Hotham Primary School
Design and Technology Curriculum
Units of work at a glance

	Autumn	Spring	Summer
Nursery	Cooking pumpkin soup	Textiles puppets/ nursery rhymes	Structures baskets for Handa's surprise
	Experiences with tools, construction and simple mechanisms		Forest school - using tools
	Ongoing - Threading, junk modelling, play dough, fine motor, sensory -All building on skills for D&T		
Reception	Structures junk modelling	Textiles sewing capes	Forest school using tools
	hibernation boxes	tinker table, using tools	Cooking and nutrition sandwiches for grandparents picnic
	Ongoing - Threading, junk modelling, play dough, fine motor, sensory - All building on skills for D&T		
Year 1	Structures (Turbine/axle) toy vehicle	Cooking and Nutrition smoothies/dips	Mechanisms (levers/sliders) moving card
	Toys	**Putney**	**Queens**
Year 2	Structures chair to hold stone age boy	Mechanisms windmill	Textiles puppet
	Stone Age/Iron Age	**Inventors**	**Kenya vs Shetland Isles**
Year 3	Structures photo frame	Mechanisms pneumatic system	Textiles coin wallet/purse
	Egypt	**Iceland**	**Romans**
Year 4	Structures boat that can carry cargo	Electrical systems battery operated light or torch	Cooking and nutrition food sources(air miles/seasonality)
	Vikings	**Thames**	**Habitats/Climate**
Year 5	Mechanism Create a cam mechanism toy	Electrical systems & digital world design and create a battery powered toy moon buggy Linked to Computing (Lego Robotics and Micro Bits)	Cooking and nutrition • apply healthy diet • savoury dishes
	Greeks	**Space**	**America**
Year 6	Structures build a bridge	Textiles (running stitch, fastening)	Structures/Textiles/ Art and design/Combining skills
	Maya	**WWII** - new item from old (make do and mend)	**Theatre**

EYFS	Knowledge and understanding of the world					
	Cooking and Nutrition	Structures	Textiles	Mechanisms	Forest School	
KS1	Cooking and Nutrition	Structures	Textiles	Mechanisms		
KS2	Cooking and Nutrition	Structures	Textiles	Mechanisms	Combining	Electrical systems

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	Structures	Mechanisms	Textiles	Electrical systems	Digital world	Cooking and nutrition
EYFS	Explore junk modelling, tinkering with temporary and permanent joins, and a range of materials. Create basic models to test in different conditions.	Explore a simple paper slider mechanism.	Explore and develop threading and weaving skills with different materials and objects.			Explore and become familiar with different fruits and vegetables.
KS1	Build structures such as windmills and chairs, exploring how they can be made stronger, stiffer and more stable. Recognise areas of weakness through trial and error.	Introduce and explore simple mechanisms, such as sliders, wheels and axles in their designs. Recognise where mechanisms such as these exist in toys and other familiar products.	Explore different methods of joining fabrics and experiment to determine the pros and cons of each technique.			Learn about the basic rules of a healthy and varied diet to create dishes. Understand where food comes from, for example plants and animals.
KS2	Continue to develop KS1 exploration skills, through more complex builds such as bridge designs. Understand material selection and learn methods to reinforce structures.	Extend pupils' understanding of individual mechanisms, to form part of a functional system, for example: Automatas, that use a combination of cams, followers, axles/shaft, cranks and toppers.	Understand that fabric can be layered for effect, recognising the appearance and technique for different stitch and fastening types, including their: ● Strength. ● Appropriate use. ● Design	Create functional electrical products that use series circuits, incorporating different components such as bulbs, switches and motors. Consider how the materials used in these products can: ● Protect the circuitry. ● Reflect light. ● Conduct electricity. ● Insulate.	**Linked with Computing in Year 5** Learn how to develop an electronic product with processing capabilities. Apply Computing principles to program functions within a product including to control and monitor it.	Understand and apply the principles of a healthy and varied diet to prepare and cook a variety of dishes using a range of cooking techniques and methods. Understand what is meant by seasonal foods. Know where and how ingredients are sourced.

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	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Designing	**Key Stage 1:** ***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***		**Key Stage 2:** ***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***			
Understanding contexts, users and purposes	use own ideas to design something design a product which moves	use simple design criteria; state what their products are, who and what they are for and how they will work.	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	use ideas from other people when designing, including gathering information about user needs persevere and adapt work when original ideas do not work	develop their own design criteria; describe the user, purpose and design features of their products come up with a range of ideas after collecting information from different sources	carry out research generate innovative ideas drawing on market research develop a simple design specification;
Generating, developing, modelling and communicating ideas	describe how their own idea works explain to someone else how they want to make their product and make a simple plan before making	generate ideas using their own experiences and existing products; use talk, drawing, templates, mock-ups and, where appropriate, computers.	produce a plan and explain it	generate realistic ideas based on user needs communicate ideas in a range of ways, including by sketches and drawings which are annotated	design a product that requires cams produce a detailed, step-by-step plan explain how a product will appeal to a specific audience	describe the user, purpose and design features of their products and explain how they will work follow and refine original plans use a range of drawing skills, discussion, prototypes, pattern pieces and computer-aided design.

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Making	**Key Stage 1:** ***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***		**Key Stage 2:** ***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***			
Planning	use own ideas to make something choose from available ingredients/materials	choose tools and materials and explain why they have chosen them plan by suggesting what to do next	follow a step-by-step plan, choosing the right equipment and materials select the most appropriate tools and techniques for a given task	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 order the main stages of making	make a prototype before making a final version formulate lists of resources and step-by-step plans	justify planning in a convincing way select suitable tools, equipment, materials and components and explain their choices
Practical skills and techniques	make a product which moves choose appropriate resources and tools follow basic procedures for safety and hygiene	join materials and components in different ways measure materials to use in a model or structure follow procedures for safety and hygiene	make a product which uses mechanical components work accurately to measure, make cuts and make holes follow procedures for safety and hygiene	make a product that relies on a simple electrical system use a range of materials and components; measure, mark out, cut, shape, assemble, join, combine and finish with some accuracy follow procedures for safety and hygiene	know what each tool is used for use a range of tools and equipment competently make a product that relies on cams/ more complex electrical systems follow procedures for safety and hygiene	know which tool to use for a specific practical task know how to use any tool correctly and safely use a wide range of materials and components; measure, mark out, cut, shape, assemble, join, combine and finish with accuracy. follow procedures for safety and hygiene

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Evaluating	**Key Stage 1:** ***explore and evaluate a range of existing products*** ***evaluate their ideas and products against design criteria***		**Key Stage 2:** ***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***			
Own ideas and products	explain what works well and not so well in the model they have made	explain what went well with their work using design criteria	explain how to improve a finished model using their design criteria know why a model has, or has not, been successful	evaluate their ideas and products against their design criteria	identify strengths and areas to develop in their ideas and products against their design specification	consider the views of others to make improvements
Existing products	talk about existing products •describe how something works	explore who and what products are for, how they work and are used, what materials they are made from and what they like and dislike about them.	evaluate what they like/dislike about existing products eg wallets, photo frames think about products for both their purpose and appearance	investigate how well products have been designed and made, whether they are fit for purpose and meet user needs	investigate why materials have been chosen, the methods of construction used and how well they work	investigate whether products are fit for purpose and meet user needs; how well they work, and how innovative and sustainable they are.
Key events and individuals	N/A	William Kamkwamba - inventor of electricity generating wind turbine	John Dunlop - inventor of pneumatic tyre Vivienne Westwood - British designer of wallets/purses (sustainability)	Rachel Khoo - from South London Maria Beasley - life raft	Tom Kerridge - seasonality, British produce	know about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products

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Technical knowledge	**Key Stage 1** ***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.***		***Key Stage 2*** ***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.***			
Making products work	make their own model stronger use wheels and axles (vehicles) use levels (pop up cards)	make a model stronger, stiffer and more stable use the correct technical vocabulary use simple mechanisms (windmills)	know how to strengthen a product by stiffening a given part or reinforcing a part of the structure eg corners on photo frames or double stitching where necessary use the correct technical vocabulary	links scientific knowledge by understanding and using simple electrical systems (stitch, bulb, battery connected in series) use the correct technical vocabulary	links scientific knowledge to design by using mechanical systems know that systems have an input, process and output know how to program a computer to control and monitor their products (linked to computing - Lego Robotics and Microbits) use the correct technical vocabulary	know how IT could be used to further enhance a specific product use knowledge to improve a made product by strengthening, stiffening or reinforcing (bridges) use the correct technical vocabulary

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Cooking and nutrition	**KS1** ***use the basic principles of a healthy and varied diet to prepare dishes*** ***understand where food comes from***		**KS2** ***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***			
Where food comes from	describe the ingredients used when making a simple dish eg smoothie/fruit kebab/dip know that food comes from plants or animals and that it is farmed or caught			know that food is grown, reared and caught in the UK, Europe and the wider world.	know that food is grown, reared and caught in the UK, Europe and the wider world; that seasons may affect the food available; how food is processed into ingredients	
Food preparation, cooking and nutrition	cut food safely name and sort foods into groups; know that everyone should eat at least five portions of fruit and vegetables a day (science)			know how to prepare a variety of dishes safely and hygienically; that a healthy diet is made from a variety and balance of different food and drink; that food and drink are needed to provide energy for the body.	know how to prepare and cook a variety of dishes safely and hygienically using, where appropriate, a heat source; that different food and drink contain nutrients, water and fibre that are needed for health	