Our Learning Journey: Design and Technology

Enjoy Believe Achieve

Design and Technology
At Normanby Primary School, Design and Technology (DT) forms an important part of the curriculum. It is a practical and inspiring subject that promotes self-reflection, resilience and independence within our children across all year groups. It provides a multitude of opportunities for our young people to design and make products that solve real-life problems within a variety of contexts by using the skills that they learn and build upon throughout their educational journey. Most importantly, these open-ended projects celebrate innovation and imagination; and encourage children to be bold, to be brave and to take risks.

	Foundation Stage	
	FS1	**FS2**
Creating with materials	**Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park.** Provide lots of flexible and open-ended resources for children's imaginative play. **Explore different materials freely, to develop their ideas about how to use them and what to make.** **Develop their own ideas and then decide which materials to use to express them.** **Join different materials and explore different textures.**	**Return to and build on their previous learning, refining ideas and developing their ability to represent them.** **Create collaboratively, sharing ideas, resources and skills.** Provide opportunities to work together to develop and realise creative ideas. Provide children with a range of materials for children to construct with. Encourage them to think about and discuss what they want to make Discuss problems and how they might be solved as they arise. Reflect with children on how they have achieved their aims.

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	Offer opportunities to explore scale using long strips of wallpaper, child size boxes and different surfaces to work on e.g, paving, floor, table or easel. Use glue and masking tape for sticking pieces of scrap materials onto old cardboard boxes, hammers and nails, glue guns, paperclips and fasteners.	Teach children different techniques for joining materials, such as how to use adhesive tape and different sorts of glue. Provide a range of materials and tools and teach children to use them with care and precision and independence.
Early Learning Goals:	**The level of development children should be expected to have attained by the end of Reception/FS2**	
ELG: Creating with materials	• 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.	

	**KS1**		**KS2**			
Our Learning Journey	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Design	We are learning to: **Use experiences and research to inform design ideas.** Draw on their own experiences to help generate ideas.	We are learning to: **Create and follow a simple design criteria.** Identify a purpose for what they intend to design and make	We are learning to: **Use informed research of existing products to inform design criteria** Carry out research of existing items and	We are learning to: **Use informed research of multiple existing products to inform and produce a design criteria**	We are learning to: **Use informed research and results of investigations to inform and produce a design criteria**	We are learning to: **Use informed research and results of investigations to inform and produce a design criteria**

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	Develop their design ideas applying findings from shared research. **Communicate design ideas through talking.** Suggest ideas and explain what they are going to do. Identify a target group or purpose for what they intend to design and make.	Write a simple design criteria **Develop design ideas.** Develop design ideas drawn from their own experiences through discussion, observation and drawing. **Communicate design ideas through drawing, templates and mock-ups.** Make simple drawings, templates or mock ups and label parts.	describe their functionality. Identify a purpose and establish a design criteria for a successful product. **Use developed design criteria to design products** Generate and develop ideas based on the design criteria. **Communicate detailed design ideas** Make drawings, templates or mock ups with labels when designing. **Plan a proposed sequence to make a product.** Produce a brief step-by-step written plan before starting to make the product.	Evaluate multiple products, with the following questions in mind: Are they innovative? Do they do what they are supposed to do? What makes them appealing? Produce their own design criteria that can be used for their own designs based on their research. This will be informed by multiple existing items and consider the user. **Use developed design criteria to design functional and appealing products.** Generate multiple ideas and make labelled drawings from different viewpoints showing specific features.	Evaluate multiple existing products thinking about: their appeal, their functionality and whether they are fit for purpose. Carry out investigations to inform design criteria. Create a detailed design criteria based on research and investigations. **Use developed design criteria to design functional and appealing products that is fit for purpose.** Generate sophisticated ideas through brainstorming and identify a purpose for their product.	Use results of investigations and information from sources when developing design, making informed choices about the use of materials, tools and techniques. Create a detailed design criteria based on research and investigations. **Use developed design criteria to design functional and appealing products that are fit for purpose.** Develop a design specification Explore, develop and communicate aspects of their design proposals by modelling their ideas in a variety of ways

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				Plan a proposed sequence to make a product. Produce a clear step by step plan of what has to be done which includes information on the use of materials, equipment and processes.	Draw up a specification for their design. **Plan a proposed sequence to make a product.** Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making if the first attempts fail.	**Plan a proposed sequence to make a product.** Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making if the first attempts fail.
Make	**Make a product using simple techniques.** Make their design using appropriate techniques With help measure, mark out, cut and shape a range of materials Assemble, join and combine materials and components together using a variety of	**Make a product using simple techniques with some accuracy.** Measure, cut and score with some accuracy Assemble, join and combine materials in order to make a produce	**Make products using a range of techniques with increasing accuracy.** Measure, mark out, cut, score and assemble components with more accuracy Think about their ideas as they make progress and be willing to change things if this helps	**Make products with accuracy; thinking about the strength and appearance of the finished product.** Measure, mark out, cut and shape a range of materials, using appropriate tool, equipment and techniques Join and combine materials and components	**Make products by selecting from and using a wide range of materials, techniques, components and finishes.** Select materials from a wide range of materials and components according to their functional properties.	**Make quality, working products from a range of suitable materials and components, making appropriate modifications as they go.** Select materials and components according to their functional properties and aesthetic qualities.

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	temporary methods eg glues or masking tape **Use tools safely** Use tools eg scissors and a hole punch safely	Choose and use appropriate finishing techniques 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. **Begin to identify tools and use them safely for the correct function.** Begin to select tools and materials, using the correct vocabulary to describe them Use hand tools safely and appropriately	them improve their work. Use finishing techniques to strengthen and improve the appearance of their product Reinforce and strengthen a 3D framework. **Use a range of tools and equipment to perform practical tasks safely.** Select tools and techniques for making their product Work safely and accurately with a range of simple tools	accurately in temporary and permanent ways Reinforce and strengthen a 3D framework. Use finishing techniques to strengthen and improve the appearance of their product Begin to use computing to control products. **Use a range of tools and equipment to perform practical tasks safely.** Select appropriate tools and techniques for making their product Work safely and accurately with a range of simple tools	Measure and mark out accurately Cut and join with accuracy to ensure a good-quality finish to the product Reinforce and strengthen a 3D framework. Begin to create items that use mechanical systems such as cams, pulleys and gears **Use a range of tools and equipment to perform practical tasks safely.** Select and use appropriate tools for the task at hand. Use skills in using different tools and equipment safely and accurately	Assemble components to make working models Create items that use mechanical systems such as cams, pulleys and gears Construct products using permanent joining techniques Use electrical circuits and components as part of functional products Make modifications as they go along Achieve a quality product **Use a range of tools and equipment to perform practical tasks safely.** Confidently select and use appropriate tools and techniques for the task at hand

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						Use tools safely and accurately
Evaluate	**Evaluate – talk about what is good about a product.** Talk about existing products.	**Evaluate – compare their product with the original design criteria.** Discuss existing products. Compare their designs to the design criteria.	**Evaluate – evaluate their own product and make necessary improvements.** Disassemble and evaluate familiar products Evaluate their product against original design criteria Suggest ideas of how the product could be improved.	**Evaluate – conduct continual evaluation of their own product and make necessary improvements.** Evaluate their work both during and at the end of the assignment Evaluate their products carrying out appropriate tests	**Evaluate – evaluate their product against existing products, considering areas for improvement.** Evaluate a product against the original design specification Evaluate it personally and seek evaluation from others	**Evaluate – conduct an in depth evaluation of their product against existing products, considering areas for improvement.** Evaluate their products, identifying strengths and areas for development Carry out appropriate tests Evaluate against their original criteria and suggest ways that their product could be improved
Cooking and Nutrition	**Cooking and Nutrition – understand where food comes from.** Explain that all food comes from plants or animals.	**Cooking and Nutrition – prepare a healthy and nutritious dish.** Explain that food has to be farmed, grown elsewhere (e.g. home) or caught.	**Cooking and Nutrition – prepare a dish recognising the principles of a healthy and varied diet.** Explain that a healthy diet is made up from	**Cooking and Nutrition – prepare a dish recognising the principles of a healthy and varied diet, understanding seasonality.**	**Cooking and Nutrition – prepare and cook a savoury dish using a range of cooking techniques.**	

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	Start to name and sort foods into the five groups in 'The Eat well plate' Prepare simple dishes safely and hygienically, without using a heat source. Use techniques such as cutting and spreading.	Name and sort foods into the five groups in 'The Eat well plate' Explain that everyone should eat at least five portions of fruit and vegetables every day. Prepare simple dishes safely and hygienically, without using a heat source. Use techniques such as cutting, peeling and grating.	a variety and balance of different food and drink, as depicted in 'The Eat well plate' Begin to know that to be active and healthy, food and drink are needed to provide energy for the body. Prepare and cook a savoury dish safely and hygienically. Begin to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.	Show that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world. Prepare and cook a savoury dish safely and hygienically including, where appropriate, the use of a heat source. Use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.	Explain that seasons may affect the food available. Explain how food is processed into ingredients that can be eaten or used in cooking. Prepare and cook savoury dishes safely and hygienically including, where appropriate, the use of a heat source. Use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. Explain that different food and drink contain different substances – nutrients, water and fibre – that are needed for health.	

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National Curriculum	**Key stage 1** Pupils should be taught to:	**Key stage 2** Pupils should be taught to:
	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 Make • Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] • Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics • Evaluate • Explore and evaluate a range of existing products • Evaluate their ideas and products against design criteria 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. Cooking and Nutrition	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 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 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 Technical knowledge

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	• Use the basic principles of a healthy and varied diet to prepare dishes • Understand where food comes from	• 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] • Apply their understanding of computing to program, monitor and control their products 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.