



WHITMORE PARK PRIMARY SCHOOL DESIGN + TECHNOLOGY CURRICULUM



Whitmore
Park
Primary School



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Our Curriculum Drivers

Our Curriculum drivers thread throughout our whole curriculum.

Year Group	Educational Visits (Off-Site)	Educational Visitors (On-Site)	Residential Visits	Outdoor Learning Sessions (e.g. Forest Schools)	Arts and Culture	Community and Partnership	Specialist Curriculum Days	Specialist Curriculum Weeks
1	Transport Museum <i>Transport</i> Twycross Zoo	Stagecoach <i>Transport</i>					5x Faith/RE Days International Day World Book Day Science Day Maths Day	<i>Art Week</i> <i>STEAM</i> <i>Alternate</i> Enterprise Book Week
Vocabulary		Inclusion		Oracy		First-hand experiences		Diversity
3	Coombe Abbey <i>Stone Age to Iron Age</i> Coundon Wedge Jubilee Crescent	Roman Visitor Saxon Visitor					3 x Book/Author Focus Day 5x Faith/RE Days International Day World Book Day Science Day Maths Day 3 x Book/Author Focus Day	Healthy Body, Healthy Mind <i>Art Week</i> <i>STEAM</i> <i>Alternate</i> Enterprise Book Week Healthy Body, Healthy Mind
4	Field Trip – City Centre	Egyptian Visitor	Space Camp TBC		Morning of Music		5x Faith/RE Days International Day World Book Day Science Day Maths Day 3 x Book/Author Focus Day	<i>Art Week</i> <i>STEAM</i> <i>Alternate</i> Enterprise Book Week Healthy Body, Healthy Mind



5	Transport Museum Blitz Experience Blitz Herbert Art Museum Blitz		PGL – 2 Nights		President Kennedy watch performance		5x Faith/RE Days International Day World Book Day Science Day Maths Day 3 x Book/Author Focus Day	Art Week STEAM <i>Alternate</i> Enterprise Book Week Healthy Body, Healthy Mind
6		Mayan Visitor Science Visitor	Dol-y-Moch		1 Theatre Visit (Holes)		5x Faith/RE Days International Day World Book Day Science Day Maths Day 3 x Book/Author Focus Day	Art Week STEAM <i>Alternate</i> Enterprise Book Week Healthy Body, Healthy Mind

Design & Technology

Curriculum Intent

At Whitmore Park Primary School, children receive a design and technology curriculum which allows them to exercise their creativity. The children are taught to combine their designing and making skills with knowledge and understanding in order to create products that solve real and relevant problems within a variety of contexts. The children are also given opportunities to reflect on and evaluate past and present technology. We aim to provide meaningful and memorable experiences which develop learning and result in the acquisition of knowledge and skills. This way the children will engage more, learn more and understand more. Skills are taught progressively to ensure that all children are able to learn and practice in order to develop as they move through the school. Opportunities are given for children to work both independently and in groups. Evaluation is an integral part of the design process and allows children to adapt and improve their product, this is a key skill which they need throughout their life. D&T allows children to apply the knowledge and skills learned in other subjects, particularly Maths, Science and Art. Children's interests are captured through themed learning, ensuring that links are made whenever possible in a cross curricular way, giving children motivation and meaning for their learning.. The design and technology curriculum has been organised into 2 x ½ term project in KS1 and 3 x ½ term projects in KS2, to ensure the depth and range of knowledge and skills are covered during their time at school.

Our Design and Technology Strands

Designing

Making

Evaluating

Technical Language

At Whitmore Park Primary School these strands are taught:

1. In KS1, pupils will have a 6 week Design and Technology topic.
2. In KS2, pupils will have 2 x 6 week Design and Technology units.
3. By exploring the process of design and making alongside a study of designers, existing products and an understanding of the purpose of Design and Technology in the modern world.

Our Aims

The curriculum for Design and Technology aims to ensure all pupils:

1. Develop the creative, technical and practical expertise to participate in an increasingly technological world.

Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world.
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.
Critique, evaluate and test their ideas and products and the work of others.

End of Key Stage 1 Expectations

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment].
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 [for example, 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

End of Key Stage 2 Expectations

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].

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.



Whole School Year Plan for Design and Technology

Long Term Plan (whole school)

	Aut 1	Aut 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1			Cars Mechanisms (Wheels and Axels)	Puppets Textiles		FOOD
Year 2		Moving pictures Mechanisms (Simple wheels, levers and linkages)		Baby Bears Chair Structures		FOOD



Year 3	Building a Fort Structures				FOOD Pneumatic Toy Mechanical systems
Year 4			Levers. Mechanisms	Fastenings Textiles	FOOD
Year 5		Electronic Greeting Card Electrical systems		Pop Up Book Mechanical Systems	FOOD
Year 6			Make a cushion. Textiles.		FOOD Automata Toys. Mechanical Systems



DT: Key Stage 1					
Designing	Making	Evaluating	Technical Knowledge	Food Technology	
Design - purposeful, functional, appealing products for themselves and other users based on design criteria Design - generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology	select from and use a range of tools and equipment to perform practical tasks (for example, 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	explore and evaluate a range of existing products evaluate their ideas and products against design criteria	build structures, exploring how they can be made stronger, stiffer and more stable explore and use mechanisms (for example, levers, sliders, wheels and axes), in their products.	use the basic principles of a healthy and varied diet to prepare dishes understand where food comes from	
Year 1	<ul style="list-style-type: none"> use own ideas to design something and describe how their own idea works design a product which moves explain to someone else how they want to make their product and make a simple plan before making 	<ul style="list-style-type: none"> use own ideas to make something make a product which moves choose appropriate resources and tools 	<ul style="list-style-type: none"> describe how something works explain what works well and not so well in the model they have made 	<ul style="list-style-type: none"> make their own model stronger. use wheels and axes, when appropriate to do so 	<ul style="list-style-type: none"> cut food safely
Year 2	<ul style="list-style-type: none"> think of an idea and plan what to do next explain why they have chosen specific materials 	<ul style="list-style-type: none"> choose tools and materials and explain why they have chosen them join materials and components in different ways measure materials to use in a model or structure 	<ul style="list-style-type: none"> explain what went well with their work 	<ul style="list-style-type: none"> make a model stronger and more stable Use simple leavers to make a moving image. 	<ul style="list-style-type: none"> weigh ingredients to use in a recipe describe the ingredients used when making a dish or cake



DT: Key Stage 2				
Designing	Making	Evaluating	Technical Knowledge	Food Technology
<p>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</p> <p>generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</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 select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities</p>	<p>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</p> <p>understand how key events and individuals in design and technology have helped shape the world</p>	<p>apply their understanding of how to strengthen, stiffen and reinforce more complex structures</p> <p>understand and use mechanical systems in their products (for example, gears, pulleys, cams, levers and linkages)</p> <p>understand and use electrical systems in their products (for example, series circuits incorporating switches, bulbs, buzzers and motors)</p> <p>apply their understanding of computing to program, monitor and control their products.</p>	<p>understand and apply the principles of a healthy and varied diet</p> <p>prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques</p> <p>understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed</p>
<p>Year 3</p> <ul style="list-style-type: none"> • prove that a design meets a set criteria. • design a product and make sure that it looks attractive • choose a material for both its suitability and its appearance 	<ul style="list-style-type: none"> • follow a step-by-step plan, choosing the right equipment and materials • select the most appropriate tools and techniques for a given task • make a product which uses mechanical components • work accurately to measure, make cuts and make holes 	<ul style="list-style-type: none"> • explain how to improve a finished model • know why a model has, or has not, been successful 	<ul style="list-style-type: none"> • know how to strengthen a product by stiffening a given part or reinforce a part of the structure • use a simple IT program within the design 	<ul style="list-style-type: none"> • describe how food ingredients come together • weigh out ingredients and follow a given recipe to create a dish • talk about which food is healthy and which food is not • know when food is ready for harvesting
<p>Year 4</p> <ul style="list-style-type: none"> • use ideas from other people when designing • produce a plan and explain it • persevere and adapt work when original ideas do not work • communicate ideas in a range of ways, including by sketches and drawings which are annotated 	<ul style="list-style-type: none"> • know which tools to use for a particular task and show knowledge of handling the tool • know which material is likely to give the best outcome • measure accurately 	<ul style="list-style-type: none"> • evaluate and suggest improvements for design • evaluate products for both their purpose and appearance • explain how the original design has been improved • present a product in an interesting way 	<ul style="list-style-type: none"> • links scientific knowledge by using lights, switches or buzzers • use electrical systems to enhance the quality of the product • use IT, where appropriate, to add to the quality of the product 	<ul style="list-style-type: none"> • know how to be both hygienic and safe when using food • bring a creative element to the food product being designed



DT: Key Stage 2

	Designing	Making	Evaluating	Technical Knowledge	Food Technology
	<p>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</p> <p>generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</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 select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities</p>	<p>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</p> <p>understand how key events and individuals in design and technology have helped shape the world</p>	<p>apply their understanding of how to strengthen, stiffen and reinforce more complex structures</p> <p>understand and use mechanical systems in their products (for example, gears, pulleys, cams, levers and linkages)</p> <p>understand and use electrical systems in their products (for example, series circuits incorporating switches, bulbs, buzzers and motors)</p> <p>apply their understanding of computing to program, monitor and control their products.</p>	<p>understand and apply the principles of a healthy and varied diet</p> <p>prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques</p> <p>understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed</p>
Year 5	<ul style="list-style-type: none"> come up with a range of ideas after collecting information from different sources produce a detailed, step-by-step plan explain how a product will appeal to a specific audience design a product that requires pulleys or gears 	<ul style="list-style-type: none"> use a range of tools and equipment competently make a prototype before making a final version make a product that relies on pulleys or gears 	<ul style="list-style-type: none"> suggest alternative plans; outlining the positive features and draw backs evaluate appearance and function against original criteria 	<ul style="list-style-type: none"> link scientific knowledge to design by using pulleys or gears uses more complex IT program to help enhance the quality of the product produced 	<ul style="list-style-type: none"> be both hygienic and safe in the kitchen know how to prepare a meal by collecting the ingredients in the first place know which season various foods are available for harvesting
Year 6	<ul style="list-style-type: none"> use market research to inform plans and ideas. follow and refine original plans justify planning in a convincing way show that culture and society is considered in plans and designs 	<ul style="list-style-type: none"> know which tool to use for a specific practical task know how to use any tool correctly and safely know what each tool is used for explain why a specific tool is best for a specific action 	<ul style="list-style-type: none"> know how to test and evaluate designed products explain how products should be stored and give reasons evaluate product against clear criteria 	<ul style="list-style-type: none"> use electrical systems correctly and accurately to enhance a given product know which IT product would further enhance a specific product use knowledge to improve a made product by strengthening, stiffening or reinforcing 	<ul style="list-style-type: none"> explain how food ingredients should be stored and give reasons work within a budget to create a meal understand the difference between a savoury and sweet dish



Implementation

At Whitmore Park Primary Schools our design and technology curriculum is built around essential knowledge, understanding and key skills. These are broken into year group expectations and show clear continuity and progress. All teaching of design and technology follows the design, make and evaluate cycle. The design process should be relevant in context, to give meaning to learning. While making, children should be given choice and a range of tools to choose freely from. When evaluating, children should be able to evaluate their own products against a design criteria. Each of these steps should be rooted in technical knowledge and vocabulary. In Design and Technology children may be asked to solve problems and develop their learning independently or as part of a team. This will allow them to develop their social and teamwork skills alongside others.

Displays will be used to share and celebrate work throughout the school.

The design and technology curriculum across the school has been designed with reference to the complexity of the content and where wider curriculum links can be made. This ensures that the work covered is age appropriate with the correct level of challenge.

Teachers plan a variety of creative and practical activities in order to ensure that pupils are taught the knowledge, understanding and skills needed to engage in a process of designing, making and evaluating work so that their finished product becomes perfected.

Teaching - In KS1 pupils will be taught how to design, make and evaluate, but also to gain specific technical knowledge such as exploring how structures can be made stronger and using mechanisms (levers, slides, wheels). In KS2 pupils will also design, make and evaluate products, but their technical knowledge will develop and build on existing skills to strengthen and reinforce more complex structures, 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).

Learning - Pupils will 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.

Assessment - Pupils will be assessed at the end of each lesson and more formally at the end of each unit of work. Teachers will assess if pupils are working below expected, at the expected level or working at greater depth against the D&T national curriculum objectives. Children will also be given the opportunities to self-evaluate their work and offer ways in which to improve it.

Impact

Through our curriculum the children build on their DT knowledge and skills each year. As designers, they are able to develop skills and attributes which they can use beyond school and into adulthood. They learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Ongoing assessment is used to inform differentiation, support



and challenge required by the children. Displaying the children's projects enhances the school environment and reflects the children's sense of pride in their DT work. Curriculum provision will be monitored to ensure there is a positive impact on children's learning. Monitoring will include pupil voice.

Everything we do is with the child in mind, and strong relationships are built between pupils and staff which create an atmosphere for learning which is conducive to success.

We measure the impact of our curriculum through the following methods:

- Summative assessment of pupil discussions about their learning.
- Images of the children's practical learning.
- Interviewing the pupils about their learning (pupil voice).
- Annual reporting of standards across the curriculum.
- Self/peer evaluation and teacher feedback noted in books.
- Children's progress is tracked yearly on DC Pro.