

		Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Y12	Topic title	NEA (50%) Assessment (50%)	NEA (50%) Assessment (50%)	NEA (50%) Assessment (50%)	NEA (50%) Assessment (50%)	NEA (50%) Assessment (50%)	Assessment (50%)
	Building on Key Stage 4 (Skills and content)	Building upon investigating, designing, making and evaluating skills, making fit for purpose prototypes and technical principles taught throughout KS3 & 4					
	Intent	NEA: Identify, investigation & outline design possibilities (30%) Assessment: Technical Principles (30%) Designing and Making Principles (20%)	NEA: Identify, investigation & outline design possibilities (30%) Assessment: Technical Principles (30%) Designing and Making Principles (20%)	NEA: Design & Make prototypes that are fit for purpose (50%) Technical Principles (30%) Designing and Making Principles (20%)	NEA: Design & Make prototypes that are fit for purpose (50%) Technical Principles (30%) Designing and Making Principles (20%)	NEA: Analyse & Evaluate (20%) Technical Principles (30%) Designing and Making Principles (20%)	Technical Principles (30%) Designing and Making Principles (20%)
	Knowledge Skills Understanding	NEA: Identify, investigation & outline design possibilities (30%) Section A: Identifying and investigate design possibilities (20%) Select a context for NEA and look into the user group. Must produce a primary and secondary investigation, practical experimentation and disassembly. Must produce first concepts and feasible development, using appropriate variety of methods. Investigation must be linked to context and show a perceptive understanding of the information gathered. Technical Principles: Materials and their applications: Must be able to provide detailed justified for a range of specific materials and give an application. Must understand the classification of materials: Metals, woods, polymers, papers and boards, composites, smart materials and modern materials. Be able to describe how workshop and industrial tests are set up and carried out on materials. Performance characteristics of materials: Name different types of papers and boards, describe performance characteristics and different applications. Should be able to name different types of polymers base sheet material, describe performance characteristics and different applications. Designing and Making Principles: Designing Methods and Process: Understand the iterative design process. Be aware of Design Theory/Influences, Design Style	NEA: Identify, investigation & outline design possibilities (30%) Section B: Producing a design brief and specification. Produce a comprehensive design brief resulting from investigation and user needs. Produce a comprehensive and detailed design specification. Must produce a detailed project management, including time management, determining qualities and costing's Technical Principles: Materials and their application: Be aware of different stock forms of timber/woods, metals and polymers. Describe the performance characteristics of wood. metals and polymers. Should be familiar with a range of woods, metals and polymer. Should also be familiar with products within these groups. Should be able to explain the name, suitability and application of elastomers. Explain the suitability of biodegradable polymers and refer to application, physical and/or mechanical properties. Should know and understand how composites and combined to enhance properties. Enhancement of materials: Describe the enhancement methods for Polymers, woods and metals. Designing and Making Principles: Be aware how technology and cultural changes can impact on the work of designers including Socio economic influences. Major developments in technology, social, moral and ethical issues.	NEA: Design & Make prototypes that are fit for purpose (50%) Section C: Development of the design proposal(s) (25%) Need to clearly document all design decisions clearly throughout the development. Show the development of innovation design, showing originality, creativity and design risks. Use a range of modelling techniques. Develop a product taking into account materials, processes, experimentation and manufacturing. Produce a manufacturing specification. Technical Principles: Materials and their application: Understand about the terms smart and modern materials and are able to explain suitability of a number of these materials. Forming, redistribution and addition processes: Understand that papers and boards can be shaped into different products with different processes. Know the different forming processes for polymers, metals and woods. Know the different joining processes for polymers, metals and woods. Designing and Making Principles: Be familiar with Product Life cycle, the use of design process, product development, the iterative design process in industrial or commercial contexts	NEA: Design & Make prototypes that are fit for purpose (50%) Section D: Development of the design prototype(s) (25%) Justify why they have selected the appropriate materials, components and techniques. Make an accurate prototype with a range of complexity. Select the appropriate tools, machinery with accuracy and precision. Select and use appropriate tools, machinery and equipment including CAM where required. Produce a prototype to address the needs to the Design Brief. Demonstrate modifications to reflect feedback given as a result of testing and evaluation. Show understanding of Quality Assurance and Quality Control. Clearly demonstrate Health and Safety is evident throughout the manufacturing process. Technical Principles: The use of adhesives and fixings: Can apply the correct adhesive or fixing to the correct material. Jigs and fixtures: Be aware jigs and fixtures are used in manufacturing. The use of finishes: Be aware of the ways that the following materials can be finished to enhance or improve function: Paper and boards finishing and printing process. Polymer, metals and wood finishing. Designing and Making Principles: Give critical analysis and evaluate. Test and evaluated products in commercial products using feedback.	NEA: Analyse & Evaluate (20%) Section E: Analysing and evaluating (20%) Produce comprehensive evidence of analysis and evaluation throughout the process. Evidence testing carried out on the prototype and show any modifications made. Critically analyse the final outcome which links to design brief and the needs of the user. With considerations of how the prototype could be developed for different production methods. Technical Principles: Modern industrial and commercial practice: Will understand about the range of different scales of production and give examples of products. Will develop an awareness of the efficient use of materials, and the use of computer systems to control manufacturing. Digital design and manufacture: Describe and explain how the following are used in manufacture: CAD, CAM, Virtual modelling, Rapid prototyping processes, Electronic data interchange, Production, planning and control (PPC) networking. Designing and Making Principles: Be able to discuss selecting appropriate tools, equipment and processes. Being accurate in design manufacture. Responsible Design Need to be aware and be able to discuss environmental issues,	Technical Principles: The requirements for product design and development. Demonstrate the following: Product development and improvement Inclusive Design Health and safety: Be aware of the Safe working practices and safety in products and services to the customer. Protecting design and intellectual property Design for manufacturing, maintenance, repair and disposal: Be aware of the following: Manufacturing, repair, maintenance and disposal. Ease of manufacture Disassembly Feasibility Studies Enterprise and Marketing in the development of products. Design communication Designing and Making Principles: Demonstrate Design for manufacture and project management including: Planning for accuracy and efficiency, Quality assurance and Quality control. National and international standards in product design: Need to be aware of and discuss the importance of standards including: BSI, ISO, ROHS, WEEE, FSC, EPA EC, NAPM

	and Movements. Designers and their work.				conservation of energy and resources	
Knowledge and skills revisited	Knowledge: Understanding of primary and secondary investigations, materials and their applications, understand the iterative design process, know different design styles and movements	Knowledge: How to produce a complex design brief and specification and a detailed project management plan, materials and their applications, understand the use of biodegradable materials, developments in technology	Knowledge: Understand different methods of modelling, be able to produce a detailed manufacturing specification, know different technical principles	Knowledge: Identify and use correctly a range of tools, materials and equipment to develop and produce a prototype, understand quality assurance and quality control, understand health and safety regulations, know in detail different technical principles, be aware of how jigs and fixtures can be used	Knowledge: Be able to know and use a range of different testing techniques, understand technical principles including modern industrial and commercial practise. Digital design and manufacture, responsible designing	Knowledge: Technical principles including product development and improvement, inclusive design, a range of health and safety regulations, be aware of the different types of manufacturing processes, quality assurance and quality control
	Skills: Research and investigation skills	Skills: Research and investigation skills, correct application of knowledge	Skills: Using research skills to produce innovative and creative design ideas using a range of drawing skills	Skills: Planning and manufacturing skills using a range of tools, equipment and machinery independently	Skills: Analysing and evaluating in detail, working with independence to produce a high quality outcome	Skills: Design skills, recall of knowledge
Assessment (for learning)	End of unit assessment: NEA Assessment	End of unit assessment: NEA Assessment	End of unit assessment: NEA Assessment Mock	End of unit assessment: NEA Assessment	End of unit assessment: NEA Assessment	End of unit assessment: Exam
	Cumulative assessment: Theory tests on knowledge learned so far	Cumulative assessment: Theory tests on knowledge learned so far	Cumulative assessment: Theory tests on knowledge learned so far	Cumulative assessment: Theory tests on knowledge learned so far	Cumulative assessment: Theory tests on knowledge learned so far	Cumulative assessment: Theory tests on knowledge learned so far
Literacy focus	Command words: Identify, outline, describe, examine, justify, explain, name	Command words: Identify, analyse, examine, describe, define, name, explain	Command words: Describe, apply, define, explain, compare, identify, complete	Command words: Justify, design, consider, apply, analyse, evaluate, argue	Command words: Analyse, evaluate, explain, describe, identify, consider, compare	Command words: Analyse, apply, argue, calculate, compare, complete, consider, contrast, define, describe, discuss, examine, explain, give, how, identify, justify, name, outline, state, what, which
	Other literacy foci: Dependant on NEA How to answer exam questions Context, experimentation, disassembly, concepts, perceptive, principles, classification, characteristics	Other literacy foci: Dependant on NEA How to answer exam questions Specification, comprehensive, project management, suitability, application, biodegradable, ethical	Other literacy foci: Dependant on NEA How to answer exam questions Development, innovation, techniques, manufacturing, application, forming, redistribution, addition	Other literacy foci: Dependant on NEA How to answer exam questions Development, prototype, precision, quality assurance, quality control, principles, jigs, fixtures	Other literacy foci: Dependant on NEA How to answer exam questions Comprehensive, evidence, critical, industrial, commercial, production, efficient, interchange, planning, networking	Other literacy foci: How to answer exam questions Requirements, development, inclusive design, maintenance, repair, disposal, disassembly, feasibility, enterprise, marketing
Numeracy focus	Graphical analysis of investigations	Time management planning, costing's	Measurements, tolerancing	Measurements, tolerancing	Analysis of testing	Measurements, tolerancing

		Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Y13	Topic title	NEA (50%) Assessment (50%)	NEA (50%) Assessment (50%)	NEA (50%) Assessment (50%)	NEA (50%) Assessment (50%)	NEA (50%) Assessment (50%)	Assessment (50%)
	Building on Key Stage 4 and Y12 (Skills and content)	Building upon investigating, designing, making and evaluating skills, making fit for purpose prototypes and technical principles taught throughout KS4 and Y12 however content will e covered in more detail than in Y12					
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	and Movements. Designers and their work.				conservation of energy and resources	
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Literacy focus	Command words: Identify, outline, describe, examine, justify, explain, name	Command words: Identify, analyse, examine, describe, define, name, explain	Command words: Describe, apply, define, explain, compare, identify, complete	Command words: Justify, design, consider, apply, analyse, evaluate, argue	Command words: Analyse, evaluate, explain, describe, identify, consider, compare	Command words: Analyse, apply, argue, calculate, compare, complete, consider, contrast, define, describe, discuss, examine, explain, give, how, identify, justify, name, outline, state, what, which
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Numeracy focus	Graphical analysis of investigations	Time management planning, costing's	Measurements, tolerancing	Measurements, tolerancing	Analysis of testing	Measurements, tolerancing