

CURRICULUM OVERVIEW FOR YEAR 10 D&T: PRODUCT DESIGN

Phase	1	2	3	4	5	6
Topic	Design & make 1: Packaging redesign	Mechanical components and devices	Design & make 2: Hand held device	Smart, composite and technical materials	Non-exam assessment (on-going from Year 10 into Year 11)	Electronic systems and programmable components
Knowledge	Different examples of paper and boards, paper sizes and weight, finishing techniques, printing processes.	Motions, input and output forces, pulley systems, gear systems, levers and linkages, rack and pinion, CAMS.	Inclusive society, moral and ethical factors, 3D printing, laser cutting, social and cultural responsibilities in designing and making, production methods	Different examples of SMART, technical and composite materials, properties of the materials, how they are used in everyday life	Identifying and investigating design possibilities: methods of primary and secondary investigation, developing a design brief and specification.	Inputs/outputs in electronic systems, circuit diagrams and symbols, micro-controllers, programmable interface controllers (PIC), feedback systems.
Skills	Visual communication, practical activities, interpretation of diagrams and symbols, verbal feedback, health and safety precautions, quality control during manufacture, CAD designing for CAM					
Key Marked Piece (Summative Assessments in bold)	Product analysis, specification, 2D design ideas, development sheets	End of phase assessment	Context analysis, product analysis, design brief, specification, 3D design ideas, working drawing	End of phase assessment	Context analysis, mind-map, primary and secondary investigation, design brief, specification	End of phase assessment
Vocabulary	<ul style="list-style-type: none"> ● Cartridge paper ● Solid white board ● Duplex board ● Corrugated board ● Microns ● Grams per square metre (GSM) ● Embossing ● Foil blocking ● Laminating ● Offset lithography ● Flexography 	<ul style="list-style-type: none"> ● Rotary ● Linear ● Reciprocating ● Oscillating ● Reverse pulley ● Compound Pulley ● Gear train ● Compound gear ● Rack and pinion ● Pawl and ratchet ● Fulcrum ● Effort ● Load 	<ul style="list-style-type: none"> ● Design brief ● Specification ● Physical Modelling ● Virtual modelling ● 3D printing ● Working drawing ● One-off ● Batch ● Mass ● Continuous ● Just-in-time (JIT) 	<ul style="list-style-type: none"> ● Photochromic ● Thermo-chromic ● Polymorph ● Electro-luminescent ● Shape memory alloy ● Micro-encapsulation ● Carbon fibre ● Kevlar ● Glass reinforced plastic (GRP) ● Nomex ● Rhovyl ● Geotextiles 	<ul style="list-style-type: none"> ● Context analysis ● Mind map ● Product analysis ● Questionnaire ● Interview ● Product analysis ● Secondary research ● Mood board ● Designer research ● Design brief ● Specification 	<ul style="list-style-type: none"> ● Input ● Output ● Switch ● Sensor ● Buzzer ● Speaker ● LED ● Feedback loop ● Control systems ● Feedback loop ● Micro-controller ● Programmable Interface Controller (PIC)