy choices about food, drink, activity and toothbrushing. (PSED)</p>		<p>Explore and evaluate a range of existing products. Evaluate their ideas and products against design criteria</p> <p>TECHNICAL KNOWLEDGE 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.</p> <p>COOKING AND NUTRITION Use the basic principles of a healthy and varied diet to prepare dishes. Understand where food comes from.</p>		<p>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.</p> <p>COOKING AND NUTRITION 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.</p>
<p><u>Significant/Diverse Individuals</u></p>	<p>Mr. Morland Paula Anthony Local industry workers</p>		<p>Christopher Wren Renzo Piano Julia Barfield and David Marks Ken Hom Larry Wood Jim Henson</p>	<p>Grayson Perry Paul Smith Nigella Lawson Jamie Oliver</p>	<p>Sir John Anderson Henri Maillardet Nadiya Hussain Tech designers at Adastral Park</p>

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<p><u>Design</u></p>	<p>I can explore different materials freely, in order to develop their ideas about how to use them and what to make.</p> <p>I can develop my own ideas and then decide which materials to use to express them.</p> <p>I can show an interest in and describe the texture of things.</p>	<p>I can create collaboratively sharing ideas, resources and skills.</p>	<p>Think of ideas, explain what they want to do and plan this using pictures and words.</p> <p>Develop a plan detailing what tools and materials they will use.</p>	<p>Think of ideas and describe their design using pictures, diagrams, models and words.</p> <p>Develop a plan detailing what tools and materials they will use and why.</p>	<p>Create a realistic design using research that meets a range of requirements using an accurately labelled sketch.</p> <p>Develop a step-by-step plan that details the order, equipment and tools needed.</p>	<p>Use research to develop criteria to design an innovative, functional and appealing product.</p> <p>Communicate a design through the use of annotated sketches and discussion.</p>	<p>Research a product need and collect information to inform the design process taking the end user's view into account.</p> <p>Create a range of plans and discuss the pros and cons of each.</p> <p>Develop and communicate their design through annotated sketches, cross-sectional and exploded diagrams.</p> <p>Explain how their product and the materials chosen will appeal to the audience.</p> <p>Develop a design using a mock-up</p>	<p>Research a product need and collect information to inform the design process taking the end user's view into account.</p> <p>Create a range of plans and discuss the pros and cons of each.</p> <p>Develop and communicate their design through annotated sketches, cross-sectional and exploded diagrams which work within constraints.</p> <p>To know how to use computer-aided design to model and communicate ideas in three-dimensions.</p>
<p><u>Make</u></p>	<p>I can join different materials and</p>	<p>I can use various construction</p>	<p>Select from and use a range of</p>	<p>Join materials/com</p>	<p>Select from and use a wider range</p>	<p>Select from and use a wider</p>	<p>Select from and use a</p>	<p>To use all previously learnt skills</p>

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	<p>explore different textures.</p> <p>I can join construction pieces together to build and balance.</p> <p>I can use various construction materials.</p> <p>I can join different materials together and explore different textures.</p> <p>I can make imaginative and complex 'small worlds' with block and construction kits such as a city with different buildings and a park.</p>	<p>materials and join them together to construct, build and balance.</p> <p>I can construct making enclosures and spaces.</p> <p>I can safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</p> <p>I can use various construction materials.</p> <p>I can begin to construct, stacking blocks vertically and horizontally, making enclosures and creating spaces.</p>	<p>tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing].</p> <p>That structures are made more stable through the use of foundations.</p> <p>Explain why they decided upon the tools they did for the task.</p>	<p>ponents together in different ways, selecting the different materials/components according to their properties.</p> <p>That materials can be reinforced by layering materials together.</p>	<p>of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately.</p> <p>That triangles are structurally strong shapes and can be used to reinforce joins.</p>	<p>range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately determining whether the finished product will be of good quality.</p>	<p>wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities.</p>	<p>accurately, changing the way their product is completed if necessary.</p>
Evaluate	I can talk about why things happen and how things work.	I can share my creations explaining the	Explore and evaluate their own and others products	Explore and evaluate their own and others	Investigate and analyse a range of existing products.	Evaluate a product, thinking of its	Evaluate ideas and products against the design criteria,	<p>.....</p> <p>Discuss how different materials or</p>

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		<p>process I have used.</p> <p>I can talk about why things happen and how things work.</p>	<p>including existing products.</p>	<p>products against design criteria, detailing what they would change if they were to do it again.</p>	<p>Detail and explain changes they made to their design and what they would change if they were to produce the same product again.</p>	<p>appearance and the way it works.</p> <p>Critically analyse their own and others designs to suggest improvements.</p> <p>Detail the ways in which it could be improved against the design criteria.</p>	<p>considering the views of others, with regards to appearance and function.</p>	<p>resources could be used to improve their product for its designed use.</p>
<u>Structures</u>			<p>Construct a freestanding structure.</p> <p>Ensure stability through the use of foundations.</p> <p>Reinforce structures using simple methods e.g. layering.</p>		<p>Use nets of simple shell structures.</p> <p>Reinforce structures using simple methods e.g. layering.</p>		<p>Use and construct frame structures.</p>	
<u>Mechanical Systems</u>			<p>Use and make wheels that move by using an axle</p> <p>Use and make fixed and free moving axles</p>		<p>Use and make lever and linkage mechanisms.</p> <p>Use and make fixed and loose pivots.</p>		<p>Use and make cams to produce different types of movement and change the direction of movement.</p>	
<u>Textiles</u>		<p>Simple weaving techniques using paper, twigs.</p>	<p>Thread a needle.</p> <p>Use a simple running stitch to join two pieces of material.</p> <p>Attach a decorative fabric item onto another piece of fabric by gluing</p>		<p>Use a running stitch and back stitch to join two pieces of material.</p> <p>Draw a pattern allowing for an allowance.</p> <p>Attach decorative items (e.g. beads, sequins) using thread.</p>		<p>Use a running stitch, back stitch and cross stitch to join two pieces of material.</p> <p>Draw a pattern accurately and allowing for an allowance.</p> <p>Attach a decorative fabric item onto another piece of fabric by sewing.</p>	

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<p><u>Cooking and nutrition</u></p>	<p>Weekly baking</p>		<p>Cut food Safely.</p> <p>Describe the texture of foods.</p> <p>Wash their hands and make sure that surfaces are clean.</p> <p>Describe the properties of the ingredients they are using.</p> <p>Explain what it means to be hygienic.</p>	<p>Choose the right ingredients for a product.</p> <p>Use equipment safely.</p> <p>Make sure that their product looks attractive.</p> <p>Describe how their combined ingredients come together.</p> <p>Know what to do to be hygienic and safe.</p>	<p>Describe what they do to be both hygienic and safe.</p> <p>Present their product well.</p> <p>To understand seasonality, where ingredients come from, how they are reared, caught, grown or processed</p> <p>To understand and apply the principles of a healthy and varied diet and demonstrate this through project design.</p>
<p><u>Vocabulary and definitions</u></p>	<p>Material- what something is made from.</p> <p>Ingredients – foods needed to cook.</p> <p>Equipment – items needed for a task.</p> <p>Language taught through examples and exploration of tactile objects: Rough Smooth Bendy Stiff Join Build Balance Mix Stack Because Cut Better Worse</p>	<p>Plan- decide how to do something</p> <p>Design- create an idea for making something</p> <p>Improve – make or become better.</p> <p>Diagram – a drawing showing the structure or workings of something.</p> <p>Label – a word or phrase to identify or classify.</p> <p>Model – a 3D representation.</p> <p>Tools – the equipment used for a particular function.</p> <p>Explain - give reasons for</p> <p>Explore - look at and ask questions</p> <p>Evaluate - deciding if things have been successful and what could be improved.</p> <p>Components – a part or element of a product.</p> <p>Design criteria – the aims of a project for it to be successful.</p>	<p>Realistic - a sensible idea of what can be made</p> <p>Research - finding out information</p> <p>Accurate - exact details or measurements</p> <p>Functional - designed to work and be useful</p> <p>Innovative - using new ideas</p> <p>Appealing - attractive or interesting</p> <p>Annotate - add notes to</p> <p>Analyse - examine in detail to give an explanation.</p> <p>Critically - looking at the positives and negatives</p> <p>Investigate - finding out information, usually following a plan</p> <p>Appearance - the way something looks</p> <p>Audience - the group of people it is meant for</p> <p>Characteristic - a feature of something</p>	<p>Viewpoint - the position or angle the object is looked at</p> <p>Pros - positive points</p> <p>Cons - negative points</p> <p>Cross-section - exposing the inside of a 3-D object, as if sliced.</p> <p>Exploded diagrams - shows the individual parts of a mechanism</p> <p>Constraints - a limit on what you can do</p> <p>Adapt - changing to suit a specific purpose</p>	

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		<p>Product - a finished object, often for sale.</p> <p>Properties - features of an object or material</p> <p>Hygiene – cleanliness to prevent illness.</p> <p>Construct- to build</p>		
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