

Our Lady Queen of Peace

Catholic High School

Curriculum Overview

YEAR 11 Design & Technology

Careers		
Local Market Information	Skills	Jobs
BAE Systems Vinci Construction Bakkavor Kraft Heinz Extreme Low Energy (ELe®) Leyland Trucks BAE Systems	Communication Time Management Practical skill Organisational Skills Project Management	Product Designer Advanced Manufacturing Machinist Metal Worker Joiner Research & Development Environmental Engineer Electronic/Electrical Engineer

	Knowledge & Understanding			Subject Specific Literacy Development	Cultural Capital / Enrichment Opportunities
	Topics (Bigger Picture)	Knowledge (Key Concepts)	Recall & Retrieval Practice Focus	Key Vocabulary	
Half Term 1	NEA Section B, C and D	To be able to interpret a contextual challenge, make informed decisions on what product to design.	Building on exam technique and knowledge from year 10 Exam style questions on: Physical Properties Working Properties Modern and Smart Materials. Composites and technical textiles	Client, End User, User group	Designing a bespoke product based on design choices. Weekly D&T Lunch Club.
	Understanding the difference between contextual challenge and a design brief				
	Generation of initial design ideas.	Generating a range of Ideas, Annotating Ideas clearly communicating design decisions, Demonstrating iterative design thinking.		Annotation, Iterate, Fixation	
	Development of design ideas	Modelling and prototyping		Nesting, Tessellation,	

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	including modelling and CAD	and demonstrating technical knowledge in the development of a design.	Key Piece: Design ideas and Specification	Output	
	Creating a specification and a detailed design brief.	To be able to generate a set of criteria based on end user needs and wants.		Design Criteria, User Centred, Functionality	
Half Term 2	NEA Sections E and F	Demonstrating high level technical skills in the manufacture of a product.	Building on exam technique and knowledge from previous half term.	Tolerance, Stock form, accuracy.	Weekly D&T Lunch Club. Creating a bespoke product based on design choices. Industry Visit Visit from CAD engineer
	Realising design ideas (making)			Time Management, Commentary, Communication	
	Producing a manufacturing diary	Students demonstrating they have followed their manufacturing plan to produce a high-quality product.	Exam style questions on: Physical Properties Working Properties Modern and Smart Materials. Composites and technical textiles Design fixation Stock forms, Communicating ideas.	Design Cycle, Kaizen, Scale of Production.	
	Evaluating the outcome.	Students demonstrate skill on analysis and evaluation of their design process and suitability for their product to meet the needs of their user.		Critique, Focus Group, Target Market.	
	Collating client feedback and iterating the final solution.	Students demonstrate how they can improve their designs based on their own analysis and client feedback.			
Half Term 3	NEA section A	Students justify design choices based on information gathered.	Building on exam technique and knowledge from half term 1 & 2.	Kipling Questions, Analysis, Investigation.	Designing a bespoke product based on design choices. Weekly D&T Lunch
	Research and investigation into design choices.			Social, Cultural, Trending.	
	Showing consideration for user centred design and how different user groups are categorised so that their	Students justify design choices based on the needs of users and user groups.	Exam style questions on: Physical Properties Working Properties		

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	needs can be met.		Modern and Smart Materials. Composites and technical textiles Design fixation Stock forms, Communicating ideas. Drawings Tolerance. Key Piece: Investigation and research		Club.
	Selecting materials based on resources available.	Students demonstrate technical knowledge of materials and workshop equipment.		Resource management, Stock forms, Production planning.	
	Sustainability issues of materials and processes selected	Students evaluate suitability of materials based on the environmental impact.		Environment, Sustainability, Cost effectiveness.	
	Designing customer interviews and surveys and analysing results	Students demonstrate they can construct surveys and use the information gathered to improve their design process		Feedback, Constructive, Re-think.	
Half Term 4	New and emerging Technology	How products are designed and manufactured by existing companies.	Building on exam technique and knowledge from half term 1, 2 & 3. Exam style questions on: Physical Properties Working Properties Modern and Smart Materials. Composites and technical textiles Design fixation Stock forms, Communicating ideas. Drawings Tolerance. User groups Client needs Key Piece: NEA all sections.	Automation, Globalisation, Industry	Talk from an industry professional/industry visit Weekly D&T Lunch Club.
	Industry and enterprise			Carbon footprint, Global Warming, Raw Materials.	
	Sustainability and the environment	The environmental impact of product design and manufacture		Crowd Funding, Fairtrade, Ethical Issues.	
	People, Culture and Society	Understand the ethical issues around product design and how companies engage with workforce.		Workflow, Cloud Technology, Factory floor.	
	Production Techniques and systems	Understand how workplaces are designed to maximise efficiency.		Computer based design, Artificial Intelligence, Mass Production.	
	Industrial design and manufacture	Understand that product design is a global industry and how a company operates on a global scale.			

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Half Term 5	Energy and Systems	Understand how energy is generated and the difference between renewable and non-renewable energy.	Building on exam technique and knowledge from half term 1, 2, 3 & 4. Exam style questions on: Physical Properties Working Properties Modern and Smart Materials. Composites and technical textiles Design fixation Stock forms, Communicating ideas. Drawings Tolerance. User groups Client needs Manufacturing Bespoke processes Product analysis. Key Piece: Mock exam.	Renewable, Finite, Non-finite.	Understanding the impact of energy consumption. Weekly D&T Lunch Club.
	Energy Generation				
	Energy Storage	Understand how we store energy and which types of products rely on battery technology.		Cells, Hydrogen, Lithium-ion	
	Mechanical Devices	Understand the difference between pulleys and gears and be able to work out gear ratios		Gears, Pulleys, Ratio.	
	Systems and control	Understand how electronic systems integrate with digital systems and control mechanical systems.		Programming, Input-Process-Output, Logic.	

Key Assessments			
When	What will be assessed?	Why is this being assessed?	How will results be stored & students receive feedback?
Half Term 1	Unit 1 Principles – Exam questions Unit 2 NEA	Assess Understanding of the content taught for Unit 1 (Exam) so far Section B, C & D Completed section to be graded for coursework marks.	Written feedback given to students and recorded on tracker.
Half Term 2	Unit 1 Principles – 2 Hour Mock Exam	Assess Understanding of the content	Recorded on tracker and SIMS,

	Unit 2 NEA	<p>taught for Unit 1 (Exam) so far, written mock exam assessment.</p> <p>Section E & F Completed section to be graded for coursework marks.</p>	students will receive marked papers back with areas for improvement.
Half Term 3	<p>Unit 1 Principles</p> <p>Unit 2 NEA</p>	<p>Assess Understanding of the content taught for Unit 1 so far, written mock exam assessment.</p> <p>Section A Completed section to be graded for coursework marks.</p>	<p>Recorded on tracker, students will receive marked papers back with areas for improvement.</p> <p>Recorded on tracker with written feedback for students.</p>
Half Term 4	Unit 1 Core Technical Principles – Mock Exam	Assess Understanding of the content taught for Unit 1, written exam assessment in exam conditions.	Live Feedback given on work
Half Term 5	Unit 1 Core Technical Principles	Assess Understanding of the content taught for Unit 1 so far, written exam assessment.	Live feedback given during lessons.