

Edward Peake CofE Middle School
DT Curriculum Progression

Curriculum Intent:

The intention of the Design Technology curriculum is to provide opportunities for students to develop their knowledge of materials, food ingredients and manufacturing processes through practical tasks. Pupils work using an iterative design process focusing on research, design, development and realisation. The intention is to develop independent learning through problem solving and developing their work through informed decisions. The Design Technology curriculum has been specifically designed to meet the needs of all pupils regardless of their previous experiences or potential barriers to learning. We make use of subject specialist teaching across all four year groups, with a specialist food room, tech workshop, textiles room and resources.

Our main aims are to:

- **Live:** Ensure pupils know how to design and manufacture products using a range of materials so they are ready for their next stage of education
- **Love:** To help broaden pupils' access to a range of materials and manufacturing techniques and foster a love of designing, manufacturing and creative thinking.
- **Learn:** Develop pupils' as independent, confident and successful designers and manufacturers

There are five main concepts that run through the Design Technology curriculum at Edward Peake. These are:

- **Designing:** Pupils understand the needs of a range of contexts and users and are able to generate and model ideas for these.
- **Making:** Pupils master a range of practical skills and can plan which are suitable to use to make a range of products.
- **Evaluating:** Pupils can critically evaluate their work and the work of existing designers and use this knowledge in the development of their ideas.
- **Technical knowledge:** Pupils gain knowledge that can be used to make decisions about making products work.
- **Cooking and nutrition:** Pupils master a range of practical skills and develop their knowledge of nutrition and where foods come from.

Skills and Knowledge	Year 6	Year 7	Year 8	Year 9
Designing: Understanding contexts, users and purposes	Pupils know how to: <ul style="list-style-type: none"> ● Work to a design brief ● Describe the purpose of their 	Pupils know how to: <ul style="list-style-type: none"> ● Work confidently within a range of contexts ● Consider the 	In addition to year 7 pupils know how to: <ul style="list-style-type: none"> ● Consider additional factors such as ergonomics, 	In addition to years 7&8: <ul style="list-style-type: none"> ● Develop detailed design specifications that include a wider range of

	<p>products</p> <ul style="list-style-type: none"> • Develop a simple specification to guide their thinking • Explain how particular parts of their products work • Indicate the design features of their products that will appeal to intended users • Identify the needs, wants, preferences and values of particular individuals and groups 	<p>influence of a range of lifestyle factors and consumer choices when designing products</p> <ul style="list-style-type: none"> • Take creative risks when making design decisions • Develop detailed design specifications to guide their thinking 	<p>anthropometrics or dietary needs</p> <ul style="list-style-type: none"> • Analyse where human values may conflict and compromise has to be achieved • Use research including the study of different cultures, to identify and understand user needs 	<p>requirements</p> <ul style="list-style-type: none"> • Research the health and well being, cultural, religious and socio-economic contexts of their intended users • Understand how to reformulate design problems given to them
	<p>Where in the curriculum this is taught: Autumn Term - Textiles lessons - Puppet project Summer Term - DT lessons - Animal automata project</p>	<p>Where in the curriculum this is taught: As part of the creativity rota, could be Autumn, Spring or Summer Term DT lessons - Chocolate mould project Textile lessons - Under the Sea Bag project</p>	<p>Where in the curriculum this is taught: As part of the creativity rota, could be Autumn, Spring or Summer Term DT lessons - Pencil box project Textile lessons - Cushion project and tie dye Food lessons</p>	<p>Where in the curriculum is this taught: As part of the creativity rota DT lessons Tea light to create relaxing environment in home/public space. Textile lessons Batik (short course) Japanese knot bag (long course/spring / summer)</p>
<p>Designing: Generating, developing, modelling and communicating ideas</p>	<p>Pupils know how to:</p> <ul style="list-style-type: none"> • Share and clarify ideas through discussion • Model their ideas using prototypes and pattern pieces • Use annotated 	<p>Pupils know how to:</p> <ul style="list-style-type: none"> • Use specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations 	<p>In addition to year 7 pupils know how to:</p> <ul style="list-style-type: none"> • Use a variety of approaches, for example biomimicry to generate creative ideas and avoid stereotypical 	<p>In addition to years 7&8:</p> <ul style="list-style-type: none"> • Use 3D CAD to model, develop and present their ideas • Use CAD and related software packages to validate their designs in

	<p>sketches to communicate their ideas</p> <ul style="list-style-type: none"> • Use cross sectional and exploded diagrams to develop and communicate their ideas • Use computer aided design to communicate their ideas • Generate innovative ideas drawing on research • Make design decisions based on time, resources and cost 	<ul style="list-style-type: none"> • Combine ideas from a variety of sources • Use a variety of approaches, for example user-centred design, to generate creative ideas and avoid stereotypical responses • Develop and communicate design ideas using annotated sketches • Produce 3D models to develop and communicate ideas 	<p>responses</p> <ul style="list-style-type: none"> • Use 2D and begin to use 3D CAD packages to model their ideas • Produce models of their ideas using CAM to test out their ideas 	<p>advance of manufacture</p>
	<p>Where in the curriculum this is taught: Autumn term - Textiles - Puppet project Summer Term - DT lessons - Automata project</p>	<p>Where in the curriculum this is taught: As part of the creativity rota, could be Autumn, Spring or Summer Term DT lessons - Chocolate Mould project Textile lessons - Under the Sea BAg project</p>	<p>Where in the curriculum this is taught: As part of the creativity rota, could be Autumn, Spring or Summer Term DT lessons - Pencil box project</p>	<p>As part of the creativity rota DT lessons 3D CAD Techsoft design tools isometric Textile lessons: 2D commercial pattern cutting on laser cutter. Adapting an existing commercial pattern. Tessellation and waste</p>
Making: Planning	<p>Pupils know how to:</p> <ul style="list-style-type: none"> • Select tools and equipment suitable for the task • Explain their choice of materials and components 	<p>Pupils know how to:</p> <ul style="list-style-type: none"> • Select appropriately from specialist tools, techniques, processes, equipment and machinery, including 	<p>Pupils know how to:</p> <ul style="list-style-type: none"> • Select appropriately from specialist tools, techniques, processes, equipment and machinery, including 	<p>In addition to years 7&8:</p> <ul style="list-style-type: none"> • Create production sequences that inform their own and others roles in the manufacturing of products they design

	<p>according to functional properties and aesthetic qualities</p> <ul style="list-style-type: none"> • Produce appropriate lists of tools, equipment and materials that they need • Formulate step-by-step plans as a guide to making • Explain their choice of tools and equipment in relation to the skills and techniques they will be using • Demonstrate resourcefulness when tackling practical problems 	<p>computer-aided manufacture</p> <ul style="list-style-type: none"> • Select appropriately from a wider, more complex range of materials, components and ingredients, taking into account their properties such as water resistance and stiffness • Produce ordered sequences and schedules for manufacturing products they design, detailing resources required 	<p>computer-aided manufacture</p> <ul style="list-style-type: none"> • Select appropriately from a wider, more complex range of materials, components and ingredients, taking into account their properties such as water resistance and stiffness • Produce ordered sequences and schedules for manufacturing products they design, detailing resources required 	<ul style="list-style-type: none"> • Make simple use of planning tools, for instance Gant charts • Communicate their plans clearly so that others can implement them • Match and select suitable materials considering their fitness for purpose
	<p>Where in the curriculum this is taught: Autumn Term - Textile Lessons - Puppet project Summer Term - DT lessons - Automata project</p>	<p>Where in the curriculum this is taught: As part of the creativity rota, could be Autumn, Spring or Summer Term DT lessons - Chocolate Mould project, Twisty Fish project Textile lessons - Under the Sea Bag project Food lessons</p>	<p>Where in the curriculum this is taught: As part of the creativity rota, could be Autumn, Spring or Summer Term DT lessons - Chocolate Mould project Textile lessons - Under the Sea Bag project, Twisty Fish project Food lessons</p>	<p>As part of the creativity rota DT lessons Selecting timbers for their functional and aesthetic properties I (grain/colour) Crating and isometric. Orthographic projection/working drawing. Textile lessons selection from a range of fabrics with different properties. Waterproof fabrics, natural and mixed fibres. Woven and knitted.</p>

<p>Making: Practical skills and techniques</p>	<p>Pupils know how to:</p> <ul style="list-style-type: none"> ● Follow procedures for safety and hygiene ● Use textiles, food, and electrical components ● Accurately measure, mark out, cut and shape materials and components ● Accurately assemble, join and combine materials and components ● Accurately apply a range of finishing techniques ● Use techniques that involve a number of steps ● Demonstrate resourcefulness when tackling practical problems ● Use mechanical components 	<p>Pupils know how to:</p> <ul style="list-style-type: none"> ● Follow procedures for safety and hygiene and understand the process of risk assessment ● Use a wider, more complex range of materials, components and ingredients, taking into account their properties ● Use a broad range of manufacturing techniques including handcraft skills and machinery to manufacture products precisely ● Apply a range of finishing techniques, including those from art and design, to a broad range of materials including textiles, polymers and woods ● Make use of specialist equipment to mark out materials ● Use a broad range of material joining techniques including stitching, mechanical fastenings and adhesives ● Investigate and 	<p>In addition to year 7 pupils know how to:</p> <ul style="list-style-type: none"> ● Adapt their methods of manufacture to changing circumstances ● Recognise when it is necessary to develop a new skill or technique ● Exploit the use of CAD/CAM equipment to manufacture products, increasing standards of quality, scale of production and precision 	<p>In addition to years 7&8:</p> <ul style="list-style-type: none"> ● Adapt their methods of manufacture to changing circumstances ● Recognise when it is necessary to develop a new skill or technique
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		develop skills in modifying the appearance of materials including textiles and other manufactured materials e.g. dying and applique		
	Where in the curriculum this is taught: Autumn term - Textiles lessons Spring term - Food lessons Summer term - DT lessons - Automata project	Where in the curriculum this is taught: As part of the creativity rota, could be Autumn, Spring or Summer Term DT lessons - Chocolate mould project, Twisty fish project Textile lessons - Under the Sea Bag project Food lessons	Where in the curriculum this is taught: As part of the creativity rota, could be Autumn, Spring or Summer Term DT lessons - Pencil Box project Textile lessons - Under the Sea Bag project	As part of the creativity rota DT lessons: using machinery to increase quality of work and accuracy. Hegner, fixed belt sander, laser cutter. Textile lessons, linings and reversible products, simple locking mechanism, reduction in number of parts.. Adapting existing patterns in a variety of ways. Size, handle type, pockets/storage.
Evaluating: Own ideas and products	Pupils know how to: <ul style="list-style-type: none"> Identify the strengths and areas for development in their ideas and products Consider the views of others, including intended users, to improve their work Critically evaluate the quality of the design, manufacture and fitness for purpose of their 	Pupils know how to: <ul style="list-style-type: none"> Test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups Evaluate their products against their original specification and identify ways of 	In addition year 7 pupils know how to: <ul style="list-style-type: none"> Select appropriate methods to evaluate their products in use and modify them to improve performance Produce short reports, making suggestions for improvements 	In addition to years 7&8: <ul style="list-style-type: none"> Select appropriate methods to evaluate their products in use and modify them to improve performance Produce short reports, making suggestions for improvements

	<p>products as they design and make</p> <ul style="list-style-type: none"> Evaluate their ideas and products against their original design specification 	<p>improving them</p> <ul style="list-style-type: none"> Actively involve others in the testing of their products 		
	<p>Where in the curriculum this is taught: Autumn Term - Textile lessons - Puppet project Summer Term - DT lessons - Automata project Spring Term - Food lessons</p>	<p>Where in the curriculum this is taught: As part of the creativity rota, could be Autumn, Spring or Summer Term DT lessons - Chocolate Mould project, Twisty Fish project Food lessons</p>	<p>Where in the curriculum this is taught: As part of the creativity rota, could be Autumn, Spring or Summer Term DT lessons - Pencil Box project Textile lessons - Cushion project</p>	<p>Where in the curriculum is this taught: As part of the creativity rota DT lessons: Tea light in use with user questionnaire and feedback. Textile lessons: Testing product in use. Specifically size, weight, function.</p>
<p>Evaluating: Existing products</p>	<p>Pupils know how to:</p> <ul style="list-style-type: none"> Investigate and analyse: how well products have been designed; how well products have been made; why materials have been chosen; what methods of construction have been used; how well products work; how well products achieve their purposes; how well products meet user needs and wants Investigate and analyse: how innovative products are; how sustainable 	<p>Pupils know how to:</p> <ul style="list-style-type: none"> Investigate and analyse the positive and negative impact that products can have in the wider world 	<p>Pupils know how to:</p> <ul style="list-style-type: none"> Investigate and analyse the positive and negative impact that products can have in the wider world 	<p>In addition to years 7&8:</p> <ul style="list-style-type: none"> Investigate and analyse: products that they are less familiar with using themselves; products considering life cycle analysis; how products can be developed considering the concept of 'life to grave'; the concept of circular economy approaches in relation to product development and consumption

	the materials in products are; what impact products have beyond their intended purpose			
	Where in the curriculum this is taught: Autumn term - Textiles lessons - Puppet project Summer term - DT lessons - Automata project	Where in the curriculum this is taught: As part of the creativity rota, could be Autumn, Spring or Summer Term DT lessons - Chocolate mould project, Twisty Fish project Textile lessons - Under the Sea Bag project	Where in the curriculum this is taught: As part of the creativity rota, could be Autumn, Spring or Summer Term DT lessons - Chocolate mould project, Twisty Fish project Textile lessons - Under the Sea Bag project	Where in the curriculum is this taught: As part of the creativity rota DT lessons Throwaway society. One use products. Textile lessons: reduction of parts and minimising waste when pattern cutting. Textile recycling and reuse.
Technical knowledge: Making products work	Pupils know how to: <ul style="list-style-type: none"> • How to use learning from science to help design and make products that work • How to use learning from mathematics to help design and make products that work • That materials have both functional properties and aesthetic qualities • That materials can be combined and mixed to create more useful characteristics • That mechanical and electrical systems have an input, process and output 	Pupils know how to: <ul style="list-style-type: none"> • Use learning from science to help design and make products that work • Use learning from mathematics to help design and make products that work • Understand the properties of materials, and how they can be used to advantage • How to competently use a range of cooking techniques for example, selecting and preparing ingredients; using utensils and 	Pupils know how to: <ul style="list-style-type: none"> • Use learning from science to help design and make products that work • Use learning from mathematics to help design and make products that work • Understand the properties of materials, and how they can be used to advantage • How to competently use a range of cooking techniques for example, selecting and preparing ingredients; using utensils and 	In addition to years 7&8: <ul style="list-style-type: none"> • How materials can be cast in moulds • How to make adjustments to settings of equipment and machinery such as sewing machines and drilling machines • How to apply computing and use electronics to embed intelligence in products that respond to inputs • Make use of sensors to detect heat, light, sound and movement • How to apply the concepts of

	<ul style="list-style-type: none"> • The correct technical vocabulary for the projects they are undertaking • That a recipe can be adapted by adding or substituting one or more ingredient • how mechanical systems such as cams or pulleys or gears create movement • That a 3D textiles product can be made from a combination of fabric shapes • How to reinforce and strengthen a 3D framework 	<p>electrical equipment</p> <ul style="list-style-type: none"> • How to classify materials by structure e.g. hard woods, soft woods, ferrous and non-ferrous, thermoplastic and thermosetting plastics • About the physical properties of materials e.g. grain, brittleness, flexibility, elasticity, malleability and thermal • About textile fibre sources e.g. natural and synthetic and fabrics e.g. plain and woven • How to select and modify patterns and use in textile construction 	<p>electrical equipment</p> <ul style="list-style-type: none"> • How to classify materials by structure e.g. hard woods, soft woods, ferrous and non-ferrous, thermoplastic and thermosetting plastics • About the physical properties of materials e.g. grain, brittleness, flexibility, elasticity, malleability and thermal • About textile fibre sources e.g. natural and synthetic and fabrics e.g. plain and woven • How to select and modify patterns and use in textile construction 	<p>feedback in systems</p> <ul style="list-style-type: none"> • How to control outputs • How to use software and hardware to develop programmes and transfer these to programmable components • How to make use of microcontrollers in products they design and ,manufacture themselves • How to construct and use simple and compound gear trains to drive mechanical systems for a high revving motor
	<p>Where in the curriculum this is taught: Autumn Term - Textile lessons - Puppet project Summer Term - DT lessons - Automata project Spring Term - Food lessons</p>	<p>Where in the curriculum this is taught: As part of the creativity rota, could be Autumn, Spring or Summer Term DT lessons - Chocolate Mould project, Twisty Fish project Textile lessons - Under the Sea Bag project</p>	<p>Where in the curriculum this is taught: As part of the creativity rota, could be Autumn, Spring or Summer Term DT lessons - Pencil Box project Textile lessons - Cushion project</p>	<p>Where in the curriculum is this taught: As part of the creativity rota DT lessons Set depth stop on bench drill to produce blind hole for tea light. Textile lessons Japanese knot bag stitching trims selecting stitches on sewing machine and selecting alternative presser feet.</p>

<p>Cooking and nutrition: Where food comes from</p>	<p>Pupils know how to:</p> <ul style="list-style-type: none"> • That a recipe can be adapted a by adding or substituting one or more ingredients • That food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world • That seasons may affect the food available • How food is processed into ingredients that can be eaten or used in cooking 	<p>Pupils know how to:</p> <ul style="list-style-type: none"> • That food is produced, processed and sold in different ways, e.g. conventional and organic farming, fair trade • That people choose different types of food and that this may be influenced by availability, season, need, cost, where the food is produced, culture and religion 	<p>in addition to year 7 pupils know how to:</p> <ul style="list-style-type: none"> • About the influence of food marketing, advertising and promotion 	<p>In addition to years 7&8:</p> <ul style="list-style-type: none"> • How to compare the cost of food when planning to eat out or cook at home • About the influence of food marketing, advertising and promotion on their own det and purchasing behaviour
	<p>Where in the curriculum this is taught: Spring Term - Food lessons</p>	<p>Where in the curriculum this is taught: As part of the creativity rota, could be Autumn, Spring or Summer Term Food lessons</p>	<p>Where in the curriculum this is taught: As part of the creativity rota, could be Autumn, Spring or Summer Term Food lessons</p>	<p>Where in the curriculum is this taught: As part of the creativity rota Food lessons</p>
<p>Cooking and nutrition: Food preparation, cooking and nutrition</p>	<p>Pupils know how to:</p> <ul style="list-style-type: none"> • How to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use 	<p>Pupils know how to:</p> <ul style="list-style-type: none"> • How to store, prepare and cook food safely and hygienically • How to use date-mark and storage instructions when storing and 	<p>In addition to year 7 pupils know how to:</p> <ul style="list-style-type: none"> • The importance of a healthy and varied diet as depicted in The eatwell plate and Eight tips for healthy eating • That food provides 	<p>In addition to years 7&8:</p> <ul style="list-style-type: none"> • The importance of energy balance and the implications of dietary excess or deficiency • How to use nutrition information and allergy advice panels

	<p>of a heat source</p> <ul style="list-style-type: none"> • How to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, and baking • that recipes can be adapted to change the appearance, taste, texture and aroma • To know how to use kneading • that different food and drink contain different substances – nutrients, water and fibre –that are needed for health 	<p>using food and drinks</p> <ul style="list-style-type: none"> • How to select and prepare ingredients • How to use utensils and electrical equipment • How to apply heat in different ways • How to use taste, texture and smell to decide how to season dishes and combine ingredients • How to adapt and use their own recipes • How to cook a repertoire of predominantly savoury dishes to feed themselves and others a healthy and varied diet • How to taste and cook a broader range of ingredients and healthy recipes, accounting for a range of needs, wants and values • How to actively minimise food waste such as composting fruit and vegetable peelings and recycling food packaging 	<p>energy and nutrients in different amounts; that they have important functions in the body; and that people require different amounts during their life</p>	<p>on food labels to help them make informed choices</p> <ul style="list-style-type: none"> • How to use a broader range of preparation techniques and methods when cooking • How to modify recipes and cook dishes that promote current healthy eating messages • The principles for cleaning, preventing cross-contamination, chilling, cooking food thoroughly and reheating food until it is steaming hot
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	<p>Where in the curriculum this is taught: Spring Term - Food lessons</p>	<p>Where in the curriculum this is taught: As part of the creativity rota, could be Autumn, Spring or Summer Term Food lessons -</p>	<p>Where in the curriculum this is taught: As part of the creativity rota, could be Autumn, Spring or Summer Term Food lessons -</p>	<p>Where in the curriculum is this taught: As part of the creativity rota Food lessons</p>
<p>Curriculum Impact: Pupils in DT achieve academically, are ready for their next steps in education and have high aspirations for their future.</p> <ul style="list-style-type: none"> ● Live: Ensure pupils know how to design and manufacture products using a range of materials so they are ready for their next stage of education- <ul style="list-style-type: none"> ○ Pupils show excellent attitudes to learning. ○ Pupils are confident in what they have learnt and how to apply the knowledge and skills they have gained. ○ Pupils are able to share their knowledge with their peers. ● Love: To help broaden pupils' access to a range of materials and manufacturing techniques and foster a love of designing, manufacturing and creative thinking. <ul style="list-style-type: none"> ○ Pupils have high aspirations for their future. ○ Pupils have an understanding of the work of designers from around the world and how others live. ○ Pupils have knowledge of a wide range of dishes and traditions from around the world. ● Learn: Develop pupils' as independent, confident and successful designers and manufacturers <ul style="list-style-type: none"> ○ Pupils make good progress and are able to achieve academic success. ○ Disadvantaged pupils are supported in order to close the gap between themselves and their peers. ○ Pupils' progress across their Design technology lessons is evident over the four years at Edward Peake. 				