

The Raedwald Trust Design and Technology Curriculum is derived from the objectives set out in the Secondary National Curriculum. Key skills have been identified and progression mapped through Lower Key Stage 3 through to the end of Key Stage 3. At some sites supporting pupils in Key Stage 3, the Design and Technology curriculum is linked into project based learning using a concentric curriculum which ensures objectives can be revisited to build on learning, making knowledge acquisition long term. At sites following a sequential curriculum, Design and Technology objectives are incorporated into core curriculum strands to ensure that learning has a relevant context and to build pupils' understanding of DT as a key life skill. For example, in Year 9 art pupils would be required to *match and select suitable materials considering their fitness for purpose*. The purpose of study and intent of the Design and Technology programme of study is to teach the knowledge, understanding and skills needed to engage in designing and making as well as provide key life skills that will support pupils outside of school and into the future. Within Alternative Provision, pupils across all key stages consistently engage positively with cooking lessons. As such, settings will teach cooking as an additional discreet subject in addition to being embedded within the wider curriculum. Teacher judgement is used to decide whether earlier Key Stage 2 objectives need to be re-visited before extending into the Key Stage 3 programme of study. Successful engagement with the Key Stage 3 programme of study may help pupils with selection of Key Stage 4 programmes of study in Design and Technology, Food Preparation and Cooking and/or BTEC Level 1 and 2 Awards in Home Cooking Skills.

The fundamental areas in our Design and Technology curriculum are;

- Designing
- Making
- Evaluating
- Technical Knowledge
- Cooking and nutrition

These key areas are addressed through delivery of termly projects and/or incorporation into core curriculum areas. This seeks to develop and embed these skills for pupils and provide the range of contexts required for the national curriculum.

The objectives from these fundamental areas are split into the subject areas and/or projects that they fit best to ensure coverage across the curriculum offer. The programme of study is written as a full-time offer and will be made bespoke for pupils requiring a short-term reduced timetable or those on a reintegration timetable back into mainstream education. For settings offering short term (2 – 3 term) education, it is not possible to cover the full breadth of the D&T curriculum, therefore taught components are consciously chosen and incorporated into topics and/or core curriculum. These decisions are based on the site level programme of study in place to support curriculum intent. All teaching will be adapted to support pupil's individual needs, according to their starting point and teachers will

use their assessment to identify if earlier objectives need to be achieved. Due to potential gaps in learning some core fine motor skills might need to be practised and reinforced, e.g. cutting.

KEY STAGE 3: Design and Technology – Programmes of Study				
		Year 7	Year 8	Year 9
Design	<i>Understanding contexts, users and purposes</i>	<ul style="list-style-type: none"> Develop detailed design specifications to guide their thinking Use research including the study of different cultures, to identify and understand user needs Identify and solve their own design problems 		<ul style="list-style-type: none"> Develop design specifications that include a wider range of requirements such as environmental, aesthetic, cost, maintenance, quality and safety Research the health and wellbeing, cultural, religious and socio-economic contexts of their intended users Understand how to reformulate design problems given to them
		<ul style="list-style-type: none"> Work confidently within a range of relevant domestic, local and industrial contexts, such as the home, health, leisure, culture, engineering, manufacturing, construction, food, energy, agriculture and fashion Consider the influence of a range of lifestyle factors and consumer choices when designing products Take creative risks when making design decisions Analyse where human values may conflict and compromise has to be achieved 		
	<i>Generating, developing, modelling and communicating ideas</i>	<ul style="list-style-type: none"> Use 2D and begin to use 3D CAD packages to model their ideas Produce models of their ideas 		<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 advance of manufacture
		<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 Combine ideas from a variety of sources Use a variety of approaches to generate creative ideas and avoid stereotypical responses Decide which design criteria clash and determine which should take priority Develop and communicate design ideas using annotated sketches Produce 3D models to develop and communicate ideas Give oral and digital presentations and use computer-based tools 		

		Year 7	Year 8	Year 9
Make	Planning	<ul style="list-style-type: none"> produce ordered sequences and schedules for making products they design, detailing resources required produce costings using spreadsheets for products they design and make 		<ul style="list-style-type: none"> Create production schedules that inform their own and others' roles in the manufacturing of products they design 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
			<ul style="list-style-type: none"> Select appropriately from specialist tools, techniques, processes, equipment and machinery Select appropriately from a wider, more complex range of materials, components and ingredients, taking into account their properties such as water resistance and stiffness 	
	Practical skills and techniques	<ul style="list-style-type: none"> Make use of specialist equipment to mark out materials Use a broad range of material joining techniques including stitching, mechanical fastenings, heat processes and adhesives Investigate and develop skills in modifying the appearance of materials including textiles and other manufactured materials e.g. dyeing and applique 		<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
			<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, metals, polymers and woods 	
Evaluate		Year 7	Year 8	Year 9

	<i>Own ideas and product</i>	<ul style="list-style-type: none"> Evaluate their products against their original specification and identify ways of improving them. Actively involve others in the testing of their products 	<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
	<i>Existing products</i>	<p>Investigate and analyse:</p> <ul style="list-style-type: none"> Products through disassembly to determine how they are constructed and function The positive and negative impact that products can have in the wider world 	<p>Investigate and analyse:</p> <ul style="list-style-type: none"> Products that they are less familiar with using themselves How products can be developed considering the concept of 'cradle to grave' The concept of circular economy approaches in relation to product development and consumption
		<ul style="list-style-type: none"> Investigate and analyse new and emerging technologies Know about an increasing range of designers, engineers, chefs, technologists and manufacturers and be able to relate their products to their own designing and making 	
Technical Knowledge	<i>Making products work</i>	<ul style="list-style-type: none"> Know how to classify materials by structure e.g. hard woods, soft woods, ferrous and non-ferrous, thermoplastic and thermosetting plastics Know about the physical properties of materials e.g. grain, brittleness, flexibility, elasticity, malleability and thermal Know how more advanced electrical and electronic systems can be powered and used in their products Know how to use simple electronic circuits incorporating inputs and outputs Know about textile fibre sources e.g. natural and synthetic and fabrics e.g. plain and woven Know how to select and modify patterns and use in textile construction 	<ul style="list-style-type: none"> Know how materials can be cast in moulds Know how to apply the concepts of feedback in systems Know how to control outputs such as actuators and motors Know how to make use of microcontrollers in products they design and manufacture themselves Know how to construct and use simple and compound gear trains to drive mechanical systems from a high revving motor
		<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, including smart materials, and how they can be used to advantage 	

		<ul style="list-style-type: none"> • Understand the performance of structural elements to achieve functioning solutions • Understand how more advanced mechanical systems used in their products enable changes in movement and force • How to competently use a range of cooking techniques for example, selecting and preparing ingredients; using utensils and electrical equipment 		
Cooking and Nutrition	Where food comes from	Year 7	Year 8	Year 9
		<ul style="list-style-type: none"> • Know how to compare the cost of food when planning to eat out or cook at home • Know about the influence of food marketing, advertising and promotion on their own diet and purchasing behaviour 		
	<ul style="list-style-type: none"> • Know that food is produced, processed and sold in different ways, e.g. conventional and organic farming, fair trade • Know 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 			
	Food preparation, cooking and nutrition	<ul style="list-style-type: none"> • Know the importance of a healthy and varied diet as depicted in The eatwell plate and Eight tips for healthy eating • Know that food provides energy and nutrients in different amounts; that they have important functions in the body; and that people require different amounts during their life • Know how to taste and cook a broader range of ingredients and healthy recipes, accounting for a range of needs, wants and values • Know how to actively minimise food waste such as composting fruit and vegetable peelings and recycling food packaging 		<ul style="list-style-type: none"> • Know the importance of energy balance and the implications of dietary excess or deficiency, e.g. malnutrition, maintenance of a healthy weight • Know how to use nutrition information and allergy advice panels on food labels to help make informed food choices • Know how to use a broader range of preparation techniques and methods when cooking, e.g. stir-frying, steaming, blending • Know how to modify recipes and cook dishes that promote current healthy eating messages • Know the principles of cleaning, preventing cross-contamination, chilling, cooking food thoroughly and reheating food until it is steaming hot
<ul style="list-style-type: none"> • Know how to store, prepare and cook food safely and hygienically • Know how to use date-mark and storage instructions when storing and using food and drinks • Know how to select and prepare ingredients • Know how to use utensils and electrical equipment • Know how to apply heat in different ways • Know how to use taste, texture and smell to decide how to season dishes and combine ingredients 				

	<ul style="list-style-type: none">• Know how to adapt and use their own recipes• Cook a repertoire of predominantly savoury dishes to feed themselves and others a healthy and varied diet
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Teachers will assess learning objectives taught through the use of learning objectives (Knows/Dos at some sites) and success criteria for each session. These will then support identification of pupil need and success. Pupil outcomes will be recorded through learning logs and/or an online assessment tool and used to inform future planning. Gaps in learning and misconceptions are addressed rapidly and can be re-visited.

The principal focus of our Design and Technology curriculum is to develop the creative, technical and practical expertise of pupils that is needed to perform everyday tasks confidently and participate in an increasingly technological world. It seeks to support pupils in designing and making products which they can feel proud of whilst providing them with the experience that will help them choose career paths for the future. Reading skills will be developed as pupils are supported to evaluate, engage and follow written instructions. Product evaluation and testing will also be taught to ensure that pupils develop the healthy awareness and understanding that things can be improved/developed. Pupils will also have increasing awareness through cooking and nutrition sessions which will help them to look after their bodies and function well. These skills will make an essential contribution to the creativity, culture, wealth and well-being of the nation.