Programme of Study: Design & Technology

KS2 Underpinning Concepts		Year 7	Year 8	Year 9	KS5 & CEAIG Opportunities	Links to SMSC
Design: Respond to briefs, generate ideas, and consider user needs. **Making**: Use tools and materials safely and accurately. **Technical Knowledge**: Understand structures, mechanisms, and basic electrical systems. **Evaluation**: Test and improve designs based on criteria. **Cooking and Nutrition**: Learn about healthy eating and prepare simple dishes. **Sustainability**: Make responsible choices about materials and impact. **Digital Tools**: Use basic CAD and explore how technology supports design.	Rotation 1	**Food** **Core Skills:** Practical food preparation techniques; Safe working practices in food environments; Ingredient selection tailored to user needs and dietary requirements; Sensory and nutritional analysis of food products **Key Knowledge Areas:** Health, safety, and hygiene standards in food handling; Principles of design and problem-solving in food contexts; Effective food storage methods; Properties and functions of ingredients; Accurate measurement and portioning within food preparation	**Food** **Core Skills:** Planning and delivering a healthy eating and nutrition project; Preparation of a variety of savoury dishes; Understanding food provenance, including seasonality and the impact of food miles **Key Knowledge Areas:** Characteristics and uses of food commodities; Meeting user needs through appropriate savoury food choices; Environmental considerations in food sourcing and preparation	**Food** **Core Skills:** Practical preparation of savoury dishes using a range of techniques; Development and refinement of food production processes; Making informed and ethical food choices to meet diverse dietary needs and requirements **Key Knowledge Areas:** Understanding and application of food commodities; Responding to user needs through appropriate savoury options; Exploring social, moral, ethical, and cultural factors in food production; Evaluating the impact of different cooking methods on food quality and nutritional value	**Academic Pathways: A-Level Design & Technology** (Product Design, Fashion & Textiles, Engineering) **BTEC/Technical Qualifications** – focused on practical skills and industry knowledge in area such as construction, manufacturing and digital design. **Advanced Apprenticeships** in: Engineering (mechanical, electrical, civil) Construction and built environment Furniture and cabinet making Digital design and manufacturing **Career pathways:** Product Designer Interior Designer Graphic Designer Fashion/Textile Designer Jewellery Designer Furniture Maker Industrial Designer Mechanical Engineer Electrical/Electronic Engineer Civil Engineer Structural Engineer CAD Technician Robotics Engineer Aerospace Engineer Architect Surveyor Construction Manager Urban Planner Landscape Architect Site Technician	**Spiritual Development** Students are encouraged to design projects that reflect their personal interests, values, cultures, and beliefs, fostering creativity and self-expression. **Moral Development** Students explore the ethical impact of design and consumerism, considering how choices in materials and production affect the environment and society. **Social Development** Students engage in both independent and collaborative tasks, developing teamwork, communication, and interpersonal skills through shared problem-solving and peer interaction. **Cultural Development** Cultural awareness is promoted through diverse design briefs, research activities, and the exploration of materials, ingredients, and techniques from a range of global traditions.
	Rotation 2	**Systems** **Core Skills:** Programming and coding for functional outcomes; Model making to support design development; Collaborative teamwork in design and problem-solving contexts; Sketching and visualising design ideas; Reformulating and approaching problems from multiple perspectives **Key Knowledge Areas:** Understanding how electronic and electrical systems are integrated into products; Applying computing and electronics to embed intelligence into designs; Testing, evaluating, and refining ideas and products against a given specification	**Sustainable House Project** **Core Skills:** Conducting client-focused research, including cultural and contextual references; Developing design ideas through sketching and drawing; Writing a clear and purposeful design specification; Creating 3D models to visualise and test design concepts; Applying principles of sustainability and ethical design throughout the project **Key Knowledge Areas:** Techniques and tools for effective 3D modelling; Research and exploration to inform design decisions; Specification writing aligned with user needs and project goals; User-centred design approaches; Digital presentation of design work; Analysis of the work and impact of designers; Understanding the responsibilities of designers and engineers in promoting sustainable practices	**Construction Project** **Core Skills:** Understanding roles and responsibilities within the construction industry;Collaborative teamwork to design and build a planter for a student-led community initiative; Applying practical construction techniques using appropriate tools and materials **Key Knowledge Areas:** Safe and effective use of specialist tools and equipment; Industrial practices and contexts within construction; Exploration of new and emerging technologies in the built environment; Considering the social impact of design on individuals and communities		
	Rotation 3	**Storage Project** **Core Skills:** Reformulating design problems to explore alternative solutions; Applying iterative design processes to develop and refine ideas; Analysing a design brief to identify key requirements; Collaborating effectively in teams and engaging in critical evaluation; Presenting ideas clearly using basic drawing and communication techniques **Key Knowledge Areas:** Selecting and using specialist tools and equipment appropriately; Understanding and applying iterative design principles; Considering the environmental footprint of materials and processes used in the project; Assessing the effectiveness of the final product against the original brief and specification.	**Frame Design Project** **Core Skills:** Responding to a design brief based on user needs; Incorporating cultural references into design thinking; Developing ideas through sketching and isometric drawing; Creating prototypes to test and refine concepts; Exploring methods of joining materials, including half-lap joints **Key Knowledge Areas:** Techniques for joining materials in construction and design; Understanding cultural influences on design; Industrial applications and contexts for frame structures; Considering the impact of design on society and the environment	**Jewellery Project** **Core Skills:** Analysing the work of past artists and designers to inform creative decisions; Modelling and prototyping jewellery designs;; Applying iterative design to refine ideas; Using CAD/CAM tools including CorelDRAW and 3D printing; Exploring future technologies in design and manufacture **Key Knowledge Areas:** Selecting and using specialist tools, including computer-aided manufacturing (CAM); Testing, evaluating, and refining products against a specification; Understanding material properties and structural performance; Investigating the influence of past artists and designers; Exploring new and emerging technologies in jewellery design		