

Spring Meadow Primary and 'School House' Nursery



Design and Technology Curriculum Overview

Design and Technology Curriculum

Purpose of study

A high-quality design and technology education will enable pupils to design and make products that solve real and relevant problems, taking into account their own and other's needs, wants and values. Design and technology will teach children the skills needed to take risks, whilst being resourceful, innovative and enterprising citizens. Teaching will equip pupils to develop a critical understanding, encouraging thoughts about the impact of design and technology on their daily life and the wider world. Design and technology allows children to make an essential contribution to the creativity, culture, wealth and well-being of the population.

Aims

"Good buildings come from good people, and all problems are solved by good design."

Stephen Gardiner

The school design and technology curriculum aims to ensure that all pupils:

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

Organisation

- Design and technology will be taught on alternate half terms.
- Within each Key Stage children should have the opportunity to explore food, mechanics, construction, textiles, electricals and materials.
- Each unit needs to follow the design, make and evaluate structure.

- Units of work should aim to have a cross-curricular link.

Progression

Aspect	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Communicating, Planning and Designing	<p>Begin to communicate to help work out problems and organise thinking and activities, and to explain how things work and why they might happen.</p> <p>Begin to ask questions to find out more and to check they understand what has been said to them.</p> <p>Create collaboratively,</p>	<p>Begin to use their own experiences to support ideas.</p> <p>Begin to understand how existing products are developed: what they are used for, how they work and the materials used.</p> <p>Begin to develop their own ideas through discussions and drawings.</p>	<p>Begin to use their own and other's experiences to support ideas.</p> <p>Begin to develop their own ideas through discussions, labelled drawings, observation and modelling.</p> <p>Identify a purpose for their product.</p>	<p>Generate ideas for an item, taking into account its purpose and users with confidence.</p> <p>Begin to order the main steps needed to make a product with purpose.</p> <p>Understand how existing products are developed: what they are used for, how they work and the materials used.</p>	<p>Generate ideas for an item, taking into account its purpose and users with confidence. With possible links to Maths and Science.</p> <p>Confidently draw and label diagrams from different views.</p> <p>When planning, take into account the views of others such as intended users,</p>	<p>Start to develop and communicate their ideas through annotated, cross sectional diagrams and prototypes.</p> <p>Begin to use research and develop design criteria to support their design of an innovative and functional product.</p> <p>Start to understand the</p>	<p>Suggest alternative ways of making their product if the first attempt fails.</p> <p>Identify the strengths and weaknesses in their ideas and product.</p> <p>Know the costs of products, how sustainable they are and the impact products have beyond their intended purpose.</p>

	sharing ideas, resources and skills.				in order to improve their work.	costs of products, how sustainable they are and the impact products have beyond their intended purpose.	
Using tools, equipment and materials to make products.	<p>Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form, and function;</p> <p>Develop their small motor skills so that they can use a range of tools competently, safely and confidently.</p> <p>Use a range of small tools, including scissors, paint</p>	<p>Begin to build structures, thinking about how they can be made stronger.</p> <p>Explore and use mechanisms e.g. levers, sliders, wheels and axles.</p> <p>With help measure, mark out, cut and shape a variety of materials.</p> <p>Explore using tools e.g. scissors, hole punch etc.</p>	<p>Begin to choose tools and materials, using their correct names to describe them.</p> <p>Build structures, thinking about how they can be made stronger.</p> <p>With some help begin to measure, cut and score with some accuracy.</p> <p>Learn how to use hand tools safely and appropriately.</p> <p>Join fabric to make a simple</p>	<p>Select a wider range of tools and techniques when safely making their product.</p> <p>Explain why they have chosen specific tools and used certain techniques.</p> <p>Start to understand that mechanical systems such as levers and links create movement.</p> <p>Measure, mark out, cut, score and assemble</p>	<p>Select a wider range of tools and techniques when safely making their product.</p> <p>Know how to measure, mark out, cut and shape a variety of materials using appropriate tools and equipment.</p> <p>Know how mechanical systems such as cams, pulleys or gears create movement.</p>	<p>Select appropriate materials, tools and techniques.</p> <p>Understand how mechanical systems such as cams, pulleys or gears create movement.</p> <p>Understand that mechanical and electrical systems have an input, process and output.</p> <p>Measure, tape, pin, cut and join fabric with accuracy.</p>	<p>Confidently select appropriate materials, tools and techniques.</p> <p>Use tools safely and accurately, with the aim to make a quality product.</p> <p>Confidently pin, sew and stitch different materials together.</p> <p>Adapt and make improvements and modifications as they go along.</p>

	brushes and cutlery;	Begin to join using a variety of methods such as glue, split pins and masking tape.	product by using basic sewing techniques.	with more accuracy. Start to think about their ideas as they make progress and be willing to change things in order to improve. Start to measure, tape, pin, cut and join fabric with some accuracy.	Measure, tape, pin, cut and join fabric with some accuracy. Sew using a range of different stitches.	Sew using a range of different stitches.	Know how to strengthen a 3D model. Know more about electrical circuits, understanding that they have an input, process and output. Use finishing techniques to improve the appearance of their product (May involve use of ICT).
Evaluating	Begin to evaluate their work, thinking about what they like and dislike about the product. Look at existing products and begin to discuss which products	Begin to evaluate their product, thinking about the purpose of the product (design criteria). Look at existing products and begin to discuss which products	Evaluate their work against their design criteria. Look at existing products and discuss which products they like/dislike and why.	Evaluate their work against their original design criteria. Begin to evaluate familiar products, considering the views of others to improve them.	Evaluate their products by carrying out suitable tests. Start to evaluate their product during the process and once complete. Evaluate familiar products,	Evaluate their product against the original design criteria and by carrying out suitable tests. Evaluate their product during the process and once complete.	Evaluate their product against the original design criteria, identifying strengths and weaknesses and areas of development by carrying out suitable tests.



	<p>they like/dislike and why.</p> <p>Begin to return to and build on their previous learning, refining ideas and developing their ability to represent them.</p>	<p>they like/dislike and why.</p> <p>Begin to evaluate their own product, thinking about strengths, weaknesses and any changes they would like to make.</p>	<p>Start to evaluate their products throughout the design and make process. Thinking about strengths, weaknesses and any possible changes.</p>	<p>Begin to evaluate how designs of famous designers have helped shape the world.</p>	<p>considering the views of others to improve them.</p> <p>Evaluate how designs of famous designers have helped shape the world.</p>	<p>Evaluate their own product and ask peers to evaluate their product.</p> <p>Evaluate how designs of famous designers have helped shape the world.</p>	<p>Evaluate their product during the process and once complete.</p> <p>Record their evaluations using annotated drawings.</p> <p>Evaluate how designs of famous designers have helped shape the world.</p>
Food and Nutrition	<p>Manage their own basic hygiene and personal needs, including dressing, going to the toilet, and understanding the importance of healthy food choices.</p> <p>Know and talk about the different factors that support</p>	<p>Begin to understand that food comes from plants and animals.</p> <p>Explore the understanding that food has to be farmed, grown or caught.</p> <p>Start to understand how to name and</p>	<p>Understand that food comes from plants and animals.</p> <p>Know that food has to be farmed, grown or caught.</p> <p>Understand how to name and sort foods into the five groups.</p>	<p>Start to understand that food is grown, reared and caught in the UK, Europe and the wider world. Understand how to prepare and cook a variety of dishes safely and hygienically using an appropriate heat source.</p>	<p>Understand that food is grown, reared and caught in the UK, Europe and the wider world. Understand how to prepare and cook a variety of dishes safely and hygienically using an appropriate heat source.</p>	<p>Understand that food is grown, reared and caught in the UK, Europe and the wider world. Begin to understand how seasons effect the availability of food.</p> <p>Understand how food is processed into different</p>	<p>Know that food is grown, reared and caught in the UK, Europe and the wider world.</p> <p>Understand how seasons effect the availability of food.</p> <p>Understand how food is processed into different</p>

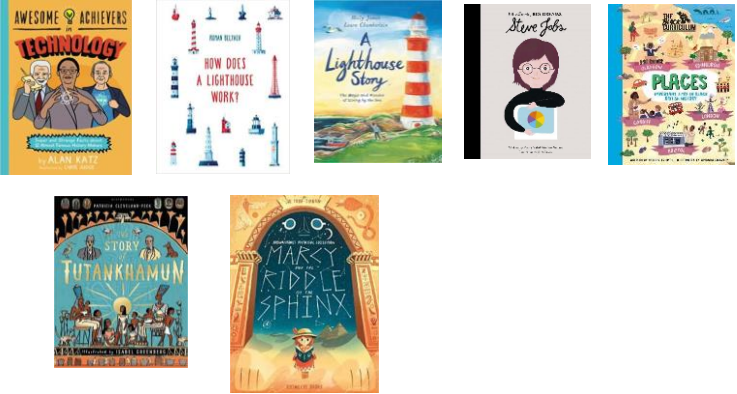

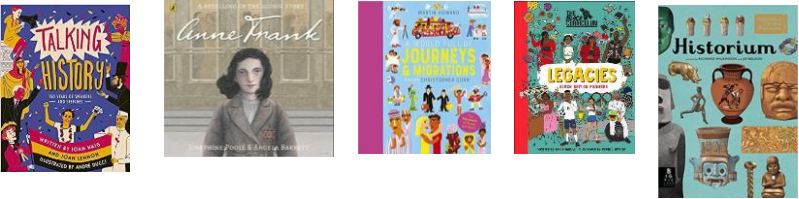
	<p>their overall health and wellbeing: regular physical activity, healthy eating, toothbrushing, sensible amounts of 'screen time', having a good sleep routine, being a safe pedestrian.</p>	<p>sort foods into the five groups.</p> <p>Begin to understand that everyone should eat at least five portions of fruit and vegetables a day.</p> <p>Know how to prepare simple dishes safely and hygienically (without using a heat source).</p> <p>Begin to learn techniques such as cutting, peeling and grating.</p>	<p>Know that everyone should eat at least five portions of fruit and vegetables a day.</p> <p>Prepare simple dishes safely and hygienically (without using a heat source).</p> <p>Demonstrate how to use techniques such as cutting, peeling and grating.</p>	<p>Begin to understand how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</p> <p>Start to understand that a healthy diet is made up of a variety and balance of different foods and drinks.</p> <p>Begin to know that to be active and healthy, food and drink are needed to provide energy for the body.</p>	<p>Know how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</p> <p>Know that a healthy diet is made up from a variety of different foods and drinks.</p> <p>Know that to be active and healthy, food and drink are needed to provide energy for the body.</p>	<p>ingredients that can be eaten or used in cooking.</p> <p>Know how to prepare and cook a variety of dishes safely and hygienically using an appropriate heat source.</p> <p>Know how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</p> <p>Begin to understand that food and drink contain different substances that are needed to keep healthy e.g. nutrients, water and fibre.</p>	<p>ingredients that can be eaten or used in cooking.</p> <p>Know how to prepare and cook a variety of dishes safely and hygienically using an appropriate heat source.</p> <p>Know how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</p> <p>Know that food and drink contain different substances that are needed to keep healthy e.g. nutrients, water and fibre.</p>
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Unit Planner

Key Stage	Subject Related Themes	Book led curriculum coverage
Nursery	<p>Construction Cooking Textiles</p>	
EYFS	<p>Structures Cooking and Nutrition Textiles</p>	

		
<p>Year 1</p>	<p>Structures Cooking and Nutrition Textiles</p>	
<p>Year 2</p>	<p>Structures Cooking and Nutrition Textiles</p>	

<p>Year 3</p>	<p>Structures Mechanisms Digital world</p>	
<p>Year 4</p>	<p>Structures Mechanisms Digital world</p>	
<p>Year 5</p>	<p>Structures Cooking and Nutrition Electrical systems</p>	

		
Year 6	Structures Cooking and Nutrition Electrical systems	

Knowledge Progression

Unit	Knowledge
Nursery People and places	<ul style="list-style-type: none"> ● Make simple models which express their ideas. ● Choose the right resources to carry out their own plan.

Forest and Woodland Moving and Growing	
EYFS Structures	<ul style="list-style-type: none"> ● To learn about permanent and temporary ways to join materials. ● To explore combining materials and joining techniques. ● To understand what waterproof means. ● To investigate the shape of a structure in order to build their own.
Year 1 Structures	<ul style="list-style-type: none"> ● To learn the importance of having a clear design criteria. ● To explore including both individual preferences and specific requirements in a design. ● To make stable structures from various materials.
Year 2 Structures	<ul style="list-style-type: none"> ● To know that a structure is something which has been formed or made from parts. ● To know that a 'stiff' structure or material is one that does not bend easily. ● To explore how materials can be manipulated to improve strength and stiffness.
Year 3 Structures	<ul style="list-style-type: none"> ● To understand that wide and flat based objects are more stable. ● To understand the importance of strength and stiffness in structures. ● To know that a facade is the front of a structure.
Year 4 Structures	<ul style="list-style-type: none"> ● To understand what a frame structure is. ● To know that a 'free standing' structure is one that can stand on its own. ● To know that aesthetics are how a product looks.
Year 5 Structures	<ul style="list-style-type: none"> ● To understand some different ways to reinforce structures. ● To know that properties are words that describe the form and function of materials. ● To understand why material selection is important based on their properties.
Year 6 Structures	<ul style="list-style-type: none"> ● To understand what a footprint plan is. ● To understand that in the real world, design can impact users in positive and negative ways.
Nursery Ourselves At the farm Fantastic food	<ul style="list-style-type: none"> ● To talk about the differences between materials and changes they notice. ● Make healthy choices about food and drink. ● To use one-handed tools and equipment when cooking.

EYFS Cooking and Nutrition	<ul style="list-style-type: none"> ● To explore the differences between different foods using their senses. ● To know and talk about the different factors that support healthy eating.
Year 1 Cooking and Nutrition	<ul style="list-style-type: none"> ● To use their knowledge of food to create a food product. ● To taste and evaluate a range of food in order to design a recipe. ● To create a design for packaging to store their food product.
Year 2 Cooking and Nutrition	<ul style="list-style-type: none"> ● To understand what makes a balanced diet. ● To know that the five main food groups are: carbohydrates, fruits and vegetables, protein, dairy and foods high in fat and sugar. ● To understand that I should eat a range of different foods from each food group and how much I can eat of each.
Year 3 Cooking and Nutrition	<ul style="list-style-type: none"> ● To know that climate affects food growth. ● To know that not all fruits and vegetables can be grown in the UK. ● To know that cooking instructions are known as a 'recipe'.
Year 4 Cooking and Nutrition	<ul style="list-style-type: none"> ● To understand the importance of budgeting when planning ingredients used for cooking. ● To learn a variety of cooking techniques such as sieving, creaming, rubbing method, and cooling. ● To know that it is important to use oven gloves when removing trays from a hot oven.
Year 5 Cooking and Nutrition	<ul style="list-style-type: none"> ● To know that I can adapt a recipe to make it healthier by substituting ingredients. ● To understand that 'cross - contamination' means that bacteria and germs have been passed on to ready to eat foods and it happens when these foods mix with raw meat or unclean objects.
Year 6 Cooking and Nutrition	<ul style="list-style-type: none"> ● To know that 'flavour' is how a food or drink tastes. ● To know that many countries have 'national dishes' which are recipes associated with that country. ● To understand what happens to a certain food before it appears on the supermarket shelf (Farm to fork).
Nursery In the garden Amazing animals Under the sea	<ul style="list-style-type: none"> ● To explore materials with different properties. ● 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. ● Explore different materials freely, to develop their ideas about how to use them and what to make. ● Join different materials and explore different textures.
EYFS Textiles	<ul style="list-style-type: none"> ● To develop and practise using threading and weaving techniques using various materials and objects.

	<ul style="list-style-type: none"> ● To learn how to create a design of an object. ● To reflect on how they achieved their aims.
Year 1 Textiles	<ul style="list-style-type: none"> ● To understand that different techniques for joining materials can be used for different purposes. ● To understand that a template is used to cut out the same shape multiple times. ● To know that drawing a design idea is useful to see how an idea will look.
Year 2 Textiles	<ul style="list-style-type: none"> ● To know that sewing is a method of joining fabric. ● To know that different stitches can be used when sewing. ● To understand the importance of tying a knot after sewing the final stitch.
Year 3 Textiles	<ul style="list-style-type: none"> ● To learn techniques such as applique. ● To know that applique is a way of mending or decorating a textile by applying smaller pieces of fabric. ● To know that when two edges of fabric have been joined together it is called a seam. ● To understand that some products are turned inside out after sewing to hide the stitching.
Year 4 Textiles	<ul style="list-style-type: none"> ● To know that a fastening is something that holds two pieces of materials together. ● To know that different fastening types are useful for different purposes. ● To know that creating a mock up (prototype) of their idea is useful for checking ideas and proportions.
Year 5 Textiles	<ul style="list-style-type: none"> ● To know that blanket stitch is useful to reinforce the edges of a fabric material or join two pieces of material. ● To understand that it is easier to finish simpler designs to a high standard.
Year 6 Textiles	<ul style="list-style-type: none"> ● To understand that it is important to create a design with the target customer in mind. ● To know that using a template helps to accurately make out a design on fabric. ● To understand the importance of consistently sized stitches.
Year 3 Digital world *KS2 only unit	<ul style="list-style-type: none"> ● To understand that in programming, a 'loop' is code that repeats something again and again until stopped. ● To know that CAD stands for 'Computer aided design'.
Year 4 Digital world *KS2 only unit	<ul style="list-style-type: none"> ● To understand what variables are in programming. ● To know that an algorithm is a set of instructions to be followed by the computer. ● To know that it is important to check my code errors (bugs).

