




**EYFS – Expressive Arts and Design • Physical Development**

 Prerequisite skills for design technology within the national curriculum

<b>ELG</b>	<b>Creating with materials</b>	<b>Fine Motor Skills</b>
	<ul style="list-style-type: none"><li>• Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</li><li>• Share their creations, explaining the process they have used.</li><li>• Make use of props and materials when role playing characters in narratives and stories.</li></ul>	<ul style="list-style-type: none"><li>• Use a range of small tools, including scissors, paintbrushes and cutlery.</li><li>• Begin to show accuracy and care when drawing.</li></ul>

**Knowledge, Skills and Understanding breakdown for Design and Technology**

**Year 1**

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process (one that includes a repeated cycle of operations) of designing and making. They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment].

- ✚ design purposeful, functional, appealing products for themselves and other users based on design criteria
  - ✚ generate and communicate their ideas
  - ✚ use a range of tools and equipment to perform practical tasks
- ✚ use a wide range of materials and components, including construction materials, textiles and ingredients
  - ✚ explore a range of existing products
  - ✚ build structures, exploring how they can be made stronger, stiffer and more stable
  - ✚ how to cook and apply the principles of nutrition and healthy eating

<b>Design</b>	<b>Make</b>	<b>Evaluate</b>	<b>Technical knowledge</b>	<b>Cooking and nutrition</b>
Design appealing products that have a definite function, for a particular person eg Christmas card. Generate, model and communicate their design ideas through talking, drawing and using templates, where appropriate, using information and communication technology.	Use a range of tools and equipment to perform practical tasks eg a sewing machine to use running stitch to join fabric. Use a wide range of materials and components, including construction materials, textiles and ingredients. Make use of template to produce shapes.	Explore a range of existing products to help with own design.	Practise techniques to join and/or strengthen materials eg, glueing and reinforcing card.	Select from and use ingredients according to their characteristics eg make a healthy sandwich.

**Knowledge, Skills and Understanding breakdown for Design and Technology**

**Year 2**

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process (one that includes a repeated cycle of operations) of designing and making. They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment].

- ✚ design purposeful, functional, appealing products for themselves and other users based on design criteria
  - ✚ generate, develop, model and communicate their ideas
  - ✚ select from and use a range of tools and equipment to perform practical tasks
- ✚ select from and use a wide range of materials and components, including construction materials, textiles and ingredients according to their characteristics
  - ✚ explore and evaluate a range of existing products
  - ✚ build structures, exploring how they can be made stronger, stiffer and more stable
    - ✚ explore and use mechanisms
  - ✚ how to cook and apply the principles of nutrition and healthy eating
    - ✚ understand where food comes from

<b>Design</b>	<b>Make</b>	<b>Evaluate</b>	<b>Technical knowledge</b>	<b>Cooking and nutrition</b>
Design and make purposeful, functional products based on design criteria eg bird house model. Generate, model and communicate their design ideas through talking, drawing and using templates, where appropriate, using information and communication technology.	Select and demonstrate safe use of tools eg saw. Select from and use a wide range of materials and components, including construction materials and textiles according to their characteristics. Perform a range of cutting and shaping techniques eg tearing, cutting, folding and curling eg bird boxes. Use a range of joining techniques eg glueing, hinges or combining materials to strengthen.	Explore and evaluate an existing design and propose improvements. Explore the processes used to create products. Modify and develop own design as they progress.	Explore how structures can be made stronger, stiffer and more stable. Explore and use mechanisms in their products eg wheels and axles.	Safely cut, peel or grate ingredients in a hygienic manner eg fruit salad. Use measuring cups or electronic scales to measure the required amount of ingredients. Combine ingredients. Understand where our food comes from.

**Knowledge, Skills and Understanding breakdown for Design and Technology**

**Year 3**

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process (one that includes a repeated cycle of operations) of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].

- ✚ use design criteria to inform the design of innovative, functional, appealing products that are fit for purpose
  - ✚ generate, model and communicate their ideas through discussion and annotated sketches
  - ✚ select from and use a wider range of tools and equipment to perform practical tasks
- ✚ select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties
  - ✚ investigate a range of existing products
- ✚ evaluate their ideas and products against their own design criteria to improve their work
  - ✚ apply their understanding of how to strengthen more complex structures
    - ✚ understand and use mechanical systems in their products
    - ✚ understand and apply the principles of a healthy and varied diet

<b>Design</b>	<b>Make</b>	<b>Evaluate</b>	<b>Technical knowledge</b>	<b>Cooking and nutrition</b>
Produce designs with a clear purpose having explored needs eg food packaging. Select materials carefully to suit the design and use. Generate, model and communicate their design ideas through discussion and annotated sketches, where appropriate using information and communication technology.	Select appropriate techniques to construct products. Select from and demonstrate safe use of tools eg saw for cutting, glue for joining. Select from and use a wide range of materials and components, including construction materials and textiles according to their functional properties. Use correct stitch to join materials. Add decorative finish using a suitable technique.	Investigate a range of existing products to find out how they were constructed. Evaluate their ideas and products against their own design criteria to improve their work. Study the work of some recognised designers eg including pioneers in horticultural techniques to stimulate ideas for designs.	Apply their understanding of how to strengthen more complex structures. Understand how mechanical systems work and use some in their products.	Select and use correct utensils to hygienically prepare food. Understand and apply the principles of a healthy and varied diet.

**Knowledge, Skills and Understanding breakdown for Design and Technology**

**Year 4**

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process (one that includes a repeated cycle of operations) of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].

- ✚ develop design criteria to inform the design of functional, appealing products that are fit for purpose
- ✚ generate, develop, model and communicate their ideas through discussion, annotated sketches and prototypes and computer-aided design
- ✚ select from and use a wider range of tools and equipment to perform practical tasks
- ✚ select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties
- ✚ investigate and analyse a range of existing products
- ✚ 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 [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- ✚ understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed

<b>Design</b>	<b>Make</b>	<b>Evaluate</b>	<b>Technical knowledge</b>	<b>Cooking and nutrition</b>
Develop own design criteria to inform the design of functional, appealing products. Generate, model and communicate their design ideas through discussion, annotated sketches and prototypes and, where applicable, computer-aided design.	Select from, and use safely, a wider range of tools and equipment. Select from and use a wider range of materials and components according to their functional properties. Use suitable cutting and shaping techniques. Choose suitable joining techniques.	Investigate and analyse a range of existing products. Disassemble designs to discover how they work. Make improvements to established designs and be able to explain why.	Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]. Apply understanding of forces to select a suitable mechanism eg levers, winding mechanism, pulleys and gears.	Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed. Understand how to store and handle food ingredients properly.

**Knowledge, Skills and Understanding breakdown for Design and Technology**

**Year 5**

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process (one that includes a repeated cycle of operations) of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].

- ✚ use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose
- ✚ generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes and computer-aided design
- ✚ 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
- ✚ evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
- ✚ understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
  - ✚ apply their understanding of how to strengthen, stiffen and reinforce more complex structures
  - ✚ prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques

Design	Make	Evaluate	Technical knowledge	Cooking and nutrition
<p>Generate, model and communicate their design ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes and, where applicable, computer-aided design. Use research and develop own design criteria to inform the design of innovative, functional, appealing products that are fit for purpose. Produce several prototypes each building upon the previous to optimise design.</p>	<p>Select from and use a wider range of tools and equipment to perform practical tasks accurately. Use a variety of stitching techniques to join fabrics. Select from and use a wider range of materials and components, including construction materials and textiles, according to their functional properties and aesthetic qualities.</p>	<p>Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.</p>	<p>Create circuits using electronics kits that combine a number of parts (e.g. LEDs, resistors, chips etc.) Use different techniques to strengthen, stiffen and reinforce more complex structures.</p>	<p>Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.</p>

**Knowledge, Skills and Understanding breakdown for Design and Technology**

**Year 6**

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process (one that includes a repeated cycle of operations) of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].

- ✚ 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
- ✚ 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
  - ✚ 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
    - ✚ understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
  - ✚ 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
    - ✚ 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

<b>Design</b>	<b>Make</b>	<b>Evaluate</b>	<b>Technical knowledge</b>	<b>Cooking and nutrition</b>
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. Use design ideas from several significant designers giving reasons for their selections. Include design processes such as prototypes, cross-sectional diagrams and CAD.	Cut with precision and produce a good quality finish. Select appropriate tools to cut and shape a particular type of material. Understand the purpose of and include a seam allowance.	Evaluate the design of products and identify possible changes to improve their performance. Understand how key events and individuals in design and technology have helped shape the world.	Combine electronics and mechanics to produce original designs. Use cams to change a rotation into a push/pull movement. Apply their understanding of computing to program, monitor and control their products.	Invent and modify own recipes including ingredients, methods, cooking times and temperatures. Plan a menu, based on savoury dishes, suitable for a healthy and balanced diet.