GCSE D&T: Curriculum map

YEAR GROUP:	Year 10					
RATIONALE:	Studying GCSE (9–1) Design and Technology allows pupils to explore both their creative and practical skills as well as theoretical knowledge on all aspects of designing and making. They will develop their knowledge of the design process through engagement in a practice NEA style project looking at skills such as research, designing, making and testing. In these areas they will look at the importance of designing to meet the needs of a client as well as how to present ideas using drawing techniques and CAD software before realising in to 3D prototypes. Theory takes them through a series of 7 UNITS in preparation for their EOY exam covering designing principles, materials and their properties, energy, systems and devices and specialist technical principles during year 10.					
	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Topic/Unit	**PRACTICE PROJECT – Research and Investigation, generation of ideas, Developing design ideas (NEA)**	**PRACTICE PROJECT – Developing design ideas, realising design ideas, testing and evaluation (NEA)**	**PRACTICE PROJECT – Research and Investigation Developing design ideas, realising design ideas**	**PRACTICE PROJECT –, Developing design ideas, Realising design ideas, testing and evaluation (NEA)**	**NEA Preparation and specialist skill development** **4.4 Non examined assessment**	**NEA project** **4.4.4.1 Section A: Identifying and investigating design possibilities**
	THEORY UNIT 6 – Designing Principles 3.3 Designing and making principles	**THEORY UNIT 3 – Materials and their working properties** 3.1 Core Technical Principles	**THEORY UNIT 2 – Energy, Materials, Systems and Devices** 3.1 Core Technical Principles	**THEORY UNIT 2 – Energy, Materials, Systems and Devices** 3.1 Core Technical Principles	**THEORY UNIT 4 – Specialist technical principles** 3.2 Specialist Technical Principles	**THEORY UNIT 4 – Specialist technical principles** 3.2 Specialist Technical Principles
Knowledge	4.4.4.1 Section A: Identifying and investigating design possibilities 4.4.4.3 Section C: Generating design ideas 4.4.4.4 Section D: Developing design ideas	4.4.4.4 Section D: Developing design ideas 4.4.4.5 Section E: Realising design ideas 4.4.4.6 Section F: Analysing and evaluating	4.4.4.1 Section A: Identifying and investigating design possibilities 4.4.4.4 Section D: Developing design ideas 4.4.4.5 Section E: Realising design ideas	4.4.4.5 Section E: Realising design ideas 4.4.4.6 Section F: Analysing and evaluating	4.4.4.3 Section C: Generating design ideas	4.4.4.1 Section A: Identifying and investigating design possibilities
	Investigating, primary and secondary research, work of others, design strategies, communication of ideas	Material areas – paper/ boards, timbers, metals, polymers, textiles	Energy generation, energy storage, modern materials, smart materials, composite materials	Systems approach to design, electronic system processing, mechanical devices	Forces and stresses, improving functionality,, study skills/ exam technique	Ecological/ social footprint, 6 Rs, scales of production,
Skills	**ACQUIRE, DEVELOP & APPLY** • Range of research skills • Decision making • Problem solving skills • Technical drawing skills	**ACQUIRE, DEVELOP & APPLY** • Technical drawing skills • Practical and quality control skills • Prototyping techniques • Evaluation and testing skills	**ACQUIRE, DEVELOP & APPLY** • Technical drawing skills • Practical work shop based skills • Problem solving • Marking out skills/ material management	**APPLY, EXPLAIN & EVALUATE** • Realising of ideas skills • Decision making • Client testing • CAD/CAM skills	**UNDERSTAND, EXPLAIN & EVALUATE** • Specialist skills • Areas of improvement	**ACQUIRE, DEVELOP & APPLY** • Research skills • Problem solving skills • Decision making skills
	UNDERSTAND, IDENTIFY, APPLY & EXPLAIN • Different research techniques Looking at primary & secondary research skills. Identifying materials / client requirements and influences.	**UNDERSTAND, IDENTIFY & EXPLAIN** Creating dimensioned drawings both by hand and CAD based to create a final product. • Materials areas, properties and examples	**UNDERSTAND, IDENTIFY & DESCRIBE** • Energy sources and environmental effects • Examples of new materials and their structure	**UNDERSTAND, IDENTIFY & EXPLAIN** • Input, output processes • Levers, gears, cams including maths applications	**UNDERSTAND, IDENTIFY & DESCRIBE** • Types of forces • Functional properties of products • Key exam terminology	**UNDERSTAND, EXPLAIN & APPLY** • Environmental and social issues • Manufacturing scales

	Looking at existing products and analysing their impact. • Key designer influences and styles Developing ideas using specific designers to help create unique design outcomes • Drawing techniques used to communicate ideas considering sketching techniques & enhancement. Including rendering.	Demonstrating practical prototyping skills in Pewter casting. Creating a quality prototyped product using CAD and manufacturing a laser produced product. Using hand tools to create prototyped products in MDF. Manufacturing a paper-based packaging product Q/A to ensure accuracy. Ensuring the product is accurate and safe using Q/A strategies. Evaluate final outcome through use of ACCESSFM against original client requirements.				
Assessment Formative	Internal assessment – Research and Investigation & Generation of ideas 20 marks focussed on: Mood board Design Brief & client profile. Questionnaire & graphs. Materials research Initial design ideas.	Internal assessment – Development of ideas & Testing/ Evaluation 20 marks focussing on: Diary of make for Pewter casting, Acrylic laser cutting, Sub printing, cutting MDF and packaging manufacture,	Internal assessment Generation of ideas 20 marks Realising design ideas 20 marks	Internal assessment – Realising design ideas 20 marks Testing/ Evaluation 20 marks	Internal assessment	NEA Sec A internal assessment – 20 marks
	Internal classroom based unit test 40 marks based on unit 6	Internal classroom based unit test 40 marks based on unit 3		Internal classroom based unit test 40 marks based on unit 2	Internal classroom based unit test 40 marks based on unit 4	End of Year Written test and internal classroom based unit test 40 marks
Assessment Summative						
	Summative assessment test out of 100 (Unit 3 & Unit 6)				Summative assessment test out of 100 (Full mock)	

Homework	**Architecture research homework** **Orthographic to isometric exam style task** **Revision for EOU test**	**Manufacture research (nesting, materials)** **Prototyping development - ongoing** **Revision for EOU test**	**Tools and equipment research task** **Final orthographic plan and parts list** **Revision for EOU test**	**Revision for EOU test – focused revision topics for EOY exam prep**	**Practicing skills tasks**	**Research and investigation – self directed study**