

CURRICULUM OVERVIEW FOR YEAR 9 D&T: ENGINEERING

Phase	1	2	3	4	5	6
Topic	Unit 1/2 Design & Make 1: Pendant	Unit 3 understanding properties of engineering materials	Unit 1 Design 2: toothbrush Unit 2 Make 2: Tea light holder	Unit 3 Forming processes of engineering materials	Unit 1 re-design 3: smart watch Unit 2 make 3: toast rack	Unit 3 Solving engineering problems.
Knowledge	Introduction to engineering Design process, CAD. Use of tools, materials and equipment, including pewter casting.	Describe the properties required of materials for a product. Explain how materials are tested. Materials for a purpose	Design process, CAD (2D and 3D) equipment. specification Modelling the design Working drawing Use of wood and metal to make a product	Engineering processes Application of engineering processes.	Design process, CAD,CAM (laser cutter, 3D printer) Manufacturing processes Tolerance and accuracy.	Mathematical techniques for solving a problem. Converting isometric and 3 rd angle projection. Analyse situations for engineering. Propose solutions in response to a problem.
Skills	Visual communication, practical activities (cutting, shaping and smoothing materials), 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)	Brief, Product analysis, Reverse engineering, specification, 2D design ideas, production plan, final Product	End of phase assessment	Unit 1- Brief, Product analysis, Reverse engineering, specification, 2D/3D design ideas working drawing Unit 2- Production plan, final product and evaluation	End of phase assessment	Unit 1- Brief, Product analysis, Reverse engineering, specification, 2D/3D design ideas working drawing Unit 2- Production plan, final product and evaluation	End of phase assessment
Vocabulary	<ul style="list-style-type: none"> ● Casting ● Pewter ● Reverse engineering ● Specification ● Development ● Wet and dry ● Tolerance ● Accuracy ● Design ● Production planning 	<ul style="list-style-type: none"> ● Properties ● Tensile ● Malleability ● Ductility ● Conductivity ● Elasticity ● Ferrous ● Non-ferrous ● Thermo/setting plastics ● Smart ● composite 	<ul style="list-style-type: none"> ● modelling ● prototype ● steel ● ferrous ● plywood ● plasticine ● Anthropometric ● Ergonomics ● 95th percentile 	<ul style="list-style-type: none"> ● Marking out ● Finishing ● Drilling ● Brazing ● Joining ● Filing ● Soldering ● manipulation 	<ul style="list-style-type: none"> ● screws ● joining methods ● aluminium ● non-ferrous ● thermos plastic ● acrylic ● line bender ● development 	<ul style="list-style-type: none"> ● Ohms ● Efficiency ● Calculation ● Estimation ● Construction lines ● Units of measurement ● Centre lines ● Conventions ● Mean