



Design and Technology Learning Sequence

Early Years

<p>Understanding the world : Technology</p>	<p>Range 4: Operates mechanical toys, e.g. turns the knob on a wind-up toy or pulls back on a friction car Range 5: Shows an interest in technological toys with knobs or pulleys, real objects such as cameras, and touchscreen devices such as mobile phones and tablets. Shows skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images. Plays with a range of materials to learn cause and effect, for example, makes a string puppet using dowels and string to suspend the puppet Range 6: Completes a simple program on electronic devices. Uses ICT hardware to interact with age appropriate computer software. Can create content such as a video recording, stories, and/or draw a picture on screen. Develops digital literacy skills by being able to access, understand and interact with a range of technologies</p>
<p>Expressive Arts & Design: creating with materials</p>	<p>Range 4: Uses 3D and 2D structures to explore materials and/or to express ideas Range 5: Uses various construction materials, e.g. joining pieces, stacking vertically and horizontally, balancing, making enclosures and creating spaces. Uses tools for a purpose Range 6: Uses their increasing knowledge and understanding of tools and materials to explore their interests and enquiries and develop their thinking. Develops their own ideas through experimentation with diverse materials, e.g. light, projected image, loose parts, watercolours, powder paint, to express and communicate their discoveries and understanding ELG: Children at the expected level of development will: - Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function; - Share their creations, explaining the process they have used.</p>

Design, Make, Evaluate and Improve

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Design	Design products that have a clear purpose and an intended user. Use software to design. Communicate their ideas through talking, drawing, templates, mock-ups and where appropriate, information and communication technology.	Design products that have a clear purpose and an intended user. Use software to design. Communicate their ideas through talking, drawing, templates, mock-ups and where appropriate, information and communication technology.	Design with a purpose by identifying opportunities to design. Use software to design and present product designs	Design with a purpose by identifying opportunities to design. Use software to design and present product designs	Use prototypes, cross-sectional diagrams and computer aided designs to represent designs.	Design with the user in mind, motivated by the service a product will offer (rather than simply for profit).

Make	Make products, refining the design as work progresses	Make products, refining the design as work progresses	Make products by working efficiently (such as by carefully selecting materials).	Make products by working efficiently (such as by carefully selecting materials).	Make products through stages of prototypes making continual refinements	Ensure products have a high quality finish, using art skills where appropriate
Evaluate	Explore objects and designs to identify likes and dislikes of the designs.	Explore objects and designs to identify likes and dislikes of the designs.	Refine work and techniques as work progresses, continually evaluating the product design.	Refine work and techniques as work progresses, continually evaluating the product design.	Continually evaluate during the making process, refining for improvements.	Continually evaluate during the making process, refining for improvements.
Inspiration from designs throughout history	Suggest improvements to existing designs. Explore how products have been created.	Suggest improvements to existing designs. Explore how products have been created.	Identify some of the great designers in all of the areas of study (including pioneers in horticultural techniques) to generate ideas for designs Improve upon existing designs, giving reasons for choices. Disassemble products to understand how they work.	Identify some of the great designers in all of the areas of study (including pioneers in horticultural techniques) to generate ideas for designs Improve upon existing designs, giving reasons for choices. Disassemble products to understand how they work.	Combine elements of design from a range of inspirational designers throughout history, giving reasons for choices Create innovative designs that improve upon existing products Evaluate the design of products so as to suggest improvements to the user experience.	Combine elements of design from a range of inspirational designers throughout history, giving reasons for choices Create innovative designs that improve upon existing products Evaluate the design of products so as to suggest improvements to the user experience.

Technical Knowledge

Materials	<p>Cut materials safely using tools provided. Measure and mark out to the nearest centimetre. Demonstrate a range of cutting and shaping techniques (such as tearing, cutting, folding and curling). Demonstrate a range of joining techniques (such as gluing, hinges, or combining materials to strengthen.)</p>	<p>Fire engines & Puppets Cut materials safely using tools provided. Measure and mark out to the nearest centimetre. Demonstrate a range of cutting and shaping techniques (such as tearing, cutting, folding and curling). Demonstrate a range of joining techniques (such as gluing, hinges, or combining materials to strengthen.)</p>	<p>Shelters & Catapults Cut materials accurately and safely by selecting appropriate tools Measure and mark out to the nearest millimetre. Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut outs). Select appropriate joining techniques.</p>	<p>Pouches Cut materials accurately and safely by selecting appropriate tools Measure and mark out to the nearest millimetre. Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut outs). Select appropriate joining techniques.</p>	<p>Moving toys & Machinery Cut materials with precision and refine the finish with appropriate tools (such as sanding wood after cutting or a more precise scissor cut after roughly cutting out a shape). Show an understanding of the qualities of materials to choose appropriate tools to cut and shape (such as the nature of the fabric may require sharper scissors than would be used to cut paper.)</p>	<p>Plushie toys Cut materials with precision and refine the finish with appropriate tools (such as sanding wood after cutting or a more precise scissor cut after roughly cutting out a shape). Show an understanding of the qualities of materials to choose appropriate tools to cut and shape (such as the nature of the fabric may require sharper scissors than would be used to cut paper.)</p>
Textiles		<p>Puppets Join textiles using running stitch. Colour and decorate textiles using a number of techniques- adding sequins and buttons.</p>		<p>Pouches Understand the need for seam allowance. Join materials using appropriate stitches – back stitch. Select appropriate technique to decorate – cross stitch.</p>		<p>Plushie toys Create objects that employ a seam allowance. Join textiles with a combination of stitching techniques (such as back stitch for seams and running stitch for decoration) Use the qualities of materials to create visual and tactile effects in the decoration of textiles (such as soft decoration for comfort on a cushion.)</p>

Construction	Use materials to practise drilling, screwing, gluing and nailing materials to make and strengthen products.		Model Cave Shelters & Catapults Choose suitable techniques to construct products. Strengthen materials using suitable techniques.		Moving Toys & Machinery for moving & Lifting Develop a range of practical skills to create products (such as cutting, drilling and screwing, nailing, gluing, filling and sanding). Linkages	
Mechanical Systems		Fire Engines Create products using levers, wheels and winding mechanisms Linkages	Catapults Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product. (Such as levers, winding mechanisms, pulleys and gears.)		Moving Toys & Machinery for moving & Lifting Convert rotary motion to linear using cams. Use innovative combinations of electronics or computing and mechanics in product design.	
Electrical systems			Buzzer Game Create series and parallel circuits.			Burglar Alarms Create circuits using electronics kits that employ a number of components (such as LEDs, resistors, transistors and chips).
Computing				Coding to design a game Control and monitor using software designed for this purpose.		Burglar Alarms Write code to control and monitor models or products.

Food and Nutrition

Skills		<p>Fruit Salad Cut, peel or grate ingredients safely and hygienically Measure or weigh using cups or electronic scales Assemble or cook ingredients</p>		<p>Food from The Americas Prepare ingredients hygienically using appropriate utensils Measure ingredients to the nearest gram accurately Follow a recipe Assemble or cook ingredients (controlling the temperature of the oven or hob, if cooking)</p>	<p>Creating healthy alternatives to popular local food Understand the importance of correct storage and handling of ingredients (using knowledge of micro-organisms). Measure accurately and calculate ratios of ingredients to scale up or down from a recipe Demonstrate a range of baking and cooking techniques Create and refine recipes, including ingredients, methods, cooking times and temperatures.</p>	<p>Greek dishes Understand the importance of correct storage and handling of ingredients (using knowledge of micro-organisms). Measure accurately and calculate ratios of ingredients to scale up or down from a recipe Demonstrate a range of baking and cooking techniques Create and refine recipes, including ingredients, methods, cooking times and temperatures.</p>
Knowledge		<p>Fruit Salad Understand where food comes from Know the basic principles of a healthy and varied diet and use this knowledge when preparing dishes</p>		<p>Food from The Americas Understand the principles of a healthy and varied diet. Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.</p>		