



Statement of Intent

"Design and Technology should be the subject where Mathematical brainboxes and Science whizz kids turn their bright ideas into useful projects." – James Dyson

The intent of our DT offer is to provide a curriculum which is accessible to all and that is rich with opportunities for construction, cooking and textiles. As a result, every pupil will;

- Develop their creative, technical and practical expertise needed to perform every-day tasks confidently and to participate successfully in an increasingly technological world
- * Learn and apply skills to design and make high-quality proto-types and products for a wide range of uses.
- Critique, evaluate and test their ideas and products and the work of others
- Understand and apply the principles of nutrition and enjoy a range of cooking experiences

We aim to provide a rigorous, **inspiring**, practical DT curriculum supported by cross-curricular links. Projects will build on previous learning and help to form a repertoire of skills, knowledge and understanding. This layering of skills will ensure the children will **flourish** in their Design and Technology skills.



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Implementation

We teach the National Curriculum and the EYFS framework, supported by a clear skills and knowledge progression. This ensures that skills and knowledge are built on year by year and sequenced appropriately to maximise learning for all children. It is important that the children develop progressive skills of a designer and critique throughout their time at Wantage CE primary School and do not just learn about the work of others. Through the following, we aim to provide a rich and broad experience in the study of Design and Technology.

Planning and Lesson

From the long-term overview, teachers will plan a sequence of lessons using skills and progression, preparing scaffolds for more difficult tasks. Teachers aim to provide a cross-curricular approach to develop a deeper understanding and a 'real life' scenario to the project. Lessons are planned using a range of technical skills and enquiry which builds on and reviews the previous year's learning. Pupils are encouraged to learn from famous designers and take inspiration from them and the world around them. In developing their design and technology skills, we present projects in the form of a question to spark intrigue and provide a high level of active practice for all students.

Enhancements

We ensure that every pupil, regardless of SEN(D) or ability, is able to participate in projects and access the curriculum. The hands-on experiences help pupils to build up their design and technology skills independently rather than simply learning from observation. For example, from a young age we expect our pupils to be safely cutting up wood and food using age appropriate tools with just teacher supervision and modelling.

Assessment: FS Pupils are assessed against the EYFS Framework. Pupils in years 1-6 are assessed against the criteria in our progression and skills document. Pupils are assessed using the following criteria: B=Working well below the age-related expectations; WTS= Working towards the age-related expectations; ARE= Working at age-related expectations and GD= working at greater depth (above the age-related expectations)

Impact

By the time our pupils leave us in Year 6, we aim for them to have;

- ✤ Gained knowledge of famous designers and critiqued their work
- Developed a repertoire of design and technology skills, knowledge and understanding
- Sained a solid understanding of nutrition and learnt how to cook for a healthy lifestyle
- Learnt to plan, construct and evaluate their own projects



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Skills Key: Designing Making Evaluating Technical Knowledge Cooking and Nutrition

Year/	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Term						
Nursery		Build models using a variety of resources.		Build models as props to support role play and storytelling		Construct with a purpose: aeroplane, ferry, train etc Make felt
Reception	Making story puppets. Choosing own materials	Making Christmas decorations	Making pancakes			Designing and making healthy snacks
Year 1	Where does my food come from?		Why are castles so strong?		How do pictures move?	
	 Unit: Children to create fruit kebabs National Curriculum: Use the basic principles of a healthy and varied diet to prepare dishes and understand where food comes from Key Knowledge: Know why is it important to wash hands before preparing food and why we wash fruit Know simple utensils that can be used to process food and make it easier to eat Know that fruit is an essential part of a balanced diet Know that fruit and vegetables can be farmed or grown at home Know that fruit usually contains an edible seed and a vegetable is a plant used for food and pith is the soft white lining inside some fruit Know what sensory evaluation is (appearance, smell, taste, texture) Key Skills: Design appealing products for a particular user based on a simple design criteria Generate initial ideas and design criteria through investigating a variety of fruit and vegetables Communicate ideas through talk and drawings Use simple utensils and equipment to peel, chop, cut, slice, squeeze, grate and chop safely 		Unit: Children to plan and build their own castle using a range of materialsUnit: Children to create me of materialsNational Curriculum: Build structures, exploring how they can be made stronger, stiffer, and more stableUnit: Children to create me Mational Curriculum: Explore and use mechanisis axles), in their productsKey Knowledge: > Mow how to join components together effectively Mow that a range of tools can be used for different purposes (cutting, sticking, bending, joining etc.)Understand th types of mover Muderstand the types of mover 		Unit: Children to create moving picture books	
					National Curriculum: Explore and use mechanisms (for ex axles), in their products	ample, levers, sliders, wheels and
					 Key Knowledge: Understand that different mechanisms produce different types of movement Know and use technical vocabulary relevant to the project Understand the steps to make a moving picture (cutting, joining etc.) Understand that products are designed for users based on criteria, and what simple criteria for a moving picture book could be – e.g. the mechanism should work smoothly, it should make the right type of movement Key Skills Generate ideas based on a simple design criteria and their own experiences Develop, model and communicate their ideas through drawings and mock-ups with card and paper Plan and suggest steps in the creation phase Select and chose tools, explaining their choices to cut, shape and join paper and card Enhancement: Sharing books with children in other year groups e.g. Foundation and Nursery 	



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	 Select from a range of fruit and vegetables according to their characteristics e.g. colour, texture and taste Taste and evaluate a range of fruit and vegetables to determine the intended users preference Evaluate ideas and finished products against design criteria, including intended user and purpose Enhancement: Children to plant their own seasonal fruit and veg 		
Year 2	Puppets	Savoury Snack	How do vehicles move?
	Unit: Create a hand puppet – could link to Christmas or Geography/History Topics National Curriculum: Design purposeful, functional and appealing products and select from a range of textiles	Unit: Children to create a healthy packed lunch – including creating and designing sandwich box National Curriculum: Use the basic principles of a healthy and varied diet to prepare dishes	Unit: Children to create their own fire engine with moving wheels National Curriculum: Explore and use mechanisms (for example, levers, sliders, wheels and axles), in their products
	Key Knowledge	Key Knowledge	Key Knowledge:
	 Key Klowedge. To know what design criteria is and how it can be used to create a product Know which equipment is needed to sew material together Know and use key vocabulary, as relevant to the project – seam, thread, stitch Know how to evaluate their product against the design criteria and suggest improvements 	 To know the purpose of different tools and which to select for use in preparing food (e.g. sieve, spatula, peeler) Know how to wash, peel, slice and grate vegetables, selecting and use appropriate kitchen equipment safely and purposefully Know how to grow vegetables and prepare for eating (peeling, chopping, boiling/steaming) Know the food groups that different healthy foods belong to and demonstrate this by selecting 	 Infow that in containing a device discussion of cluster in a product and wheels and axles are examples of this Know the difference between fixed and freely moving axles, using technical vocabulary Know the purpose of their product (product can be easily moved on wheels) Know what components are needed to construct a moving vehicle and use this to select appropriate materials according to which are most suitable
	Design and create a puppet, sewing the material together effectively at the seams	appropriate combinations	Key Skills:
	 Thread and use a needle safely Evaluate own and each other's products against the design criteria Enhancement: Create a puppet show to perform to EYFS or parents 	 Key Skills Plan and prepare a dish of nutritional value Prepare a meal safely, using a range of equipment appropriately Make and present food in an aesthetically pleasing way Evaluate the success of their own and others' dishes, involving critique of how dishes could be improved 	 Develop and communicate ideas through drawings and mock-ups Using a range of tools and equipment to perform practical tasks, such as cutting and joining to allow movement and finishing Select from and using a range of materials and components, such as, paper, card, wood etc. according to their characteristics Use wheels and axles as mechanisms in their product Evaluate the success of their products against the design
		 Begin to use and be aware of a range of methods of food preparation, such as peeling, chopping, steaming and boiling Enhancement: Children to have an outdoor picnic 	criteria Enhancement: Could extend activity by looking at pneumatics and hydraulics



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Year 3	Purse/Wallet	Is the chariot the best form of transport?	Bridge Making	
	Unit: Children to create a fastening purse or wallet	Unit: Children to make a Roman chariot with moving wheels	Unit: Children to create a range of different bridges in groups	
	National Curriculum: Select and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities. Key Knowledge:	 Key Knowledge: Know the difference between fixed and freely moving axles, using technical vocabulary and know the difference between a fixed and loose pivot Know about and research chariots to inform design so that is fit for purpose 	National Curriculum: Apply their understanding of how to strengthen, stiffen and reinforce more complex structures Key Knowledge: ➤ Know that there are many different types of bridges (beam, arch, cable-stayed, suspension, cantilever)	
	 To know how to specify a design to make it more appealing to a specific target group To know different types of stitches for the purpose of functionality and aesthetics Know and use technical vocabulary relevant to the 	 Know the purpose of their product (product can be easily moved on wheels) Know what components are needed to construct a moving vehicle and use this to select appropriate materials according to which are most suitable 	 Know that there are many famous bridge engineers, e.g. Severn Bridge, Tower Bridge – John Wolfe Barry and Sir Horrace Jones Know that different materials can be used (steel, brick, wood, iron, rivets) 	
	 project Know how to evaluate their product against the product criteria they have generated individually, as a means to improve their work 	 Key Skills: Generate initial ideas through annotated sketches and discussions and create a more detailed design criteria Develop and communicate ideas through drawings 	 Know how to work safely using tools and equipment Know how to strengthen a material or structure design using materials Understand how to assess the quantity of materials needed for a structure 	
	 Key Skills: Design and make a functional purse with a fastening communicating initial ideas through annotated sketches Use research into the features of a functional and annealing nurse (wallet to inform design criteria) 	 and mock-ups Choose and use a range of tools and equipment accurately to perform practical tasks, such as cutting and joining to allow movement and finishing Select from and using a range of materials and components such as paper, card, wood etc. 	 Know the design of particular bridges makes them particularly successful considering their design and purpose Know that cross-sectional diagrams, prototypes, pattern pieces and computer aided design can support their design process 	
	 Select and use a range of tools to perform tasks e.g. joining by sewing and cutting Investigate different stitches and their effectiveness in joining seams and how that then effects the durability of the product Evaluate the outcome of the product referencing the design criteria 	 according to their characteristics Use wheels and axles as mechanisms in their product Evaluate the success of their products against the design criteria Increased accuracy when measuring, marking out and cutting (i.e. measure in mm rather than cm or inches) 	 Key Skills Evaluate an existing bridge to inform plans and structures Compare the strengths of different shaped frameworks within 2D structures Sketch and annotate a plan of their planned bridge Use computer aided design to support their design process Write step-by-step instructions to follow for building the bridge (including tools and materials) 	
		Enhancement: Have a visit to an Italian restaurant to create pizza	 Evaluate different materials and their suitability for use in a bridge Accurately join using appropriate and robust joins Work in a team to plan and build a bridge structure Build a bridge following a plan accurately Evaluate their completed project considering how successful their bridge is according to the original brief Enhancement: Walk around Wantage to look at local bridges and how they are constructed 	



Year 4

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 Carry out sensory evaluations of a variety of ingredients and products and record the evaluations Evaluate the ongoing work and the final product with reference to the design criteria Enhancement: Visit The Mill and get flour 		Evaluate their own products and ideas against criteria and user needs, as they design and make
Year 5 Anderson Shelters Unit: Children to create their own Anderson Shelters National Curriculum: Apply their understanding of how to strengthen, stiffen and reinforce more complex structures Key Knowledge: > Know who the Anderson Shelter was designed by (William Peterson and Oscar Carl Kerrison in 1938) and named after (Sir John Anderson) and why > Know the difference between an Anderson Shelter and a Morrison Shelter and named after (Sir John Anderson) and why > Know the difference between an Anderson Shelter and a Morrison Shelter and named after (Sir John Anderson) and why > Know the difference between an Anderson Shelter and a Morrison Shelter and named after (Sir John Anderson) and why > Know the difference between an Anderson Shelter and a Morrison Shelter and a Morrison Shelter > To use understanding of how the shape of a structure can be strengthened by internal support and exterior reinforcement > Know how to use and manipulate materials in order to create a structure Key Skills > Use research to inform the design criteria for a shelter suitable to the context of an era > To investigate the construction of existing structures and evaluate their own design against the design criteria > Use existing designs to inform own and communicate ideas through discussion, annotated sketches, cross-sectional diagrams and computer aided design	 Levers and Linkages Unit: Children to create a shadoof National Curriculum: Understand and use mechanical systems in their products Apply their understanding of how to strengthen, stiffen and reinforce more complex structures. Key Knowledge: Know that levers and linkages are mechanisms that are used to create movement in a product Know that levers have been used by humans since the stone age and that Archimedes was the first to mathematically describe how levers multiply force Know that a shadoof is a type of lever that was used in Egypt and is still used in parts of Africa and Asia to draw water Know that there are four types of levers – linear, reciprocating, rotary and oscillating and know the difference between loose and fixed pivots (a paper fastener that joins card strips together is a loose pivot and a paper fastener that joins card strips to the backing card is a fixed pivot) Know that a lever is a rigid bar that moves around a pivot and that a linkage joins one or more levers together to produce the type of movement required Know that 'the slot' is the hole through which a lever is placed to enable part of a picture to move and 'the guide' is a short card strip used to keep lever and linkages in place and control movement Know that in a lever and linkage mechanism, the 'input movement' is where the user pushes or pulls a card strip, the 'output movement' is where one or more parts of the picture moves Know that a system is a set of related parts used to create an outcome and they have inputs, processes and outputs. 	 Pop Up Café Unit: Children to create healthy snacks and dishes to sell to raise money National Curriculum: Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques Key Knowledge: Know that some ingredients grow and climate they need to grow Know that some ingredients are seasonal and why Know that some ingredients are grown under different farming processes (e.g. organic) and can be more expensive Understand that some ingredients complement each other and some ingredients go well together. Know that a healthy dishes involve more than one food group to be part of a healthy, balanced diet Know that local restaurants are meant to appeal to local community Food being served in public is regulated in accordance with good food hygiene practices Washing hands and food, where appropriate, helps reduce microorganisms and food instructions are important for this purpose too. Ingredients, textures and flavours can be changed through cooking processes (e.g. frying, baking, boiling, grilling) Key Skills: Generate ideas through research and discussion to develop a design brief and criteria for a design specification Explore a range of ideas, and make design decisions to develop a develop a final product linked to user and purpose and costing Use words, annotated sketches and information technology to develop and communicate ideas Make, decorate and present the food product appropriately for the intended user and purpose Carry out sensory evaluations of a range of products and ingredients and record the results appropriately



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		 Key Skills To evaluate existing structures that will inform their own design Generate realistic ideas and their own design criteria through discussion Use annotated sketches and prototypes to develop, model and communicate ideas Select from and use appropriate tools with some accuracy to cut, shape and join paper and card Select from and use finishing techniques suitable for the product they are creating Investigate and analyse books and evaluate other products with lever and linkages prior to making their own Evaluate their own products and ideas against criteria and user needs Use skills and techniques to measure, mark out, cut, join and finish 	 Evaluate final product with the design criteria and using the views of others Select and use a range of utensils, chopping boards, scales, measuring jugs, etc. Select and use a range of healthy ingredients for a balanced diet Review work against own design criteria, including aspects such as presentation, food combinations, popularity and healthiness Enhancement: Café to raise money for Year 6 jumpers – invite parents in
Year 6	Vehicles (Electrical Component)	Textiles – Combining Fabric Shapes - Human rights activists	Healthy Eating Meal
	Unit: children to plan, design and make a working electrical circuit lighthouse or vehicle	Unit: Children to create sashes and rosettes (links with Suffragettes and votes for women)	Unit: Children to create a healthy 3 course meal National Curriculum:
	in their products (e.g. gears, pulleys, cams, levers and linkages) Understand and use electrical systems in their products	National Curriculum: Key Knowledge:	 Know where ingredients grow and climate they need to grow Know that some ingredients are seasonal and why Know that ingredients are grown under different farming
	 Key Knowledge: Mechanical systems and pulleys have an input, process and output and that gears and pulleys can be used to speed up, slow down or change the direction of movement. Develop their use of technical vocabulary, for example, knowing how to check that a motor shaft rotates when powered. To know that a frame structure can be reinforced and strengthened with triangular shapes at the corners. Build on existing knowledge of axles and wheels, with a focus on ensuring that fixed axles allow the wheels to rotate freely and continuously when a pulley is attached. Know how to measure and cut different materials, including dowel, accurately and safely. 	 Fabrics can be strengthened, stiffened and reinforced where appropriate. Know that a 3D textile product can be made from a combination of accurately made pieces Know when to combine multiple different fabrics to create a 3D product Know how embroidery can embellish a product Know when to use particular stitch types (including finishing stitches) Know how to follow relevant health and safety protocols Know how to analyse existing products and report what joining/fastening methods and multiple pieces have been used Know some key dates in the development of fabric and textiles (i.e. 6000BC woven textiles used to wrap the dead, 500-1000AD spinning wheel 	 processes (e.g. organic) and can be more expensive. Know about organic foods and the impact of these Understand that some ingredients complement each other and some ingredients go well together. Know that a healthy dishes involve more than one food group to be part of a healthy, balanced diet Know that local restaurants are meant to appeal to local community Food being served in public is regulated in accordance with good food hygiene practices Washing hands and food, where appropriate, helps reduce microorganisms and food instructions are important for this purpose too. Ingredients, textures and flavours can be changed through cooking processes (e.g. frying, baking, boiling, grilling) and



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 Know the importance of a process of review of 	invented in India, 1562 first use of purl stitch in	now some more advance methods for mixing ingredients i.e.
each construction phase to ensure that each part	Spanish tomb, 1890 first pair of jeans by Levi	rubbing in and kneading doughs
works and is secure to achieve a fully effective end	Strauss)	To know how to measure ingredients accurately using
product.		different units and how to follow a recipe
	Key Skills	To know about a range of chefs and their individual styles of
Key Skills:	Generate innovative ideas by carrying out research	cooking
Accurately measure the lengths of square-section	including surveys, interviews and questionnaires.	Key Skills:
wood, sawing and smoothing ends with sandpaper.	Investigate and analyse textile products linked to	Generate ideas through research and discussion to develop a
Build and reinforce a rectangular frame with	their final product. Produce detailed lists of	design brief and criteria for a design specification
triangles.	equipment and fabrics relevant to their tasks.	Explore a range of ideas, and make design decisions to
Reinforce axles with bearings securing axle holders	Develop, model and communicate ideas through	develop a final product linked to user and purpose and
and checking that wheels move freely.	talking, drawing, templates, mock-ups and	costing
Building a wooden pulley system with a secure fit.	prototypes and, where appropriate, computer-	Use words, annotated sketches and information technology
Create a chassis in order to hold a motor which will	aided design.	to develop and communicate ideas
enable the vehicle to be powered.	Formulate step-by-step plans and, if appropriate,	Make, decorate and present the food product appropriately
Assess to identify and address potential	allocate tasks within a team with referral to lists of	for the intended user and purpose
weaknesses and apply knowledge of strengthening,	tools, equipment and materials needed.	Carry out sensory evaluations of a range of products and
reinforcing and stiffening.	Design purposeful, functional, appealing products	ingredients and record the results appropriately
Attach a battery with wires to a motor.	for the intended user that are fit for purpose based	Evaluate final product with the design criteria and using the
Critically evaluate the quality of the design,	on a simple design specification.	views of others
manufacture, functionality, innovation and fitness	Select from and use a range of tools and equipment	Select and use a range of utensils, chopping boards, scales,
for purpose, throughout the process and when the	to make products that are accurately assembled	measuring jugs, etc.
final product is in use, referring back to the design	and well finished. Work within the constraints of	Select and use a range of healthy ingredients for a balanced
criteria.	time, resources and cost.	diet
 Follow step-by step plans with reterral to lists of 	Test products with intended user and critically	Review work against own design criteria, including aspects
tools, equipment and materials needed.	evaluate the quality of the design, manufacture,	such as presentation, food combinations, popularity and
	functionality and fitness for purpose	healthiness
Link: Science unit on electricity	Compare the final product to the original design	
	specification.	
	Use a questionnaire is and now it can help with product design (children could create a simple	
	product design (children could create a simple	
	questionnaire which could then be used to form a	
	Tost fabrics in order to salect them for use	
	 Test tablics in order to select them for use Consider the views of others to improve their work 	
	 Consider the views of others to improve their work. 	