



Year 6

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 SIX

1. Designing			
Core knowledge	Core skills	Core vocabulary	Taught through
<ul style="list-style-type: none"> ● Use market research to inform and plan ideas. ● Understand how to solve complex, real-world problems using detailed design thinking (e.g., sheltering from hazards, creating mechanisms that move). ● Plan a sequence of work using a storyboard to show the final design of the prototype. ● Explain how products should be stored and give reasons. ● Understand the use of exploded diagrams, flowcharts, and CAD tools in communicating ideas. ● Justify plans in a convincing way. ● Recognize cultural, environmental, and ethical considerations in design. ● Know how to balance aesthetic choices with technical functionality. ● Research facts about famous inventors/ chefs / designers etc linked to product ● Understand and gather information about what a particular group or people want from a product, using questionnaires, surveys etc ● Explain how parts of their product will work ● Produce lists for the tools, equipment and materials they will be using 	<ul style="list-style-type: none"> ● Use a range of tools including a computer to model ideas competently. ● Follow, revise and adapt plans throughout the design process. ● Test and evaluate products. ● Evaluate the product on design, appearance and use. ● Generate innovative ideas supported by sketches, models, and research. ● Highlight the impact of time, resources and cost within their design ideas. ● Generate innovative ideas that meet the needs of users. ● Share and discuss ideas with others ● Record a step by step plan for making ● Choose materials to use based on suitability of their properties and aesthetic qualities ● Represent ideas in diagrams, annotated sketches and computer based programmes (where appropriate) ● Create pattern pieces and prototypes 	<ul style="list-style-type: none"> ● design ● purpose ● function ● plan ● innovative ● aesthetic ● ergonomic ● feasibility ● mechanism ● criteria ● ethical ● CAD, ● exploded ● diagram ● research 	<ul style="list-style-type: none"> ● Designing WW2 bomb shelters for strength, size, and safety. ● Investigating how real-life engineering influenced wartime shelter designs. ● Creating working drawbridges using pulleys and supports. ● Designing a Greek meal using cultural inspiration and food knowledge. ● Creating working drawbridges using pulleys and supports.
<p>Extended Skills and Vocabulary</p> <ul style="list-style-type: none"> ● Use advanced terminology such as design optimisation, environmental impact, and functional specification. ● Incorporate digital tools (e.g., CAD software) in the design process. ● Evaluate trade-offs in design decisions (e.g., strength vs material usage). ● Demonstrate ability to explain design thinking clearly to others. 			

DESIGN & TECHNOLOGY: CORE STUDY FOR YEAR SIX

2. Making			
Core knowledge	Core skills	Core vocabulary	Taught through
<ul style="list-style-type: none"> ● Use design criteria whilst making ● Understand how precise measurement and tool selection affect final outcomes. ● Recognize how sequencing impacts construction efficiency and quality. ● Know that different materials require different methods for shaping, joining, and finishing. ● Understand how materials respond under stress and how to reinforce them. ● Learn how to combine mechanical and structural systems in one product. ● Understand the science behind heat application in food and materials (e.g., melting, hardening, baking). ● Choose appropriate cutting equipment to cut and peel a range of ingredients. ● Know how to use a range of complex tools and techniques accurately and safely. ● Recognize how to cook complete meals from raw ingredients with attention to balance and flavour. ● Identify how they would change a recipe to improve the food they have made. 	<ul style="list-style-type: none"> ● Crack an egg and begin to separate yolk from white ● Compare different versions of the same dish for flavour, texture and appearance. ● Assemble components to make working models ● Use a food processor or electric hand blender to combine, mash, puree and blend wet and dry ingredients ● Use an electric whisk to beat an egg white. ● Follow complex recipes and manage cooking times and sequences. ● Construct products using permanent joining techniques. ● Measure, mark, cut and shape materials and components accurately ● Join, assemble and combine materials and components accurately ● Build reinforced structures and integrate moving mechanisms. ● Evaluate and make modifications as they go along including using finishing techniques to ensure a high quality product. ● Follow safety and food hygiene procedures ● Demonstrate problem solving skills when encountering a mistake or practical problem ● Use finishing techniques that involve a number of steps ● Combine function and finish in making to produce high-quality outcomes. 	<ul style="list-style-type: none"> ● cut ● join ● measure ● material ● reinforce ● finish ● mechanism ● pulley ● system ● stable ● balance ● prepare ● knead ● combine ● safety ● hygiene 	<ul style="list-style-type: none"> ● Building reinforced WW2 shelters with attention to dimensions. ● Practising safe use of tools such as saws, glue guns, or measuring devices. ● Creating high-quality finishes using sanding, folding, or alignment methods. ● Creating a drawbridge that lifts/ lowers with working pulley systems.
<p>Extended Skills and Vocabulary</p> <ul style="list-style-type: none"> ● Apply technical skills to integrate mechanical, structural, and food systems in a single project. ● Understand how to work efficiently through time and task planning. 			

DESIGN & TECHNOLOGY: CORE STUDY FOR YEAR SIX

3. Evaluating			
Core knowledge	Core skills	Core vocabulary	Taught through
<ul style="list-style-type: none"> ● Understand how to collect and interpret user data to inform product revision. ● Recognize when a product meets or exceeds expectations for performance. ● Understand that real-world application and professional examples help benchmark work. ● Understand how to evaluate throughout the design-make process. ● Know how to test against design criteria and intended use. ● Understand that user feedback, performance, and testing help refine ideas. 	<ul style="list-style-type: none"> ● Carry out functional and durability testing. ● Use design criteria to evaluate product – looking at quality of end product and design and whether it is fit for its intended purpose ● Record their evaluations using drawings with labels ● Record and act on peer and user feedback. ● Compare outcomes to professional products and original design goals. ● Evaluate against their original criteria and suggest ways that their product could be improved 	<ul style="list-style-type: none"> ● evaluate ● test ● improve ● feedback ● successful ● modify ● reliable ● robust ● reflective ● performance ● user ● function ● real-world 	<ul style="list-style-type: none"> ● Testing bomb shelters for structural integrity and size. ● Using rubrics and peer assessments to evaluate stability and suitability. ● Comparing final designs with initial criteria for performance. ● Evaluating the effectiveness and smooth movement of drawbridges.
<p>Extended Skills and Vocabulary</p> <ul style="list-style-type: none"> ● Use detailed evaluation language such as user insights, performance testing, and critical feedback. ● Reflect on success criteria with clear evidence. ● Plan and record improvements as part of a development cycle. ● Compare work to industry or professional standards where appropriate. ● Receive peer feedback to improve their product. 			

DESIGN & TECHNOLOGY: CORE STUDY FOR YEAR SIX

4. Technical knowledge			
Core knowledge	Core skills	Core vocabulary	Taught through
<ul style="list-style-type: none"> ● Understand how energy and force are transferred within mechanisms. ● Know the purpose and function of key structural elements (e.g., beams, braces, load-bearing walls). ● Understand and use mechanical systems in their products e.g. gears, pulleys, cams, levers and linkages ● Know how pulley systems and mechanisms function and interact with other parts. ● Understand advanced joining, strengthening, and motion systems. ● Explain how mechanical systems such as cams or pulleys or gears create movement. ● Understand how nutrition, tradition, and innovation influence food design. ● Recognize ingredients' role in nutrition and meal composition. ● Be aware of sustainability and material life cycles. 	<ul style="list-style-type: none"> ● Build complex working mechanical systems using pulleys and supports. ● Reinforce structures for durability and safety. ● Select food items for balanced, cultural meals. ● Use materials effectively, considering sustainability. ● To apply their understanding of how to strengthen, stiffen and reinforce more complex structures ● To apply their understanding of computing to program, monitor and control their products. 	<ul style="list-style-type: none"> ● healthy ● balanced ● ingredient ● pulley ● tension ● structure ● reinforce ● mechanism ● balanced ● seasonal ● structural ● integrity ● sustainable ● mechanical system 	<ul style="list-style-type: none"> ● Constructing a working drawbridge with a pulley system. ● Experimenting with pulley ratios to control movement. ● Demonstrating how structure and mechanism interact effectively. ● Building bomb shelters that withstand pressure and reflect historical context. ● Cooking and presenting a Greek-inspired meal considering dietary balance and cultural identity.
<p>Extended Skills and Vocabulary</p> <ul style="list-style-type: none"> ● Explain technical systems using accurate terminology (e.g., force transmission, mechanical advantage). ● Identify environmental, cultural, and health impacts of materials and foods. ● Evaluate how combined systems (electrical, mechanical, structural) can improve product function. 			