

Design Technology Year 5

Key Threshold Concepts

- To design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values.
- To draw on disciplines such as mathematics, science, engineering, computing and art.
- To take risks, becoming resourceful, innovative, enterprising and capable citizens.
- Through the evaluation of past and present design and technology, develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

Key Skills

All DT units will follow the stages of: • Share design brief	• Explore existing products	• Evaluate existing products	• Design and generate ideas	• Make, including planning	Evaluate own ideas and products
Explore and Evaluate – Existing products	Design and Generating ideas	Making - Planning	Making – Practical skills and techniques	Evaluating Own ideas and products	
<ul style="list-style-type: none"> • Understand how well products have been designed and made • Explain why materials have been chosen • Understand what methods of construction have been used • Explain how well products work to achieve their purposes • Explain how much products cost to make • Explain how sustainable the materials in products are 	<ul style="list-style-type: none"> • Describe the purpose of their products • Indicate the design features of their products that will appeal to intended users • Explain how particular parts of their products work • Carry out research, using surveys, interviews, questionnaires and web-based resources • Identify the needs, wants, preferences and values of particular individuals and groups • Develop a simple design specification to guide their thinking Share and clarify ideas through discussion • Model their ideas using prototypes and pattern pieces • Use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas • Generate realistic ideas, focusing on the needs of the user • Make design decisions that take account of the availability of resources and tools 	<ul style="list-style-type: none"> • Select tools and equipment suitable for the task • Explain their choice of tools and equipment in relation to the skills and techniques they will be using • Select materials and components suitable for the task • Explain their choice of materials and components according to functional properties and aesthetic qualities • Produce appropriate lists of tools, equipment and materials that they need • Formulate step-by-step plans as a guide to making 	<ul style="list-style-type: none"> • 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, including those from art and design • Use techniques that involve a number of steps • Demonstrate resourcefulness when tackling practical problems 	<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 products as they design and make • Evaluate their ideas and products against their original design specification 	

Design Vocabulary

design decisions, functionality, authentic, user, purpose, design specification, design brief, innovative, research, evaluate, design criteria, annotate, evaluate, mock-up, prototype

<u>Frame Structures</u> <u>Bridges</u>	<u>Textiles</u>	<u>Mechanisms</u> <u>Levers and Pulleys</u>	<u>Food Technology</u>
<p>Design Brief: Create a bridge that can has a span of And can withstand of a force ofkg weight applied</p> <p><i>Materials: Timber, card,</i></p> <p>OR</p> <p>Design Brief: Create a selection of bird houses and feeders to attract birds to our local woodland.</p> <p><i>Materials: timber</i></p>	<p>Design Brief: Design and create a purse</p> <p><i>Materials: fabric, range of stiches</i></p>	<p>Roman Weapon</p> <p>Design brief: Create a weapon that could support the Romans in their battle.</p> <p><i>Materials: timber, pulley, lever</i></p>	<p>Design brief: Open an Italian restaurant for paying guests, ensuring that all food is freshly prepared, offering a well balanced meal</p> <p>Bread Making (not full unit – food preparation skills)</p>
Technical Knowledge	Technical Knowledge	Technical Knowledge	Technical Knowledge
<ul style="list-style-type: none"> I know how to stiffen, strengthen and reinforce a range of 3-D frameworks I know which materials are best suited to stiffen and reinforce by selecting them due to their properties I know which shapes are the strongest and will support the most weight in a structure I know how to use a range of tools i.e. junior hacksaws, Gclamps, bench hooks, hand drills safely 	<ul style="list-style-type: none"> I know that a 3D textile product can be made from a combination of accurately made pieces I know when to combine multiple different fabrics to create a 3D product I know how embroidery can embellish a product I know when to use particular stitch types (including finishing stitches) 	<ul style="list-style-type: none"> I know that mechanical and electrical systems have an input, process and output I know what a gear is I know what a pulley is I know that gears and pulleys can be used to speed up, slow down or change the direction of movement I know how to accurately draw an exploded diagram 	<ul style="list-style-type: none"> I understand how food is processed into ingredients that can be eaten or used in cooking I understand that a recipe can be adapted by adding or substituting one or more ingredients I know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source I know how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking I understand that recipes can be adapted to change the appearance, taste, texture and aroma I know some more advance methods for mixing ingredients i.e. rubbing in I know how to measure ingredients accurately using different units I know how to select appropriate utensils for specific jobs I know how to cut, shape and knead dough
Wider Knowledge	Wider Knowledge	Wider Knowledge	Wider Knowledge
<ul style="list-style-type: none"> I know how to test a material’s strength I know how to use CAD to develop a product I know why engineers use certain structures for certain uses. I know some simple facts about more than one structural engineer (i.e. Gustavo Eiffel, Peter Rice, Fazlur Khan) 	<ul style="list-style-type: none"> I know what a questionnaire is and how it can help with product design I know how to test fabrics in order to select them for use. I know some key dates in the development of fabric and textiles (i.e. 6000BC woven textiles used to wrap the dead, 500-1000AD spinning wheel invented in India, 1562 first use of purl stitch in Spanish tomb, 1890 first pair of jeans by Levi Strauss) 	<ul style="list-style-type: none"> I know where pulleys and gears are used in commercial products and industry I know what forces are acting on pulleys and gears (i.e. friction, gravity) I know whether a gear will turn clockwise or anticlockwise 	<ul style="list-style-type: none"> I know about a range of chefs and their individual styles of cooking I understand that seasons may affect the food available I know that different food and drink contain different substances – nutrients, water and fibre – that are needed for health
Vocabulary			
Structures	Textiles	Mechanisms	Food
frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent	seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces, name of textiles and fastenings used, pins, needles, thread, pinking shears, fastenings,	pulley, drive belt, gear, rotation, spindle, driver, follower, ratio, transmit, axle, motor, circuit, switch, circuit diagram, annotated drawings, exploded diagrams, mechanical system, electrical system, input, process, output	ingredients, yeast, dough, bran, flour, wholemeal, spice, herbs fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source, seasonality utensils, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out,

