

DT Overview

Project		Disciplinary Knowledge		Substantive Knowledge	Language	SDG
Year 5						
Workbook		Pupils use sketchbooks to: - Record research notes and simple diagrams - Produce annotated design sketches - List materials and tools - Record test results and evaluations - Record research into existing products - Develop and annotate design ideas - Note construction steps - Reflect on finished outcomes - Record research on ingredients - Plan dishes Record - Evaluations and reflections		Expectation: - Clear annotations using correct vocabulary - Evidence of thinking and learning - Sketchbooks used as working documents, not presentation pieces - Clear reasoning for design choices - Accurate labelling of materials and features		
Mechanisms 	(Mini Trebuchet) Outcome: A working mini trebuchet designed to launch a projectile accurately and safely Focus: Mechanisms, forces, accuracy, control	Research: - Simple lever-based mechanisms (e.g. catapults, see-saws, cranes) - How changing pivot position affects movement and force - Basic historical and modern uses of levers Design: - Produce annotated sketches of their trebuchet design - Identify key components (arm, pivot, base) - Agree simple success criteria (e.g. stability, distance, accuracy) Make - Construct a stable base and pivot mechanism - Assemble a lever arm securely - Work safely with basic tools and materials Evaluate - Test their trebuchet and record results - Evaluate performance against success criteria - Suggest realistic improvements Technical Knowledge		- What a lever is and how it works - How pivot position affects force and movement - Basic principles of stability and balance - Safe construction methods	Lever Pivot Counterweight Force Accuracy Stability Trajectory Evaluate	
		- Apply understanding of levers, pivots, and forces - Use correct technical vocabulary accurately - Understand how design choices affect performance				
	Textiles (Keyring or Pencil Case Monster)	Research - Simple textile products and their features - Basic fabric types and their properties - How products are made durable Design - Design a textile product for a named user		Properties of	Durable	

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Construction 	Term: Spring Outcome: A small textile product designed for a specific user Focus: Textiles construction, joining, durability, user needs	Make • Use annotated sketches to show size, shape, and decoration • Identify simple success criteria (fit for purpose, durability) • Cut fabric accurately • Use basic joining techniques securely • Assemble a finished product with attention to neatness Evaluate • Evaluate their product against success criteria • Reflect on durability and appearance • Suggest improvements Technical Knowledge • Apply understanding of fabric properties • Use joining techniques appropriately • Use correct textile vocabulary	different fabrics • Simple construction techniques • How joining methods affect durability • Decorative vs functional features	Seam Reinforce Stitch Template Functional Join Finish	
Food Technology 	Dairy, Fats and Sugars Term: Summer Outcome: A range of dishes demonstrating understanding of dairy, fats, and sugars Focus: Nutrition, preparation, evaluation, safety	Research • Where dairy, fats, and sugars come from • Their role in the diet • How they affect texture and taste Design • Design simple dishes using specific ingredients • Consider taste, texture, and appearance • Set success criteria related to flavour and structure Make • Prepare and cook dishes safely • Apply correct techniques • Follow and adapt simple recipes Evaluate • Evaluate dishes based on taste, texture, and appearance • Compare outcomes and suggest improvements Technical Knowledge	• The function of dairy, fats, and sugars in cooking • Basic nutritional understanding • Safe food preparation techniques	Function Texture Nutrition Emulsify Balance Portion Hygiene Evaluate	
		• Apply knowledge of ingredient function • Use correct food vocabulary • Work hygienically and safely			

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Year 6						
Workbook		Pupils use sketchbooks to: - Analyse existing games - Develop and refine designs - Record measurements and layout planning - Record testing results and evaluation notes - Record research into cam types - Annotate design diagrams - Record changes and refinements - Evaluate final movement - Record research and comparisons - Plan dishes - Record evaluations and reflections		Expectation: - Clear reasoning for design decisions - Increasing technical accuracy in drawings - Evidence of improvement over time - Clear mechanical labelling - Evidence of reasoning and improvement - Clear justification of choices - Increasing independence and maturity in evaluation		
 Construction	Woodwork (Ball Bearing Game) Term: Autumn Outcome: A wooden ball-bearing game with controlled movement and accurate construction Focus: Wood properties, accuracy, structure, reliability	Research - Research existing ball-bearing and tabletop games - Identify how accuracy, layout, and structure affect playability - Investigate how wood is used in small-scale products Design - Develop detailed annotated sketches showing layout and pathways - Consider dimensions, spacing, and structure - Set success criteria linked to reliability and usability Make - Measure, mark, and cut wood accurately - Drill holes and assemble components securely - Refine work during construction to improve quality Evaluate - Test the game for playability and reliability - Evaluate accuracy of construction and structure - Suggest realistic improvements based on testing Technical Knowledge - Apply knowledge of wood properties and reinforcement - Select appropriate tools and techniques - Use correct technical vocabulary consistently		- Properties of wood and why it is used in products - Measuring, marking out, and drilling techniques - Structural reinforcement and stability - How accuracy affects function	Accuracy Measure Reinforce Structure Tolerance Stability Align Evaluate	

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Mechanisms 	Cams (Victorian-Style Cam Toy) Term: Spring Outcome: A working cam-driven toy inspired by Victorian designs Focus: Rotary motion, mechanical systems, control	Research • Research Victorian toys and cam mechanisms • Explore different cam shapes and their effects on movement • Analyse how rotation creates repeated motion Design • Design a cam system using labelled diagrams • Select cam types to achieve desired movement • Consider aesthetics alongside function Make • Construct a cam and follower accurately • Assemble components so movement is smooth and reliable • Adjust components to improve performance Evaluate • Test movement for smoothness and consistency • Evaluate reliability and visual impact • Suggest improvements based on performance Technical Knowledge • Apply understanding of rotary motion • Use correct terminology (cam, follower, shaft) • Select appropriate materials for moving parts	• How cams convert rotary motion into linear movement • Differences between cam types • How mechanical systems repeat motion • Relationship between design and outcome	Cam Follower Rotary motion Linear motion Shaft Repeat Mechanism Control	
Food Technology 	Breakfasts Around the World Term: Summer Outcome: A culturally informed breakfast dish Focus: Culture, nutrition, informed food choices	Research • Research breakfast traditions from different cultures • Explore nutritional balance and cultural context • Compare ingredients and preparation methods Design • Design a breakfast dish informed by research • Consider nutrition, taste, and cultural authenticity • Set success criteria linked to balance and suitability Make • Prepare and cook dishes independently and safely • Apply appropriate techniques • Adapt methods where necessary Evaluate • Evaluate dishes for taste, nutrition, and cultural relevance • Justify improvements using evidence Technical Knowledge • Apply prior hygiene and safety knowledge independently • Apply nutritional understanding accurately • Use appropriate food vocabulary	• Cultural influences on food choices • Nutritional balance across meals • How preparation methods vary globally • Relationship between culture and diet	Culture Tradition Balance Nutrition Ingredient Authentic Prepare Evaluate	

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Year 7						
Workbook		Pupils are expected to: - Record structured research (images, notes, comparisons) - Use CAFÉ to analyse and develop ideas - Apply QUE to refine and evaluate decisions - Produce annotated sketches and introductory isometric drawings - Record reflections and evaluations throughout the process - Document research and design development - Show internal structures and mechanisms using annotated sketches and isometric drawings - Record evaluation and refinements - Record cultural research - Plan dishes and evaluate outcomes - Reflect on how research informed design		Expectation: - Clear reasoning - Correct technical vocabulary - Evidence of thinking over time, not finished presentation pages - Sketchbooks clearly show design development, not just outcomes - Clear links between research and final outcome		
Construction 	Decorative Materials – Jewellery (Pewter Casting or Enamelling) Term: Autumn Outcome: A finished piece of jewellery designed for a specific user Focus: Specialist materials, aesthetics, precision, design intent	Research - Research existing jewellery products and decorative styles - Explore how materials, finish, and form affect appearance and suitability - Identify user preferences and constraints Design - Develop design ideas using CAFÉ: - Customer (user needs and preferences) - Aesthetics (style, colour, finish) - Function (wearability, durability) - Ergonomics (comfort, size, safety) - Use QUE to refine decisions: - Quality - User - Environment - Produce annotated design sketches - Introduce isometric drawings to communicate 3D form Make - Apply specialist processes safely and accurately - Work with increasing precision and attention to finish		- Properties and behaviour of specialist decorative materials - Surface finishing and decorative techniques - Health and safety considerations when using heat or specialist tools - How aesthetics and material choice influence product appeal		Aesthetic Finish Form Precision Ergonomic Material behaviour Decorative Refine

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		- Follow a planned sequence of making Evaluate - Evaluate final products against CAFÉ and QUE criteria - Assess quality, durability, and suitability for the user - Suggest informed improvements Technical Knowledge - Apply knowledge of material behaviour and decorative processes - Use correct specialist vocabulary - Understand how process choices affect outcome			
Construction 	Textiles with Mechanisms (Ugly Toy / 'Puglie') Term: Spring Outcome: A self-standing promotional toy incorporating textiles and movement Focus: Applied textiles, internal structure, simple mechanisms	Research - Research novelty toys, branding, and promotional products - Explore how movement, structure, and materials are combined - Identify target audience and purpose Design - Develop ideas using CAFÉ, focusing on user and function - Use QUE to consider quality and environmental impact - Produce annotated sketches showing internal structure and movement - Use isometric drawings to communicate 3D form and components Make - Construct a textile product with internal support - Integrate a simple mechanism effectively - Adapt construction methods to solve problems Evaluate - Test stability, movement, and durability - Evaluate suitability for promotional purpose - Suggest improvements linked to design intent Technical Knowledge - Apply knowledge of textile properties and joining methods - Apply understanding of simple mechanisms - Use appropriate technical vocabulary accurately	- How textiles can be structured and reinforced - How simple mechanisms can be integrated into soft materials - How construction choices affect stability and movement - Relationship between design intent and build method	Structure Mechanism Reinforce Prototype Movement Function User Durability	
Food Technology 	Meat Alternatives Term: Summer Outcome: A savoury dish using meat alternatives, designed for a specific context Focus: Sustainability, nutrition, informed choice	Research - Research meat alternatives and protein sources - Explore sustainability and dietary needs - Compare nutritional information Design - Design a dish using a meat alternative - Consider taste, texture, nutrition, and suitability - Set success criteria linked to purpose Make	- Different types of meat alternatives - Nutritional value of protein sources - Environmental impact of food choices	Protein Sustainability Texture Alternative Nutrition Source Impact Evaluate	

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		- Prepare and cook dishes safely and independently - Apply appropriate techniques for chosen ingredients - Adapt methods where needed Evaluate - Evaluate dishes based on taste, texture, nutrition, and sustainability - Justify improvements using evidence Technical Knowledge - Apply prior food hygiene and safety knowledge independently - Apply understanding of nutrition and protein sources - Use accurate food vocabulary	How ingredient choice affects outcome		
Project		Disciplinary Knowledge	Substantive Knowledge	Language	SDG
Year 8					
Workbook		Sketchbooks are used to: - Analyse systems and subsystems - Record testing and refinements - Communicate ideas using confident isometric drawings - Apply CAFÉ and QUE independently - Central planning and thinking tools - Used to document research, design decisions, and testing - Used to show iteration, refinement, and evaluation - Record research and comparisons - Plan and evaluate designs - Reflect critically on outcomes	Expectation: - Sketchbooks clearly evidence systems-level thinking - Diagrams explain <i>how things work</i>, not just what they look like - Confident use of isometric paper - CAFÉ and QUE embedded without prompting - Clear evidence of design development over time - Mature, evidence-based evaluation - Clear links between research and redesign		
Mechanisms (incl. electrical/electronic systems) 	Preparation Unit Term: Autumn Outcome: Tested mechanical and electrical subsystems ready for application Focus: Systems thinking, revisiting and applying prior technical knowledge	Research - Research fairground rides and moving systems - Analyse how mechanisms and electrical systems work together - Identify constraints such as safety, stability, and reliability Design - Design and plan mechanical and electrical subsystems - Use CAFÉ and QUE to justify design choices - Produce annotated sketches and isometric drawings showing component interaction Make - Construct and test subsystems - Refine designs based on testing - Work with increasing independence and responsibility Evaluate	- How mechanical systems interact - How simple electrical components support movement or control - Reliability, safety, and system efficiency	System Subsystem Input Output Control Reliability Component Refine	

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		- Evaluate subsystem performance - Identify weaknesses and propose improvements - Reflect on reliability and safety Technical Knowledge - Apply previously taught knowledge of mechanisms and basic electronics - Select appropriate components and techniques - Use technical vocabulary accurately and consistently			
Large scale Construction and Mechanisms (Structures) 	Fairground Ride (Mechanisms & Electronics) Term: Spring Outcome: A working fairground ride model incorporating movement and control Focus: Integration, collaboration, independence	Research - Research existing fairground rides and mechanical systems - Analyse user experience, safety, and movement - Identify constraints and design challenges Design - Develop a coherent design using CAFÉ and QUE - Plan components, roles, and construction stages - Communicate ideas through annotated sketches and isometric drawings Make - Build and assemble multiple components - Integrate mechanisms and electrical elements Evaluate - Evaluate function, reliability, and user experience - Reflect on teamwork and problem-solving - Propose informed improvements Technical Knowledge - Apply accumulated knowledge of materials, mechanisms, and electronics - Make informed technical decisions independently - Use technical language fluently	- Mechanical systems knowledge - Basic electronics understanding - Structural principles - Safety and reliability considerations This unit is application-led, not content-led.	Integrate Mechanism Structure Stability Control Reliability Safety Evaluate	
Food Technology 	Fake-away Term: Summer Outcome: A healthier version of a popular takeaway meal Focus: Critical food literacy, health, cost, lifestyle	Research - Research popular takeaway foods - Analyse nutritional content, cost, and frequency of consumption - Consider lifestyle and health implications Design - Redesign a takeaway meal to be healthier - Consider nutrition, portion size, and appeal - Set success criteria linked to health and suitability Make - Prepare and cook dishes independently and safely - Adapt recipes to improve outcomes - Apply appropriate techniques confidently Evaluate	- Pupils deepen understanding of: - Nutrition and health - Cost and accessibility of food - Lifestyle choices and long-term impact	Nutrition Portion Adapt Health Cost Processed Compare Justify	

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		• Compare original and redesigned meals • Evaluate nutritional value, taste, and affordability • Justify improvements using evidence Technical Knowledge • Apply food hygiene and safety knowledge independently • Apply nutritional understanding critically • Use appropriate technical vocabulary			
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