



Year 4

DESIGN TECHNOLOGY

Curriculum Intent

Through studying D&T at Walton Oak, children will create and design projects for a variety of purposes and contexts. Pupils will be able to consider safety and take appropriate risks using specialist tools, materials, mechanisms and equipment. Children will understand the process of planning, refining and modifying whilst considering key design criteria.

Themes:

1. Designing

Researching, disassembly, understanding form and function, planning, sketching, communicating, affordability, management of materials

2. Making

Selecting and using tools safely, measuring with precision, cutting, piercing and joining materials safely, safety in food technology

3. Evaluating

Checking against design criteria, testing, refining and modifying

4. Technical knowledge

Mechanical systems (cams, pulleys, wheels etc), how different materials behave, electrical systems

D&T Knowledge Organiser will all include an image of the 'Research – Design – Make - Evaluate' model. This will be referred to in all projects to help children understand how this process is used in technological design and also across the curriculum and in life.

DESIGN & TECHNOLOGY: CORE STUDY FOR YEAR FOUR

1. Designing			
Core knowledge	Core skills	Core vocabulary	Taught through
<ul style="list-style-type: none"> ● Explain their choice of tools and techniques for a given task. ● Understand how real-life contexts influence design (e.g., a bag must be portable and fit a purpose). ● Develop more than one design. ● Suggest improvements for their design. ● Produce a clear, sequenced plan and explain it. ● Adapt initial designs to create new ones. ● Begin to consider cost, durability, and appeal in product development. ● Explain how parts of their product works ● Develop their own design criteria for planning ideas ● Generate realistic ideas that meet needs of user and take into account availability of resources ● Identify who made the product, when it was made and what its purpose is ● Identify what the product has been made from ● Know that electrical systems can be included in design to enhance function. 	<ul style="list-style-type: none"> ● Research facts about famous inventors/ chefs / designers etc linked to product ● Use research and existing products to inspire design decisions. ● Understand and gather information about what a particular group or people want from a product ● Describe the purpose of their product ● Analyse products by drawing and sketching to understand how they are made. ● Identify design features that will appeal to intended users ● Plan complex sequences including component assembly. ● Share and discuss ideas with others ● Choose materials to use based on suitability of their properties ● Sketch and annotate clearly with features, functions, and materials noted. (where appropriate use computer based programmes) ● Create pattern pieces and prototypes 	<ul style="list-style-type: none"> ● prototype ● iterate ● function ● durability ● user ● research ● sequence ● appeal ● practical ● ergonomic 	<ul style="list-style-type: none"> ● Designing textile bags with purpose and visual appeal. ● Planning a Viking-inspired recipe and its presentation. ● Creating annotated designs for an illuminated post box using simple circuits. ● Created a closed circuit in Science to light a bulb.
<p>Extended Skills and Vocabulary</p> <ul style="list-style-type: none"> ● Evaluate a product's design considering user comfort, material waste, and product longevity. ● Use terminology such as "modification", "enhancement", and "user testing" in discussion. ● Develop alternative designs and justify choices with functional and aesthetic reasoning. ● Use digital tools or software for simple design layouts or diagrams. 			

DESIGN & TECHNOLOGY: CORE STUDY FOR YEAR FOUR

2. Making			
Core knowledge	Core skills	Core vocabulary	Taught through
<ul style="list-style-type: none"> ● Use simple food descriptors to describe ingredients ● Know basic food preparation techniques, including measuring, mixing, and combining ingredients safely and hygienically. ● Understand the importance of tool safety and good hygiene, especially in food preparation. ● Using their knowledge of construction, explain how to reinforce and strengthen a 3D framework. ● Choose suitable tools for making whilst explaining why they should be used ● Use a design criteria to guide their making process. ● Recognize how to combine materials and mechanisms for strength and movement. ● Understand the need for precise measuring and accurate cutting. ● Understand a wider range of joining techniques for fabrics (e.g., hemming, running stitch, cross stitch, back stitch). ● Know basic components of electrical systems (bulb, battery, wire, switch). 	<ul style="list-style-type: none"> ● Sew with accuracy using blanket stitch, cross stitch, backstitch ● Join fabrics using over sewing, backstitch and blanket stitch. ● Measure, mark out, cut and shape a range of materials, using appropriate tools, equipment and techniques ● Join, assemble and combine materials and components with some accuracy ● Draw own pattern and cut in a range of fabrics ● Confidently thread a needle using a smaller eye. ● Combine multiple materials into a functional product. ● Use tools and templates to measure and cut accurately. ● Construct safe, working electrical circuits with supervision. ● Crack an egg with some precision. ● Cream, sieve, mix, stir and combine wet and dry ingredients into a bowl ● Follow safety and food hygiene procedures. 	<ul style="list-style-type: none"> ● cut ● join ● attach ● tool ● safe ● hygiene ● measure ● material ● stable ● stitch ● seam ● circuit ● bulb ● battery ● secure ● wire ● measure ● fold ● join 	<ul style="list-style-type: none"> ● Sewing fabric bags using templates and stitching. ● Building and wiring a model lamp or post box with a switch. ● Measuring and cutting components for structural support. ● Baking and decorating Viking honey cakes using accurate quantities.
<p>Extended Skills and Vocabulary</p> <ul style="list-style-type: none"> ● Independently troubleshoot when a circuit does not work or when a material does not join as expected. ● Use more refined joining methods (e.g., overstitch, stronger adhesive types). ● Introduce terms such as "polarity", "resistance", "seam allowance", and "precision cut". 			

DESIGN & TECHNOLOGY: CORE STUDY FOR YEAR FOUR

3. Evaluating			
Core knowledge	Core skills	Core vocabulary	Taught through
<ul style="list-style-type: none"> ● Use design criteria to evaluate product – identifying both strengths and areas for development ● Consider the views of others, including intended user, whilst evaluating product ● Understand that testing includes usability, durability, and user experience. ● Know that aesthetics, as well as performance, influence final judgement. ● Learn to suggest changes that impact both form and function. 	<ul style="list-style-type: none"> ● Evaluate their work both during and at the end of the assignment ● Evaluate their products carrying out appropriate tests ● Use user feedback and product testing to adapt work. ● Discuss products critically using precise vocabulary. ● Compare the function and appearance of their design to real-life examples. 	<ul style="list-style-type: none"> ● test ● durable ● usable ● aesthetic ● modify ● test ● evaluate ● improve ● inspect ● feedback ● adapt 	<ul style="list-style-type: none"> ● Testing how well bags hold weight and remain neat. ● Checking that electrical circuits light up as intended. ● Reviewing cakes for taste, appearance, and following of instructions. ● Review lamp post structure to check its integrity.
<p>Extended Skills and Vocabulary</p> <ul style="list-style-type: none"> ● Record evaluation findings systematically using charts or digital tools. ● Use higher-level terms such as "ergonomics", "functionality", "design iteration". ● Compare products with commercial equivalents for benchmarking. 			

DESIGN & TECHNOLOGY: CORE STUDY FOR YEAR FOUR

4. Technical knowledge			
Core knowledge	Core skills	Core vocabulary	Taught through
<ul style="list-style-type: none"> ● Know that stitches hold materials in place and vary in strength. ● Understand how a complete circuit allows electricity to flow. ● Recognize the importance of safety in electrical components. ● Learn to reinforce and frame structures for strength. ● Understand how to build a 3D form using nets, folds, and tabs. ● Know how to combine structures and circuits in a functional product such as a 3D lamp post box. ● Know how ingredients react when baked and how cooking techniques like mixing, beating, and combining affect outcomes. ● Understand the historical and cultural relevance of traditional recipes such as Viking honey cakes. 	<ul style="list-style-type: none"> ● Start to join and combine materials and components in temporary and permanent ways. ● Sew and fasten using a range of techniques. ● Construct and explain a simple series circuit. ● Choose materials based on rigidity and suitability for function. ● Make stable structures with internal supports or joins. ● Build a 3D structure using accurate folds and joining techniques. ● Integrate electrical components into a paper/card construction. ● Measure and mix ingredients with accuracy and follow baking instructions ● Read and follow a recipe ensuring they understand each step. 	<ul style="list-style-type: none"> ● structure ● stable ● healthy ● balanced ● ingredient ● circuit ● switch ● stitch ● hem ● join ● support ● reinforce ● secure ● conductor ● insulator ● tab ● fold ● structure ● bake ● combine ● whisk 	<ul style="list-style-type: none"> ● Creating fabric bags for carrying with strong seams. ● Building electrical lamp boxes using circuit components. ● Constructing a 3D lamp post box by folding, joining, and wiring a working light into the structure. ● Reinforcing models with tabs, folds, and internal structures. ● Applying baking techniques when making Viking Hone Cakes.
<p>Extended Skills and Vocabulary</p> <ul style="list-style-type: none"> ● Use advanced vocabulary like "load-bearing", "electrical resistance", "cross-section". ● Identify real-world applications of the systems being created. ● Describe chemical and physical changes in ingredients when cooking. 			