



Brookland Junior School

DT Curriculum Overview

Intent

At Brookland Junior School we intend to build a Design Technology curriculum which is **c**umulatively sequenced to be inspiring, challenging and practical. We want our children to use creativity and imagination, to design and make products that solve real and relevant problems within a range of contexts, considering their own and others' needs, wants and values. We intend for all children to acquire appropriate subject knowledge, skills and understanding as set out in the National Curriculum. It is our aim to create strong cross curricular links with other subjects, such as Mathematics, Science, Computing and Art.

We ensure learning is secure through regular recap and retrieval activities and AfL embedded into our learning. Quick fire recaps are spaced at the start of each unit so pupils can recall where the unit builds from previous years and at the start of each lesson, allowing pupils to secure previous learning. We also ensure learning in DT is broad and deep, through working like professionals (e.g. pizza making and selling in Y5), with strong cross curricular links (Y6 ration food boxes) or memorable trips and visits (Tower Bridge Y5). Our curriculum is inclusive by design, removing barriers through adaptations in our lesson planning so that all learners build our Brookland Learning skills of teamwork, quality, and determination required to succeed in later life.

'We feel the learning skills needed in DT are teamwork, quality, listening, evaluate and determination. However, resilience is really important in order to succeed'.

We intend for all children—including those with SEND and disadvantaged backgrounds—to access a challenging DT curriculum that empowers them to become creative innovators and risk-takers. Our curriculum builds key DT knowledge and skills throughout the key stage.

DT knowledge (substantive): Ensuring children master key facts, DT specific vocabulary, and technical concepts (e.g., material properties, electrical components, and nutritional principles) set out in the National Curriculum.

DT skills (disciplinary): Training children how to work, think, and evaluate like authentic designers and engineers through processes of research, designing, and evaluating.

Implementation

Through a variety of creative and practical activities, we teach the knowledge, understanding and skills needed to engage in a process of designing, making and evaluating. The children design and create products that consider function and purpose and which are relevant to a range of sectors (for example, the home, school, culture, enterprise, industry, environment and climate change).

When designing and making, the children are taught to:

- **Research:** 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. Understand how key events and individuals in design and technology have helped shape the world.

- Skills: learning about the designed and made world and how things work and learning to design and make functional products for particular purposes and users.
- Planning: generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional 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, as well as chopping and slicing) accurately. Hand pick from and use a wider range of materials, ingredients and components, including construction materials, textiles and ingredients, according to their functional properties, aesthetic qualities and, where appropriate, taste.
- 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.

DT has been carefully mapped across the school to ensure broad and balanced coverage and to establish relevant links to other curriculum subjects and our own locality. In order to maximise on time, lessons are taught as a block so that children's learning is focused throughout each unit of work. Further enrichment can be accessed through a lunchtime club and two cookery clubs after school using the mini kitchen available for cookery projects.

Inclusion & Adaptive Teaching

Our DT curriculum is engineered to anticipate and remove barriers to learning. Lessons are adapted through scaffolding, promoting key vocabulary and targeted physical aids (e.g. pre-cut templates, prototype examples, visualisers for clear modelling, adult supported cutting/gluing stations) to ensure all pupils achieve. Pupils with additional needs may require specific tool and safety adjustments.

Learner's key skills and knowledge for DT have been mapped across the school to ensure progression between year groups and build on learning from KS1. The context for the children's work in Design and Technology is also well considered and children learn about real life structures and the purpose of specific examples, as well as developing their skills throughout the programme of study.

"DT is design, creating and making. Design is found in fashion, it always has a purpose. It is used in games and toys. Everything has been designed."

Teachers consistently use AfL to identify learning gaps early, ensuring key skills are secure before moving to complex construction tasks.

Impact

At Brookland Junior School, our children will have the knowledge and skills necessary to move confidently to the next step of their learning journey. By the end of the key stage, pupils will have and use the precise subject specific technical vocabulary to understand and communicate their learning in DT and express their ideas. Demonstrate a secure understanding and application of key knowledge and skills, allowing them to move fluently into the next stage of their education.

Pupils will have a deeper understanding the global and environmental role of good design in solving real-world issues, such as climate change and plastic pollution. By following our clear design and making sequence, our children will build resilience in problem solving and develop the ability to think creatively. They will be challenged to develop original ideas as well as to build on the ideas of others when working collaboratively.

The impact of our curriculum is demonstrated through evidence-based reporting of what children know, remember, and can systematically do over time. We measure each pupil's progress through targeted half-termly assessment grids that assess against key skills and knowledge at the end of each unit. Subject leader data analyses pupils progress and achievement in DT for different pupil groups, including disadvantaged and SEND. Pupils' book work provides clear evidence of their understanding of key skills and knowledge, supported by teacher formative evidence from in-class responses and a summative end of year report.

Key knowledge and skills highlighted in yellow

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 3		Moving Theatre (Moving Mechanism) Establish how a designer/illustrator has helped shape a product. Use techniques which require more accuracy to cut, shape, join and finish the work Use knowledge of techniques and the functional and aesthetic qualities of a wide range of materials to			Photo Frames (Stable Structure) Use knowledge of existing products to design their own functional product. Investigate and analyse existing products and those they have made, considering a wide range of factors. Apply techniques to strengthen structures and explore their own ideas.- Strengthening frames using corner braces. Make suitable choices from a wider range of tools and unfamiliar	Making Bread and Dips - Cooking and nutrition Afl: Talk about different food groups and name a food from each group. Consider how food has been grown, harvested and farmed in Europe and the wider world. How is flour produced and what different types of flour is used in a variety breads. Use a wider variety of ingredients and techniques to prepare and combine ingredients safely.

		plan how to use them. Apply techniques to strengthen structures and explore their own ideas.			materials and plan out the main stages of using them. Evaluate their end product against their original design.	
Year 4	Lamps and night lights: (Stable Structure) Devise and use electrical systems in products. Consider how existing products and their own finished product might be improved and how well they meet the needs of the intended user. Make suitable choices from a wider range of tools and components and unfamiliar	Moving Dragons (Moving Mechanism) Safely measure, mark and cut, assemble and join with some accuracy Discover how mechanical systems such as pneumatic systems create movement. Create designs using annotated sketches, cross sectional diagrams				Crepe making: (Food and Nutrition) Consider what makes a healthy and balanced diet and that different foods and drinks provide different substances the body needs to be healthy. Research seasonality and the advantages of eating seasonal and locally produced food. Read and follow recipes which involve several processes, skills and techniques.

	materials according to their functional properties to create a stable structure.					
Year 5	Moving Habitat (Moving Mechanism) Use research into existing products to inform the design of their own product. Make careful and precise measurements so that joins, holes and openings are in exactly the right place. Discover how to use more complex mechanical systems. Make detailed evaluations about existing products and consider the			DT Bridges (Stable Structure) Create prototypes to show ideas. Critique prototypes made against design criteria Build more complex 3D structures and apply their knowledge of strengthening techniques to make them stronger or more stable. Research and discuss various architects and engineers, discuss their processes and explain how these were used in the finished product. Lego Robots (Technology) Apply their understanding of computing to program, monitor and control their products - investigating,	Pizzeria - (Cooking and Nutrition) Research the main food groups and the different nutrients that are important for health. Explain how a variety of ingredients are grown, reared, caught and processed to make them safe and palatable. Select appropriate ingredients and use a wide range of techniques to combine them. Produce step by step plans to guide the making, demonstrating the knowledge and application of different materials, tools and techniques.	

		views of others to improve the work.			modelling and design (see computing plans)	
Year 6		WW2 rationing meals. (Food and Nutrition) Prepare and cook using a range of cooking techniques. Confidently plan a meal with rationed ingredients that is also healthy. Use information on food labels to inform choices. Research, plan and prepare and cook a savoury dish, applying their knowledge of ingredients and technical skills.	Fairgrounds Lego Robots (Moving Mechanism _ Technology) Apply their understanding of computing to program, monitor and control their products - design to solve problems (see computing plans) Test products for effectiveness against the design criteria, Critique and make evaluative comments with reference to famous designers.	Flood and Earthquake Proof Buildings (Stable Structure) Communicate ideas through discussion, annotated sketches, prototypes and evaluate Use research into famous architects and designers to inform the design of their own innovative product Use a range of materials to strengthen, stiffen and reinforce complex structures and can use them accurately and appropriately. Use technical knowledge of materials and accurate skills to problem solve		

				during the making process.		
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AIMS/INTENT From the National Curriculum

- A. Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world.
- B. Build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users.
- C. Critique, evaluate and test their ideas and products and the work of others.
- D. Understand and apply the principles of nutrition and learn how to cook.

KEY SKILL & KNOWLEDGE THREADS FOR YEAR 3			
Technical Knowledge Creative, technical and practical expertise for everyday tasks and technological world	Design and Make Build and apply a repertoire of knowledge, understanding and skills in order to design and make	Evaluate Critique, evaluate and test prototypes and products	Cook Understand and apply the principles of nutrition and learn how to cook.
Use techniques which require more accuracy to cut, shape, join and finish the work. Apply techniques to strengthen structures and explore their own ideas. Strengthening frames using corner braces.	Use knowledge of existing products to design their own functional product. Make suitable choices from a wider range of tools and unfamiliar materials and plan out the main stages of using them. Use knowledge of techniques and the functional and aesthetic qualities of a wide range of materials to plan how to use them.	Investigate and analyse existing products and those they have made, considering a wide range of factors Evaluate their end product against their original design. Establish how a designer has helped shape a product	Talk about different food groups and name a food from each group. Consider how food has been grown, farmed or caught in Europe and the wider world. Use a wider variety of ingredients and techniques to prepare and combine ingredients safely.
KEY SKILL & KNOWLEDGE THREADS FOR YEAR 4			

Technical Knowledge Creative, technical and practical expertise for everyday tasks and technological world	Design and Make Build and apply a repertoire of knowledge, understanding and skills in order to design and make	Evaluate Critique, evaluate and test prototypes and products	Cook Understand and apply the principles of nutrition and learn how to cook.
Safely measure, mark and cut, assemble and join with some accuracy Discover how mechanical systems such as pneumatic systems create movement. Devise and use electrical systems in products. Add detail to work using different types of stitch	Create designs using annotated sketches, cross sectional diagrams Create designs using exploded diagrams Make suitable choices from a wider range of tools and components and unfamiliar materials according to their functional properties.	Consider how existing products and their own finished product might be improved and how well they meet the needs of the intended user. Use knowledge of existing products to design a functional and appealing product for a particular purpose. Discover how a designer has influenced the making of a particular feature.	Consider what makes a healthy and balanced diet and that different foods and drinks provide different substances the body needs to be healthy. Research seasonality and the advantages of eating seasonal and locally produced food. Read and follow recipes which involve several processes, skills and techniques.

KEY SKILL & KNOWLEDGE THREADS FOR YEAR 5

Technical Knowledge Creative, technical and practical expertise for everyday tasks and technological world	Design and Make Build and apply a repertoire of knowledge, understanding and skills in order to design and make	Evaluate Critique, evaluate and test prototypes and products	Cook Understand and apply the principles of nutrition and learn how to cook.
Make careful and precise measurements so that joins, holes and openings are in exactly the right place. Discover how to use more complex mechanical systems. Apply their understanding of computing to program, monitor and control their products – investigating, modelling and design (see computing plans)	Produce step by step plans to guide the making, demonstrating the knowledge and application of different materials, tools and techniques. Build more complex 3D structures and apply their knowledge of strengthening techniques to make them stronger or more stable. Create prototypes to show ideas.	Critique prototypes made against design criteria Use research into existing products to inform the design of their own product. Make detailed evaluations about existing products and consider the views of others to improve the work. Research and discuss various architects and engineers, discuss their processes and explain how these were used in the finished product.	Research the main food groups and the different nutrients that are important for health. Explain how a variety of ingredients are grown, reared, caught and processed to make them safe and palatable. Select appropriate ingredients and use a wide range of techniques to combine them.

KEY SKILL & KNOWLEDGE THREADS FOR YEAR 6

Technical Knowledge Creative, technical and practical expertise for everyday tasks and technological world	Design and make Build and apply a repertoire of knowledge, understanding and skills in order to design and make	Evaluate Critique, evaluate and test prototypes and products	Cook Understand and apply the principles of nutrition and learn how to cook.
Use technical knowledge of materials and techniques to refine and rework the product to improve its functional properties and aesthetic qualities. Apply their understanding of computing to program, monitor and control their products - design to solve problems (see computing plans) Use a range of materials to strengthen, stiffen and reinforce complex structures and can use them accurately and appropriately.	Use technical knowledge and accurate skills to problem solve during the making process. Communicate ideas through discussion, annotated sketches, prototypes and evaluate	Use knowledge of famous designs to further explain the effectiveness of existing products and products they have made. Use research into famous architects and designers to inform the design of their own innovative product Test products for effectiveness against the design criteria, critique and make evaluative comments with reference to famous designers.	Prepare and cook using a range of cooking techniques. Confidently plan a series of healthy meals based on the principles of a healthy and varied diet. Research, plan and prepare and cook a savoury dish, applying their knowledge of ingredients and technical skills. Use information on food labels to inform choices.