



BROOK FIELD PRIMARY SCHOOL

Design and Technology Policy Statement

INTRODUCTION

At Brook Field our children receive a highly engaging cross curricular design and technology curriculum. This inspires and challenges them to develop their curiosity and creativity, through designing and making a range of prototypes and real products. Through design and technology, we teach our children to be able to work as capable individuals, communicating effectively and working with perseverance and as part of a valuable and productive team.

AIMS

At Brook Field, the aims of design and technology are:

- to develop imaginative thinking in children
- to support children in talking about what they notice in existing designs and how things can be adapted for different purposes
- to enable children to talk, using technical language, about how things work
- to draw and model and evaluate their ideas
- to support our children to select appropriate tools and techniques for making a product, whilst following safe procedures
- to develop an understanding of technological process, products, their manufacture, and this contribution to society
- to foster enjoyment, a sense of pride and purpose when designing and making.
- to enable critical thinking, reflection and the ability to develop an appreciation of their own and others work.

SPIRITUAL, MORAL, SOCIAL AND CULTURAL AND BRITISH VALUES

Spiritual, Moral, Social and Cultural development is an inclusive element of our Design and Technology curriculum with every opportunity taken within our sessions to develop our children's skills within this area further. One method of achieving this is through a wide range of opportunities and experiences with outside organisations and visitors who can share their expertise in the field and allow children to see how design and technology can be used in the everyday and across a variety of cultures. Our teaching ensures that the children are made aware of the important role that design and technology plays in making an essential contribution to the creativity, culture, wealth and well-being of the nation. To show how it gives a platform for finding innovative ways to support children's understanding of sustainability and ecology for a greener and sustainable world. Design and technology is a social subject and by working together, the children have opportunities to develop life skills. These include oracy and social skills through collaboration, teamwork and reflection that underpin an inclusive and respectful society.

PLANNING & TEACHING

With a focus on appropriate National Curriculum knowledge and progressive skills development, building upon prior learning, teachers plan units of work using a cross-curricular approach based around a term's topic.

This may include topic related trips to enhance understanding and inspire learning further. The teaching staff, who use a multi-sensory approach and a variety of teaching and learning styles to engage and support the children's learning, provide a wide range of design and technology lessons. Teaching is in line with other current school policies, such as planning incorporating Blooms Taxonomy. This ensures that the children apply their knowledge and understanding when developing design ideas, planning and making prototypes and products, then evaluating them. This is achieved through a mixture of whole class teaching and individual/group activities.

Within lessons, all children are given the opportunity both to work on their own ideas as well as collaborating with others, listening to other children's ideas and treating these different ideas and opinions with respect. Children are taught to critically evaluate existing products, their own work and that of others to make comparisons and improvements. They have the opportunity to use a wide range of materials and resources, including computing, coding and programming.

In all classes there are children of differing needs and ability. We recognise this fact and provide appropriate challenge for all children, by using appropriate scaffolding to match the parameters of the task to the child.

More able children will be stretched within Design and Technology sessions through different or adapted activities; the use of different resources; and challenging questioning to develop their understanding and vocabulary within design and technology even further. Where possible, we will support children's knowledge and understanding by making visits or inviting visitors in to see how aspects of Design and Technology can be applied in industry such as companies in manufacturing.

For more information, please refer to the Teaching & Learning, SEND and Inclusion, also the More Able Policies.

ORGANISATION

Year groups will decide on how best to approach a project or develop skills within design and technology. This can be a mixture of weekly/ fortnightly timetabled sessions, or in some cases, block weeks to use and apply skills developed in other subjects and to work through the design process from beginning to end. Homework is often linked to the development of design and technology skills and provides a good opportunity to make further links between home and school.

RESOURCES

Construction kits are classroom based or in the resources mobile, kept alongside Art resources and materials. The computing resources are in the ICT suit and resources to support exploring electricity can be found with the science resources. There are individual resource boxes, located in each unit, specific to the topics covered in that year group. All children will have availability to all equipment and be given equal opportunity to undertake Design and Technology activities.

HEALTH & SAFETY

When using tools and equipment, teachers will assess the level of adult supervision needed and if additional precautions should be taken. This includes children with allergies when teaching and doing practical activities with food technology. Teachers should consider and discuss additional safety procedures if using tools such as saws and drills with the children.

ASSESSMENT & MONITORING

As children develop skills and work on projects, teachers will adapt planning and activities to ensure all children are given suitable challenge and areas to improve on. The children explore, investigate and develop their own designs, which are kept in a D&T book. Prototypes and products are often displayed in classrooms. The finished products are also photographed for the child's topic book and then taken home.

Children also have opportunities to self-assess, review and evaluate their own learning, skills and efficacy at the end of their projects as well as taking part in pupil voice. Teachers will carry out observational assessments as the children develop their products and adapt teaching accordingly. Judgments made at the end of a unit are supported by our Blooms Assessment judgement documents that are saved centrally. For more information, please refer to the Assessment Policy.

DESIGN AND TECHNOLOGY CO-ORDINATOR

The role of the Design and Technology co-ordinator is to:

- Monitor the D&T carried out across year groups by scrutiny of work, planning, assessment and pupil voice. This includes monitoring of the frequency of D&T teaching across the year.
- Support colleagues in teaching the subject through sharing good practice and delivering staff meetings to ensure consistency of approaches and expectations.
- Renew, update and supplement resources needed to deliver the curriculum successfully.

- Involve Governors in the development and monitoring of the subject.
- Attend appropriate CPD and cluster meetings to ensure up to date and relevant professional development in this subject.

Brook Field Primary School Design & Technology Curriculum: Progression of Knowledge and Skills

D&T	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Product/Activity Design and Make or build	T1 Sandwiches for Paddington T3 -Tudor house -Make bread rolls T4. -A moving train slider -Suspension bridge T5 -Clay sculpture of a pig/wolf.	T1 - Caterpillar fruit kebabs T2 -A Shelter for Traction Man - -Rope making -Xmas Cookies T3 - Baked Bean Tasting T5 -Paper Aeroplanes T6 -A Lunar Vehicle or a space rocket	T2 - Christmas decorations -Stone Age clay fossil T3 - Roman shield --Pizza making T4 -Roman medicine bag -Tasting Roman foods T6 - Create a mirror maze	T1 - Creating a throne chair -sewing a cushion (Over/back stitch) T2 - Nordic Christmas crafts -Research Danish pastries T3 -Make clay pendants T4 - Plasticine models to create animations in ICT	T1 - Bookmaking- Penny Dreadful -Split pin puppets T2 - Crazy Contraptions T3 - Design a new planet T4 - Cook an Asian rice dish. T5 - Scarab sewing (running stitch) T6 - Make papyrus paper	T1 - Chocolate truffles T2 - Christmas crafts- Sewing (Blanket stitch) T3 - Greek bread/clay pots T4/5 - Making Witches Brew T6 -Design a stage with electronics.
DESIGNER/ARCHITECT	T4 Isambard Kingdom Brunel T5 Lesley Anne Green	T1 Antoni Gaudi T5 Da Vinci T6 Wright Brothers/ NASA	T3&4 Vitruvius- Roman architecture T6 Antoni Gaudi	T1 Hans J Wegner T 4 Aardman	T1 William Morris T2 Rube Goldberg T6 Henry Moore sculptures	T6 Elon Musk- Tesla
Developing, planning and communicating ideas	Can generate ideas and recognise characteristics of familiar products. Plans show that with help they can put their ideas into practice. Can use pictures and words to describe what they want to do T1&2 Design purposeful, functional, appealing products for themselves and other users based on design criteria T1, T2, T4, T6 Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and	Can generate ideas and plan what to do next, based on their experience of working with materials and components. Uses pictures words and models to describe their designs T3&5 Design purposeful, functional, appealing products for themselves and other users based on design criteria T1, T3, T5, T6 Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology	Can generate ideas and recognise that their designs have to meet a range of different needs. Can make realistic plans for achieving their aims. Can clarify ideas using labelled sketches/models and details of their designs T1, T3, T5 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 T1, T4, T6 Generate, develop, model and communicate their ideas through discussion,	Can generate ideas and recognise that their designs have to meet a range of different needs. Can make realistic plans for achieving their aims. Can clarify ideas using labelled sketches/models and details of their designs T1 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 T1 Generate, develop, model and communicate their ideas through discussion,	Can generate ideas by collecting and using information. Can take users views into account and produce step by step plans. Can communicate alternative ideas using words, labelled sketches and models showing that they are aware of constraints T2 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 T2, T4, T5 Generate, develop, model and communicate their	Can draw on and use a variety of sources on information. Can clarify ideas through discussion, drawings and modelling 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 T6 Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and

	communication technology T1, T2, T4, T5, T6	T3, T5, T6	annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design T1, T3, T4, T5, T6	annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design T1	ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design T2	computer-aided design T1, T2, T4, 5, T6
Working with tools, equipment, materials and components to make quality products	<p>Can explain what they are making and which tools they are using. Can use tools and materials with help where needed</p> <p>Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] T1, T3, T4, T5, T6</p> <p>Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics T1, T3, T4, T5, T6</p>	<p>Can select appropriate tools, techniques and materials and explain their choices T1/T3</p> <p>Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] T1, T2, T3, T6</p> <p>Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics T2, T3, T6</p>	<p>Can use tools and equipment with some accuracy to cut and shape materials and put together components T1/T2/T4</p> <p>Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately T1, T2, T3, T4, T5, T6</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 T2, T3, T4, T5, T6</p>	<p>Can use tools and equipment with some accuracy to cut and shape materials and put together components T1</p> <p>Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately T1, T2, T3</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 T1, T2, T3</p>	<p>Can select and work with a range of tools and equipment. T1</p> <p>Select from and use a wider range of tools and equipment to T1 cutting, T4 sawing, T5</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 T1, T2, T4, T5</p>	<p>Can work with a range of tools, materials, equipment, components and processes with some precision. T2/T6</p> <p>They check their work as it develops making modifications where appropriate. T2/T6</p> <p>Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately T1, T2, T6</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 T1, T2, T4/5, T6</p>
Evaluating processes and products	<p>They talk about their own and other peoples work in simple terms T2/T3</p> <p>Explore and evaluate a range of existing products T5</p> <p>Evaluate their ideas and products against design criteria T1, T2, T3, T4, T5, T6</p>	<p>Can recognise what they have done well as their work progresses and suggest things that could be better in the future T6</p> <p>Explore and evaluate a range of existing products. T4</p> <p>Evaluate their ideas and products against design criteria T1, T3, T6</p>	<p>Can identify where evaluation of the design and make process and their products has led to improvements T1</p> <p>Investigate and analyse a range of existing products</p> <p>Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work T1, T3, T5</p> <p>Understand how key events and individuals in design and</p>	<p>Can identify where evaluation of the design and make process and their products has led to improvements T2</p> <p>Investigate and analyse a range of existing products</p> <p>Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work T1</p> <p>Understand how key events and individuals in design and technology have helped</p>	<p>Can reflect on their designs as they develop, bearing in mind the way the product will be used.</p> <p>Can identify what is working well and what could be improved T2/T4</p> <p>Investigate and analyse a range of existing products T2, T4</p> <p>Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work T2, T4</p>	<p>Can test and evaluate products showing understanding of situations in which their designs will function and are aware of resources as a constraint. T1, T4, T5, T6</p> <p>Can evaluate products and their use of information sources T4, T5, T6</p> <p>Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work T1, T2,</p>

			technology have helped shape the world T3, T4, T6	shape the world	Understand how key events and individuals in design and technology have helped shape the world T1	T4, T5, T6 Understand how key events and individuals in design and technology have helped shape the world T4, T6
Knowledge and understanding of materials and components	Can describe how a product works T4/T6 Build structures, exploring how they can be made stronger, stiffer and more stable T4, T5 Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products. T4	Can use tools and assemble and join and combine materials and components in a variety of ways T2/T6 Build structures, exploring how they can be made stronger, stiffer and more stable T3 Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.	Can think ahead about the order of their work, choosing appropriate tools, equipment, materials, components and techniques T5/T6 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] Apply their understanding of computing to program, monitor and control their products. T6 Coding in ICT	Can think ahead about the order of their work, choosing appropriate tools, equipment, materials, components and techniques 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 including: series circuits incorporating switches, bulbs, buzzers and motors] T4 Apply their understanding of computing to program, monitor and control their products. T1 Coding (Scratch) in ICT	Can work with a variety of materials and components with some accuracy, paying attention to the quality of finish and to function T2/T5 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] T2 Apply their understanding of computing to program, monitor and control their products. T1 Coding (Scratch) T2- Programming (Cargobot) in ICT	Can use their knowledge and understanding of the characteristics of materials and familiar products when developing and communicating ideas 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 [including: series circuits incorporating switches, bulbs, buzzers and motors] T6 Apply their understanding of computing to program, monitor and control their products. T4- Coding (code.org) in ICT
Cooking and Nutrition	Use the basic principles of a healthy and varied diet to prepare dishes T1, T4 Understand where food comes from.	Use the basic principles of a healthy and varied diet to prepare dishes Understand where food comes from. T1, T4	Understand and apply the principles of a healthy and varied diet T3, T4, T5 Prepare and cook a variety of <u>predominantly savoury dishes</u> using a range of cooking techniques T1, T3, T4, T5 Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.	Understand and apply the principles of a healthy and varied diet T1 Prepare and cook a variety of <u>predominantly savoury dishes</u> using a range of cooking techniques Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.	Understand and apply the principles of a healthy and varied diet PSHE 1 Prepare and cook a variety of <u>predominantly savoury dishes</u> using a range of cooking techniques T4 Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.	Understand and apply the principles of a healthy and varied diet Prepare and cook a variety of <u>predominantly savoury dishes</u> using a range of cooking techniques T1, T3 Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed. T1, T3

Key Vocabulary Skills	planning, investigating design, evaluate, make, user, purpose, ideas, product,	investigating, planning, design, make, evaluate, user, purpose, ideas, design criteria, product, function	user, purpose, design, model, evaluate, prototype, annotated sketch, functional, innovative, investigate, label, drawing, function, planning, design criteria, annotated sketch, appealing	evaluating, design brief design criteria, innovative, prototype, user, purpose, function, prototype, design criteria, innovative, appealing, design brief, planning, annotated sketch, sensory evaluations	design decisions, functionality, authentic, user, purpose, design specification, design brief, innovative, research, evaluate, design criteria, annotate, evaluate, mock-up, prototype	function, innovative, design specification, design brief, user, purpose design brief, design specification, prototype, annotated sketch, purpose, user, innovation, research, functional, mock-up, prototype
Food	fruit and vegetable names, names of equipment and utensils, sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard flesh, skin, seed, pip, core, slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients,		name of products, names of equipment, utensils, techniques and ingredients texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury, hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested healthy/varied diet		ingredients, yeast, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs, fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source, seasonality utensils, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble	
Structures	cut, fold, join, fix structure, wall, tower, framework, weak, strong, base, top, underneath, side, edge, surface, thinner, thicker, corner, point, straight, curved, metal, wood, plastic circle, triangle, square, rectangle, cuboid, cube, cylinder		shell structure, three-dimensional (3-D) shape, net, cube, cuboid, prism, vertex, edge, face, length, width, breadth, capacity, marking out, scoring, shaping, tabs, adhesives, joining, assemble, accuracy, material, stiff, strong, reduce, reuse, recycle, corrugating, ribbing, laminating, font, lettering, text, graphics, decision,		frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent	
Textiles	joining and finishing techniques, tools, fabrics and components, template, pattern pieces, mark out, join, decorate, finish		fabric, names of fabrics, fastening, compartment, zip, button, structure, finishing technique, strength, weakness, stiffening, templates, stitch, seam, seam allowance		seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces, name of textiles and fastenings used, pins, needles, thread, pinking shears, fastenings,	
Mechanisms	slider, lever, pivot, slot, bridge/guide, card, masking tape, paper fastener, join, pull, push, up, down, straight, curve, forwards, backwards	vehicle, wheel, axle, axle holder, chassis, body, cab assembling, cutting, joining, shaping, finishing, fixed, free, moving, mechanism names of tools, equipment and materials used	mechanism, lever, linkage, pivot, slot, bridge, guide system, input, process, output linear, rotary, oscillating, reciprocating		pulley, drive belt, gear, rotation, spindle, driver, follower, ratio, transmit, axle, motor, circuit, switch, circuit diagram, annotated drawings, exploded diagrams, mechanical system, electrical system, input, process, output	
Electrical Systems			series circuit, fault, connection, toggle switch, push-to-make switch, push-to-break switch, battery, battery holder, bulb, bulb holder, wire, insulator, conductor, crocodile clip, control, program, system, input device, output device		reed switch, toggle switch, push-to-make switch, push-to-break switch, light dependent resistor (LDR), tilt switch, light emitting diode (LED), bulb, bulb holder, battery, battery holder, USB cable, wire, insulator, conductor, crocodile clip control, program, system, input device, output device, series circuit, parallel circuit	

