



Whole School Progression of Skills

DESIGN AND TECHNOLOGY

EYFS	Key Stage One		Key Stage Two			
30 – 50 months 40 – 60+ months Early Learning Goals	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Design Objectives						
<p>Personal, Social and Emotional Development They are confident to speak in a familiar group, will talk about their ideas, and will choose the resources they need for their chosen activities.</p> <p>Children use what they have learnt about media and materials in original ways, thinking about uses and purposes. They represent their own ideas, thoughts and feelings through, art, music, dance, role play and stories.</p>	<p>Design purposeful, functional, appealing products for themselves and other users based on design criteria</p> <p>Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology</p>	<p>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</p> <p>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>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</p> <p>Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</p>			
Design Skills						
<p><u>30-50months:</u></p> <ul style="list-style-type: none"> - Can select and use activities and resources with help. - Developing preferences for forms of expression. <p><u>40-60+months:</u></p> <ul style="list-style-type: none"> - Confident to speak to others about own needs, wants, interests and opinions. 	<ul style="list-style-type: none"> - State the purpose of the design and the intended user - Explore materials, make templates and mock ups e.g. moving picture / lighthouse - Generate own ideas for design by drawing on own experiences or from reading 	<ul style="list-style-type: none"> - Gather information about the needs and wants of particular individuals and groups - Develop their own design criteria and use these to inform their ideas - Research designs - Share and clarify ideas through discussion - Model their ideas using prototypes and pattern pieces 	<ul style="list-style-type: none"> - Carry out research, using surveys, interviews, questionnaires and web-based resources - Identify the needs, wants, preferences and values of particular individuals and groups - Develop a simple design specification to guide their thinking - Recognise when their products have to fulfil conflicting requirements 			

		<ul style="list-style-type: none"> - Use annotated sketches, cross-sectional drawings and diagrams - Use computer-aided design 	<ul style="list-style-type: none"> - Generate innovative ideas, drawing on research - Make design decisions, taking account of constraints such as time, resources and cost - Develop prototypes
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Technical knowledge and making objectives

<p>Physical Development - Children show good control and coordination in large and small movements. They handle equipment and tools effectively, including pencils for writing.</p> <p>Children know the importance for good health of physical exercise, and a healthy diet, and talk about ways to keep healthy and safe.</p> <p>Expressive Arts & Design - Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</p> <p>- Children use what they have learnt about media and materials in original ways, thinking about uses and purposes. They represent their own ideas, thoughts and feelings through, art, music, dance, role play and stories.</p> <p>Understanding the World - Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.</p>	<p>Select from and use a range of tools and equipment to perform practical tasks [e.g. 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 characteristic</p> <p>Build structures, exploring how they can be made stronger, stiffer and more stable</p> <p>Explore and use mechanisms [e.g. levers, sliders, wheels and axles], in their products</p> <p>Use the basic principles of a healthy and varied diet to prepare dishes</p> <p>Understand where food comes from</p>	<p>Select from and use a wider range of tools and equipment to perform practical tasks [e.g. cutting, shaping, joining and finishing], accurately</p> <p>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>Apply their understanding of how to strengthen, stiffen and reinforce more complex structures</p> <p>Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]</p> <p>Understand and use electrical systems in their products [e.g. series circuits incorporating switches, bulbs, buzzers and motors]</p> <p>Apply their understanding of computing to program, monitor and control their products</p> <p>Understand and apply the principles of a healthy and varied diet</p> <p>Cook a repertoire of predominantly savoury dishes so that they are able to feed themselves and others a healthy and varied diet</p>	<p>Select from and use a wider range of tools and equipment to perform practical tasks [e.g. cutting, shaping, joining and finishing], accurately</p> <p>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>Apply their understanding of how to strengthen, stiffen and reinforce more complex structures</p> <p>Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]</p> <p>Understand and use electrical systems in their products [e.g. series circuits incorporating switches, bulbs, buzzers and motors]</p> <p>Apply their understanding of computing to program, monitor and control their products</p> <p>Understand and apply the principles of a healthy and varied diet</p> <p>Cook a repertoire of predominantly savoury dishes so that they are able to feed themselves and others a healthy and varied diet</p>
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		<p>Become competent in a range of cooking techniques [for example, selecting and preparing ingredients; using utensils and electrical equipment; applying heat in different ways; using awareness of taste, texture and smell to decide how to season dishes and combine ingredients; adapting and using their own recipes]</p> <p>Understand the source, seasonality and characteristics of a broad range of ingredients</p>	<p>Become competent in a range of cooking techniques [for example, selecting and preparing ingredients; using utensils and electrical equipment; applying heat in different ways; using awareness of taste, texture and smell to decide how to season dishes and combine ingredients; adapting and using their own recipes]</p> <p>Understand the source, seasonality and characteristics of a broad range of ingredients</p>
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Food Skills

<p><u>30-50months:</u></p> <p>- Can tell adults when hungry or tired or when they want to rest or play.</p> <p><u>40-60+months:</u></p> <p>- Eats healthy range of foodstuffs and understands need for variety in food.</p>	<ul style="list-style-type: none"> - Cut, peel or grate ingredients safely and hygienically. - Measure or weigh using measuring cups or electronic scales. - Assemble or cook healthy ingredients. - Understand where food comes from. 	<ul style="list-style-type: none"> - Prepare ingredients hygienically using appropriate utensils. - Measure ingredients to the nearest gram accurately. - Follow a recipe. - Assemble or cook healthy ingredients (controlling the temperature of the oven or hob, if cooking). 	<ul style="list-style-type: none"> - Understand the importance of correct storage and handling of ingredients (using knowledge of microorganisms). - 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 healthy seasonal ingredients, methods, cooking times and temperatures. - Understand how a variety of ingredients are grown, reared, caught and processed. - Understand and apply principles of a healthy and varied diet.
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Material Skills

<p><u>30-50months:</u></p> <p>- Uses one-handed tools and equipment, e.g. makes snips in paper with child scissors.</p> <p>- Captures experiences and responses with a range of media, such as music, dance and paint and other materials or words.</p>	<ul style="list-style-type: none"> - 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). 	<ul style="list-style-type: none"> - 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/ resources. 	<ul style="list-style-type: none"> - 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 fabric may require sharper scissors than would be used to cut paper).
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<ul style="list-style-type: none"> - Uses various construction materials. - Be interested and describe the texture of things. <p><u>40-60+months:</u></p> <ul style="list-style-type: none"> - Uses simple tools to effect changes to materials. - Handles tools, objects, construction, and malleable materials safely and with increasing control. - Create simple representations of events, people and objects. - Understands that different media can be combined to create new effects. - Uses simple tools and techniques competently and appropriately. - Selects appropriate resources and adapts work where necessary. - Selects tools and techniques needed to shape, assemble and join materials they are using. - Manipulates materials to achieve a planned effect. 	<ul style="list-style-type: none"> - Demonstrate a range of joining techniques (such as gluing, hinges or combining materials to strengthen). 		
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Textile Skills

<p><u>30-50months:</u></p> <ul style="list-style-type: none"> - Uses one-handed tools and equipment, e.g. makes snips in paper with child scissors. - Beginning to be interested in and describe the texture of things. <p><u>40-60+months:</u></p> <ul style="list-style-type: none"> - Uses simple tools to effect changes to materials. 	<ul style="list-style-type: none"> - Shape textiles using templates. - Join textiles using running stitch. - Colour and decorate textiles using a number of techniques (such as dyeing, adding sequins or printing). 	<ul style="list-style-type: none"> - Understand the need for a seam allowance. - Join textiles with appropriate stitching. - Select the most appropriate techniques to decorate textiles. 	<ul style="list-style-type: none"> - Create objects (such as a cushion) that employ a seam allowance. - Join textiles with a combination of stitching techniques (such as back stitch for seams and running stitch to attach decoration). - Use the qualities of materials to create suitable visual and tactile effects in the decoration of textiles (such as a soft decoration for comfort on a cushion).
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<ul style="list-style-type: none"> - Handles tools, objects, construction, and malleable materials safely and with increasing control. - Experiments to create different textures. - Understands that different media can be combined to create new effects. - Uses simple tools and techniques competently and appropriately. - Selects appropriate resources and adapts work where necessary. - Selects tools and techniques needed to shape, assemble and join materials they are using. 			
Electronic Skills			
		<ul style="list-style-type: none"> - Create series and parallel circuits. 	<ul style="list-style-type: none"> - Create circuits using electronics kits that employ a number of components (such as LEDs, resistors, transistors and chips.)
Computing Skills			
		<ul style="list-style-type: none"> - Control and monitor models using software designed for this purpose. 	<ul style="list-style-type: none"> - Understand how to program a computer to monitor changes in the environment / control their products
Construction Skills			
<p><u>30-50months:</u></p> <ul style="list-style-type: none"> - Uses one-handed tools and equipment, e.g. makes snips in paper with child scissors. - Uses various construction materials. - Beginning to construct, stacking blocks vertically and horizontally, making enclosures and creating spaces. 	<ul style="list-style-type: none"> - Use materials to practise drilling, screwing, gluing and nailing materials to make and strengthen products. 	<ul style="list-style-type: none"> - Choose suitable techniques to construct products or to repair items. - Strengthen materials using suitable techniques. 	<ul style="list-style-type: none"> - Develop a range of practical skills to create products (such as cutting, drilling and screwing, nailing, gluing, filling and sanding).

- Join construction pieces together to build and balance.

40-60+months:

- Uses simple tools to effect changes to materials.

- Handles tools, objects, construction, and malleable materials safely and with increasing control.

- Selects appropriate resources and adapts work where necessary.

- Selects tools and techniques needed to shape, assemble and join materials they are using.

- Constructs with a purpose in mind, using a variety of resources.

Mechanical Skills

30-50months:

- Shows an interest in technical toys with knobs or pulleys, or real objects such as cameras or mobile phones.

- Shows skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new things.

40-60+months:

- Use ICT software to interact with age appropriate computer software.

- Create products using levers, wheels and winding mechanisms.

- Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears.)

- Convert rotary motion to linear using cams.

- Use innovative combinations of electronics (or computing) and mechanics in product designs.

Evaluating Objectives

Expressive Arts & Design

Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

Communication and Language

Use past, present and future forms accurately when talking about events that have happened or are to happen in the future. They develop their own explanations by connecting ideas or events.

30-50months:

- Uses vocabulary that reflects the breadth of their experiences.
- Questions why things happen and gives explanations. Asks e.g. who, what, when and how.

40-60+months:

- Selects appropriate resources and adapts work where necessary.
- Uses talk to organise, sequence and clarify thinking, ideas, feelings and events.

Explore and evaluate a range of existing products

Evaluate their ideas and products against design criteria

- Talk about their design ideas and what they are making
- Make simple judgements about their products and ideas against design criteria
- Suggest how their products could be improved
- Evaluating products and components used
- Investigate - what products are, who they are for, how they are made and what materials are used

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

- Identify the strengths and weaknesses of their ideas and products
- Consider the views of others, including intended users, to improve their work
- Refer back to their design criteria as they design and make
- Use their design criteria to evaluate their completed products
- Identify the strengths and weaknesses of their ideas and products
- Consider the views of others, including intended users, to improve their work
- Investigate - how well products have been designed and made, why materials have been chosen, what methods of construction have been used, how well products work, how well products achieve their purposes and meet user needs and wants
- 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
- Identify great designers and their work and use research of designers to influence work

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

- Identify the strengths and weaknesses of their ideas and products
- Consider the views of others, including intended users, to improve their work
- Refer back to their design criteria as they design and make
- Use their design criteria to evaluate their completed products
- Critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make
- Compare their ideas and products to their original design specification
- Investigate - how well products have been designed and made, why materials have been chosen, what methods of construction have been used, how well products work, how well products achieve their purposes and meet user needs and wants
- Investigate - how much products cost to make, how innovative products are and how sustainable the materials in products are
- Identify great designers and their work and use research of designers to influence work

Subject specific vocabulary

Designing Vocabulary

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Design Designer Ideas	Plan Product Explain	Design Criteria Materials Template Sketch	Purpose Annotate Function Suitability Appealing Product Attach Research	Adapt Measurements Prototype Centimetres Millimetres	Step-by-step User Cross-sectional Process Sources	Market research Intended user Innovation Exploded diagram Technology

Technical knowledge and making objectives

Make Cut Strong join Ingredients Healthy Cook Taste Explain	Moving picture Lever Pivot Mechanism Glue Fix Tape Mix Stir Chef Hygiene Chopping board Peel Grate Evaluate	Stable Choose Construct Balanced Pattern piece Pin Thread Needle Textiles Measure Grams Recipe Texture Oven temperature Slice Utensils Improvement Reason	Pattern piece Embroidery Running stitch Cross stitch Pattern piece Linkage Accurate Technique Quality Rolling Shaping Reinforce Bacteria Germs Savoury Sweet Bake Knead Dough Successful Investigate Analyse	Packaging Accuracy Product designer Algorithm Program Graphic designer Loose pivot Fixed pivot Strengthen Gears Pulleys Dice Varied Diet Protein Carbohydrate Fat Dairy Appearance Views Purpose Justify	Seam allowance Back stitch Frame structure Fabric scissors cams Functional Caught Reared Grown Processed Ripe Seasoned Chilled Fry Positive features Functionality Draw backs	Mechanical system Triangulation Tension Competently Rotary motion Cooking technique Local produce Cross-contamination Stale Rancid Mouldy Expiration date See previous year groups
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