Design Technology
Year 6

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
• 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	• 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	• 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	• 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	• 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

Electrical Systems	**Mechanical Systems**	**Food Technology**
Design Brief: Design a product that responds to changes in the environment using a computer control program e.g: Security Alarm, garden Security light, Electronic moneybox *Materials: card, electronics, bulbs, buzzers, Crumble*	**Design Brief:** Create a motorised vehicle that will safely carry 2 passengers and travel in a straight line. *Materials: timber, electronics, motors, card*	**Design brief:** Design and promote a burger to launch at the end of year parent BBQ. You must consider service and packaging and test your product on willing volunteers before the decision on the best burger is made Cooking with rations *(not full unit – food preparation skills)*
Technical Knowledge	**Technical Knowledge**	**Technical Knowledge**
• I understand how simple electrical circuits and components can be used to create functional products • I understand how to program a computer to control their products • I understand that materials have both functional properties and aesthetic qualities • I understand that materials can be combined and mixed to create more useful characteristics • I understand how to program a computer to monitor changes in the environment and control their products	• I understand that mechanical and electrical systems have an input, process and output • I understand how mechanical systems such as cams or pulleys or gears create movement • I know how to incorporate simple self made switches in a circuit • I know how to test components in more complex circuits (series and parallel) • I know how simple switches can be made • To know that gears and pulleys can be used to speed up, slow down or change the direction of movement	• 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**
• I know why materials make good conductors and insulators • I know how electrical systems are controlled (i.e. flow charts)	• 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 • I know how ratio affects speed of rotation	• 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		
Electrical Systems	**Mechanisms**	**Food**
reed switch, toggle switch, push-to-make switch, push-to-break switch, light dependent resistor (LDR), tilt switch, light emitting diode (LED), bulb, bulb holder, battery, battery holder, USB cable, wire, insulator, conductor, crocodile clip control, program, system, input device, output device, series circuit, parallel circuit	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,