



Progression Documents

Design & Technology

Curriculum Overview:

At Spalding St Paul's Primary School, we want all of our children to be **PROUD** of all their achievements and successes across all curriculum subjects.

Our curriculum enables children to achieve their own **PERSONAL EXCELLENCE** through a well-tailored programme designed for all to access.

Our curriculum is designed for children to show **RESPECT** for what they are learning, themselves, others, beliefs and the world around them.

Our curriculum gives children a range of **OPPORTUNITIES** to develop their knowledge, skills and understanding.

Our curriculum is **UNIQUELY** designed to incorporate our diverse school, our community and the world we live in.

Our curriculum enables children to **DISCOVER** key skills and knowledge to help them become lifelong learners.

Intent	Implementation	Impact
<p>Early years Foundation Stage: In EYFS the framework is organised across 7 areas of learning rather than subject areas. As part of this document we have planned how the skills taught across EYFS feed into the national curriculum and which statements from the 2020 Development Matters are prerequisite skills for design & technology within the National Curriculum.</p> <p>KS1 and KS2: In KS1 and KS2 the history curriculum has been designed to cover all of the skills, knowledge and understanding as set out in the National Curriculum. The National Curriculum states that 'Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world.'</p> <p>To ensure that pupils develop a secure knowledge that they can build on, our design & technology curriculum has been mapped out using our Key Concepts.</p> <p>When covering each of these strands, the content will be carefully organised by each year group through our subject overview.</p> <p>Content knowledge, vocabulary and skills will then be planned for at a greater level of detail in the Year group Frameworks.</p> <p>Design & technology is delivered through subject specific teaching organised into blocks under a theme. Meaningful links with other subjects are made to strengthen connections and understanding for pupils.</p>	<p>The Early years Foundation Stage (EYFS) follows the 'Development Matters' in the EYFS guidance. In EYFS design & technology is taught as part of 'Physical Development' and Expressive Arts and Design' and will be seen as part of the continuous and adult lead provision across the classroom, not as a discrete subject.</p> <p>In KS1 and KS2, design & technology is taught as a discreet subject, every week, every other term to allow time to embed skills in the subject.</p> <p>All learning will start by revisiting prior knowledge. This will be scaffolded to support children to recall previous learning and make connections. Staff will model explicitly the subject-specific vocabulary, knowledge and skills relevant to the learning to allow them to integrate new knowledge into larger concepts.</p> <p>Learning will be supported through the use of knowledge organisers that provide children with scaffolding that supports them to retain new facts and vocabulary in their long-term memory. Knowledge organisers are used for pre-teaching, to support home learning and also as a part of daily review.</p>	<p>Impact is measured through regular learning walks, lesson visits, work scrutiny and pupil voice.</p> <p>Work will show that a range of topics are being covered as well as progression across each unit of work in every year group and across year groups.</p> <p>Children will be able to talk about the skills and knowledge they have acquired, through pupil voice, and will be engaged in lessons and want to find out more.</p> <p>Teachers will use Assessment for Learning to ensure all lessons are relevant and will help to plan for next steps.</p> <p>Subject coordinators will be given regular time to ensure resources are kept up to date, to monitor their subject across the school, create action plans and impact reports and to provide subject feedback to SLT as appropriate.</p>

Breadth of Study

Breadth of Study EYFS:

Three and Four-Year-Olds	Personal, Social and Emotional Development		<ul style="list-style-type: none"> Select and use activities and resources, with help when needed. This helps them to achieve a goal they have chosen or one which is suggested to them.
	Physical Development		<ul style="list-style-type: none"> Use large-muscle movements to wave flags and streamers, paint and make marks. Choose the right resources to carry out their own plan. Use one-handed tools and equipment, for example, making snips in paper with scissors.
	Understanding the World		<ul style="list-style-type: none"> Explore how things work.
	Expressive Arts and Design		<ul style="list-style-type: none"> Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park. 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. Create closed shapes with continuous lines, and begin to use these shapes to represent objects.
Reception	Physical Development		<ul style="list-style-type: none"> Progress towards a more fluent style of moving, with developing control and grace. Develop their small motor skills so that they can use a range of tools competently, safely and confidently. Use their core muscle strength to achieve a good posture when sitting at a table or sitting on the floor.
	Expressive Arts and Design		<ul style="list-style-type: none"> Explore, use and refine a variety of artistic effects to express their ideas and feelings. Return to and build on their previous learning, refining ideas and developing their ability to represent them. Create collaboratively, sharing ideas, resources and skills.
ELG	Physical Development	Fine Motor Skills	<ul style="list-style-type: none"> Use a range of small tools, including scissors, paintbrushes and cutlery.
	Expressive Arts and Design	Creating with Materials	<ul style="list-style-type: none"> 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.

Breadth of study Key Stage 1:

When designing and making, 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 such as 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

- Use the basic principles of a healthy and varied diet to prepare dishes.
- Understand where food comes from.

Breadth of study Key Stage 2:

When designing and making, pupils should be taught to:

- 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**
- 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.

Key Concepts

Master practical skills	Design, make, evaluate and improve	Take inspiration from design throughout history
This concept involves developing the skills needed to make high quality products (we have highlighted a range of skills but they may be added to or changed as appropriate for your school).	This concept involves developing the process of design thinking and seeing design as a process.	This concept involves appreciating the design process that has influenced the products we use in everyday life.

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Master practical Skills	Cooking	<p>Cut, peel or grate ingredients safely and hygienically.</p> <p>Measure or weigh using measuring cups or electronic scales.</p> <p>Assemble or cook ingredients.</p>		<p>Follow a recipe.</p> <p>Prepare ingredients hygienically using appropriate utensils.</p> <p>Measure ingredients to the nearest gram accurately.</p> <p>Assemble or cook ingredients (controlling the temperature of the oven or hob, if cooking).</p>		<p>Understand the importance of correct storage and handling of ingredients (using knowledge of micro-organisms).</p> <p>Measure accurately and calculate ratios of ingredients to scale up or down from a recipe.</p> <p>Demonstrate a range of baking and cooking techniques.</p> <p>Create and refine recipes, including ingredients, methods, cooking times and temperatures.</p>	
	Cutting	<p>Cut materials safely using tools provided.</p>	<p>Cut materials safely using tools provided.</p> <p>Demonstrate a range of cutting and shaping techniques (such as tearing, cutting, folding and curling).</p>	<p>Cut materials accurately and safely by selecting appropriate tools.</p>	<p>Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut outs).</p>	<p>Cut materials with precision and refine the finish with appropriate tools (such as sanding wood after cutting or a more precise scissor cut after roughly cutting out a shape).</p>	<p>Show an understanding of the qualities of materials to choose appropriate tools to cut and shape (such as the nature of fabric may require sharper scissors than would be used to cut paper).</p>
	Joining	<p>Demonstrate a range of joining techniques (such as gluing, hinges or combining materials to strengthen).</p>	<p>Use materials to practice drilling, screwing, gluing and nailing materials to make and strengthen products.</p>	<p>Select appropriate joining techniques.</p> <p>Strengthen materials using suitable techniques.</p>	<p>Choose suitable techniques to construct products or to repair items.</p> <p>Strengthen materials using suitable techniques.</p>	<p>Develop a range of practical skills to create products (such as cutting, drilling and screwing, nailing, gluing, filing and sanding).</p>	<p>Develop a range of practical skills to create products (such as cutting, drilling and screwing, nailing, gluing, filing and sanding).</p>
	Mechanisms	<p>Create products using leavers and slides</p>	<p>Create products using wheels and axes</p>	<p>Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as leavers and linkages)</p>	<p>Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (Pneumonic)</p>	<p>Convert rotary motion to linear using cams.</p>	<p>Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as pulleys and gears)</p>
	Textiles		<p>Shape textiles using templates.</p> <p>Join textiles using running stitch.</p> <p>Colour and decorate textiles using a number of techniques (such as dyeing, adding sequins or printing).</p>		<p>Join textiles with appropriate stitching.</p> <p>Select appropriate techniques to decorate textiles.</p> <p>Understand the need for a seam allowance.</p> <p>Join textiles with appropriate stitching.</p> <p>Select the most appropriate techniques to decorate textiles.</p>		<p>Create objects (such as a cushion) that employ a seam allowance.</p> <p>Join textiles with a combination of stitching techniques (such as back stitch for seams and running stitch to attach decoration).</p> <p>Use the qualities of materials to create suitable visual and tactile effects in the decoration of textiles (such as a soft decoration for comfort on a cushion).</p>

Measuring	Measure and mark out to the nearest centimeter with support	Measure and mark out to the nearest centimeter.	Measure and mark out to the nearest millimeter.	Measure and mark out to the nearest millimeter.	Measure and mark out accurately	Measure and mark out accurately
				Create series and parallel circuits Diagnose faults in battery operated devices (such as low battery, water damage or battery terminal damage).		Create circuits using electronics kits that employ a number of components (such as LEDs, resistors, transistors and chips).
		Model designs using software.		Control and monitor models using software designed for this purpose.		Write code to control and monitor models or products. Use innovative combinations of electronics (or computing) and mechanics in product designs.
Circuits						
ICT						
Design, make, evaluate and improve	Design products that have a purpose. Make products, refining the design as work progresses.	Design products that have a clear purpose and an intended user. Make products, refining the design as work progresses. Use software to design	Design with purpose. Make products by working efficiently (such as by carefully selecting materials). Refine work and techniques as work progresses	Design with purpose by identifying opportunities to design. Make products by working efficiently (such as by carefully selecting materials). Refine work and techniques as work progresses, continually evaluating the product design. Use software to design and represent product designs.	Design with the user in mind Make products through stages of prototypes. Ensure products have a high quality finish, using art skills where appropriate. Use prototypes and cross-sectional diagrams to represent designs.	Design with the user in mind, motivated by the service a product will offer (rather than simply for profit) Make products through stages of prototypes, making continual refinements. Ensure products have a high quality finish, using art skills where appropriate. Use prototypes, cross-sectional diagrams and computer aided designs to represent designs.
Take inspiration from design throughout	Explore objects and designs to identify likes and dislikes of the designs. Explore how products have been created.	Explore objects and designs to identify likes and dislikes of the designs. Suggest improvements to existing designs. Explore how products have been created.	Identify some of the great designers in all of the areas of study (including pioneers in horticultural techniques) to generate ideas for designs. Improve upon existing designs. Disassemble products to understand how they work.	Identify some of the great designers in all of the areas of study (including pioneers in horticultural techniques) to generate ideas for designs. Improve upon existing designs, giving reasons for choices. Disassemble and reassemble products to understand how they work.	Combine elements of design from a range of inspirational designers throughout history. Create designs that improve upon existing products. Evaluate the design of products so as to suggest improvements to the user experience.	Combine elements of design from a range of inspirational designers throughout history, giving reasons for choices. Create innovative designs that improve upon existing products. Evaluate the design of products so as to suggest improvements to the user experience.

DT OVERVIEW

	Autumn		Spring		Summer	
Year 1		Structures Free standing structures Chair for baby bear		Mechanisms Slides and leavers Moving pictures: Characters from stories		Cooking Seaside Snacks
Year 2		Structures Homes		Mechanisms Wheels and Axles Moving Vehicles		Structures Kites
Year 3		Structures Shell structures Desk tidy		Mechanical Systems Leavers & linkages Making story books		Cooking Great British Dishes
Year 4	Electrical Systems Simple circuits and switches Torches / Buzzers		Mechanical Systems Pneumatics		Structures Bridges	
Year 5	Structures Frame Structures Making Hide		Mechanical Systems Cams Moving toys		Cooking American food	
Year 6	Electrical Systems More complex switches and circuits Alarming Vehicles		Mechanical Systems Pulleys and gears Fairgrounds		Structures Bird Houses	

Structures	Mechanisms	Cooking	Electrical Systems
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