

DESIGN TECHNOLOGY

DESIGN TECHNOLOGY INTENT STATEMENT

At Oldbrook First School, our aim is to offer a coherently planned sequence of lessons to help teachers ensure they have progressively covered the knowledge, understanding and skills required in the National Curriculum for Design Technology. Our Design and Technology curriculum aims to inspire children through a broad range of practical experiences to create innovative designs which solve real and relevant problems within a variety of different contexts. We use an iterative process which encourages children to identify real and relevant problems, critically evaluate existing products and then take risks and innovate when designing and creating solutions to the problems. As part of the iterative process, time is built in to reflect, evaluate and improve on prototypes using design criteria throughout to support this process. Opportunities are provided for children to evaluate key events and individuals who have helped shape the world, showing the real impact of design and technology on the wider environment and helping to inspire children to become the next generation of innovators.

DESIGN TECHNOLOGY IMPLEMENTATION

Design and Technology skills and understanding are built into lessons, following an iterative process. However, this is not to say that this structure should be followed rigidly: it allows for the revision of ideas to become part of good practice and ultimately helps to build a depth to children's understanding. Through revisiting and consolidating skills, our lessons and resources help children build on prior knowledge alongside introducing new skills, knowledge and challenge. The revision and introduction of key vocabulary is built into each lesson. This vocabulary is then included in display materials and additional resources to ensure that children are allowed opportunities to repeat and revise this knowledge. Adult guides and accurate design and technology subject knowledge are always provided within lessons to allow the teacher and adults working in those lessons to feel confident and supported with the skills and knowledge that they are teaching. Through these lessons, we intend to inspire pupils and practitioners to develop a love of Design and Technology and see how it has helped shaped the ever-evolving technological world they live in.

DESIGN TECHNOLOGY IMPACT

The impact of using the full range of resources, including display materials, will be seen across the school with an increase in the profile of Design and Technology. The learning environment across the school will be more consistent with design and technology technical vocabulary displayed, spoken and used by all learners. Whole-school and parental engagement will be improved through the use of design and technology-specific home learning tasks and opportunities suggested in lessons and overviews for wider learning. We want to ensure that Design and Technology is loved by teachers and pupils across school, therefore encouraging them to want to continue building on this wealth of skills and understanding, now and in the future. Impact can also be measured through key questioning skills built into lessons, child-led assessment such as success criteria grids and KWL grids and summative assessments aimed at targeting next steps in learning.

DESIGN TECHNOLOGY OVERVIEW

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Nursery Year A	A range of different coloured and textured food Building models with 2D & 3D shapes	Multicultural food- Diwali Christmas Connecting & building up parts to build a warm nest	Warming soup 3D mod-roc snow scenes & arctic box layered scenes	Salads	Breakfasts, design and make breakfast for a giant Growing beanstalk moving picture	Fruit salad Split pin joint moving minibeasts
Reception Year B	Rainbow cake, rainbow cookies DT – build a 3D rainbow	Sandwiches Junk model rockets	Wraps for dinosaurs Make an egg protector	Gruffalo Crumble	Bear picnic – honey sandwiches Junk model box house for the Bear Hunt family	Foods from around the world-veg Junk model traps to catch Evil Pea
Year 1	Cooking - Making Gingerbread men	Cooking - Making soup		Design and make a toy based on their knowledge of Victorian toys using the skills of Exploring materials, joining materials, cutting, shaping and evaluate the final product. Cooking – scones & butter	Moving pictures explore joining materials including tapes, glue, staples, string, paperclips, split pins learn 3 different ways to make pictures move, choose 1 for final design, make, evaluate.	Use the basic principles of a healthy and varied diet to prepare dishes and understand where food comes from. Create a café for parents and carers Cooking – fruit smoothies
Year 2		Plan and make Tudor Houses Cooking - GFofL Cookies	Balloon Rockets Design, make, improve, test			Sewing Design and make a book mark based on their knowledge of previous sewing skills, exploring stitches and adapting their original design based on execution. Evaluate the final product.

DESIGN TECHNOLOGY PROGRESSION OF SKILLS

	Early Years Foundation Stage	Year One	Year Two	Next Steps
Design overview	<ul style="list-style-type: none"> Select shapes appropriately: flat surfaces for building, a triangular prism for a roof etc. Combine shapes to make new ones - an arch, a bigger triangle etc. Explore how things work 	Pupils should be taught to: <ul style="list-style-type: none"> design purposeful, functional, appealing products for themselves and other users based on design criteria 	Pupils should be taught to; <ul style="list-style-type: none"> generate, develop, model and communicate their ideas through talking, drawing templates, mock-ups and, where appropriate, information and communication technology 	Pupils should be taught to: <ul style="list-style-type: none"> 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
Design – Contexts, Uses & Purposes	Expressive Arts and Design (Exploring and Using Media and Materials) Children safely use and explore a variety of	For instance: State the purpose of the design and the intended user	Explore materials, make templates and mock ups e.g. moving picture / lighthouse	Gather information about the needs and wants of particular individuals and groups Develop their own design criteria and use these to

	materials, tools and techniques, experimenting with colour, design, texture, form and function.			inform their ideas Research designs
Design - Ideas	Expressive Arts and Design (Being Imaginative) 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 design and technology, art, music, dance, role play and stories	For instance: Draw on their own experience to help generate ideas Suggest ideas and explain what they are going to do Identify a target group for what they intend to design and make Model their ideas in card and paper Develop their design ideas applying findings from their earlier research	Generate own ideas for design by drawing on own experiences or from reading	For instance: Share and clarify ideas through discussion Model their ideas using prototypes and pattern pieces Use annotated sketches, cross-sectional drawings and diagrams Use computer-aided design
Make - overview	Explore different materials, using all their senses to investigate them. Manipulate and play with different materials. Use their imagination as they consider what they can do with different materials. Make simple models which express their ideas. Explore different materials freely, in order 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	Pupils should be taught to: <ul style="list-style-type: none"> select from and use a range of tools and equipment to perform practical tasks [e.g. cutting, shaping, joining and finishing] 	<ul style="list-style-type: none"> select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristic 	Pupils should be taught to: <ul style="list-style-type: none"> select from and use a wider range of tools and equipment to perform practical tasks [e.g. 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
Make Planning		For instance: <ul style="list-style-type: none"> Select from a range of tools and equipment explaining their choices 	Select from a range of materials and components according to their characteristics	For instance: <ul style="list-style-type: none"> Select tools and equipment suitable for the task Explain their choice of tools and equipment in relation to the skills and techniques they will be using Select materials and components suitable for the task Explain their choice of materials and components according to functional properties and aesthetic qualities Order the main stages of making Produce detailed lists of tools, equipment and materials that they need

<p>Make – Practical skills & techniques</p>	<p>Physical Development (Moving and Handling) Develop manipulation and control. Explore different materials and tools. Use one-handed tools and equipment, for example, making snips in paper with scissors. Choose the right resources to carry out their own plan. For example, choosing a spade to enlarge a small hole they dug with a trowel. Children handle equipment and tools effectively, including pencils for writing.</p>	<p>For instance:</p> <ul style="list-style-type: none"> Follow procedures for safety Use and make own templates 	<ul style="list-style-type: none"> Measure, mark out, cut out and shape materials and components Assemble, join and combine materials and components Use simple fixing materials e.g. temporary – paper clips tape and permanent – glue, staples Use finishing techniques, including those from art and design 	<p>For instance:</p> <ul style="list-style-type: none"> Follow procedures for safety Use a wider range of materials and components, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components Measure, mark out, cut and shape materials and components with some accuracy Assemble, join and combine materials and components with some accuracy apply a range of finishing techniques, include those from art and design, with some accuracy
<p>Evaluate - overview</p>		<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> explore and evaluate a range of existing products 	<ul style="list-style-type: none"> evaluate their ideas and products against design criteria 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> 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>Evaluate – own ideas & products</p>		<p>For instance:</p> <ul style="list-style-type: none"> Talk about their design ideas and what they are making Make simple judgements about their products and ideas against design criteria 	<ul style="list-style-type: none"> Suggest how their products could be improved Evaluating products and components used 	<p>For instance:</p> <ul style="list-style-type: none"> 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
<p>Evaluate – existing products</p>	<p>Repeat actions that have an effect. Explore materials with different properties Explore how things work</p>	<p>For instance:</p>	<ul style="list-style-type: none"> Investigate - what products are, who they are for, how they are made and what materials are used 	<p>For instance:</p> <ul style="list-style-type: none"> Investigate - how well products have been designed, how well products have been made, why materials have been chosen, what methods of construction have been used, how well products work, how well products achieve their purposes and how well products 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 <p>For instance</p> <ul style="list-style-type: none"> Identify great designers and their work and use research of designers to influence work

Technical knowledge - overview		Pupils should be taught to: <ul style="list-style-type: none"> • build structures, exploring how they can be made stronger, stiffer and more stable 	<ul style="list-style-type: none"> • explore and use mechanisms [e.g. levers, sliders, wheels and axles], in their products 	Pupils should be taught to: <ul style="list-style-type: none"> • 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 [e.g. series circuits incorporating switches, bulbs, buzzers and motors] • apply their understanding of computing to program, monitor and control their products
Technical Knowledge – making products work	<ul style="list-style-type: none"> • Explore collections of materials with similar and/or different properties. • Talk about the differences between materials and changes they notice. 	For instance: <ul style="list-style-type: none"> • Understand about the simple working characteristics of materials and components • Understand about the movement of simple mechanisms including levers, sliders (Year 1) wheels and axles (Year 2) 	<ul style="list-style-type: none"> • Understand that food ingredients should be combined according to their sensory characteristics • Know the correct technical vocabulary for the projects they are undertaking • Understand how freestanding structures can be made stronger, stiffer and more stable 	For instance: <ul style="list-style-type: none"> • Understand how to use learning from science and maths to help design and make products that work • Know that materials have both functional properties and aesthetic qualities • Know that materials can be combined and mixed to create more useful characteristics • Know that mechanical and electrical systems have an input, process and output • Use the correct technical vocabulary for the projects they are undertaking • Understand how levers and linkages or pneumatic systems create movement • Understand how simple electrical circuits and components can be used to create functional products • Understand how to program a computer to control their products • Know how to make strong, stiff shell structures • Know that a single fabric shape can be used to make a 3D textiles product • Know that food ingredients can be fresh, pre-cooked and processed
Cooking and nutrition - overview	<ul style="list-style-type: none"> • Make healthy choices about food, drink, activity and toothbrushing 	Pupils should be taught to: <ul style="list-style-type: none"> • use the basic principles of a healthy and varied diet to prepare dishes 	<ul style="list-style-type: none"> • understand where food comes from 	Pupils should be taught to: <ul style="list-style-type: none"> • 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
Cooking and nutrition – where food comes from		For instance:	Know where food comes from	For instance: <ul style="list-style-type: none"> • Know 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

				<ul style="list-style-type: none"> • Know that seasons may affect the food available • Understand how food is processed into ingredients that can be eaten or used in cooking
Cooking and nutrition – food preparation, cooking & nutrition		<p>For instance:</p> <ul style="list-style-type: none"> • Use appropriate equipment to weigh and measure ingredients • Prepare simple dishes safely and hygienically, without using a heat source 	<p>Use techniques such as cutting</p> <ul style="list-style-type: none"> • Name and sort foods into the five groups of the 'eat well' plate • Know that everyone should eat at least five portions of fruit and vegetables every day 	<ul style="list-style-type: none"> • How to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source • How to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking • Know that a healthy diet is made up from a variety and balance of different foods and drinks, as depicted in the 'eat well' plate • Know that to be active and healthy, food is needed to provide energy for the body • Measure using grams • Follow a recipe
Vocabulary				