



Year 7	HT 1 / HT4	HT 2 / HT5	HT 3 / HT6
Overview	Health and safety - being in a workshop environment. Material sources and origins. Stock forms and sizes. Materials and their working properties.	Health and safety of tool use. Specialist tools, equipment, and processes. Communication of ideas. Computer Aided Design (CAD) Computer Aided Manufacture (CAM)	Demonstrate Health and safety in practice. Material management. Marking out and measuring. Specialist techniques and processes.
End point	To demonstrate expected conduct in workshop. To understand where materials come from. To know how material properties are changed and manipulated. To understand the properties of materials, their stock forms and be able to select appropriate materials for use.	To understand correct safe use of tools. To know the name and use of cutting hand tools and wasting processes. The ability to draw in 2D, 3D, freehand and using isometric method. Understand of CAD & CAM.	To select and use tools and equipment safely and appropriately. To know how to nest shapes / mark out to minimise waste. To know specialist techniques and processes to cut and shape materials.
Knowledge and Skills	Learn the expected way to behave in a workshop. Learning where all materials come from. Knowing the way in which material properties can be changed. Learning the importance of material choice for specific application and or use.	To understand how to use hand tools safely and appropriately. Learning the different types of hand tool and which material they are used on. Acquiring freehand sketching and isometric drawing skills. Learning the features of the 2d Design program. Learning computer manufacture.	To demonstrate correct safe tool use with accuracy. To learn the importance of nesting and marking out. Learn and practice the use of hand tools to remove and shape materials to fabricate and construct prototypes.
Knowledge Organiser	Material 1, 2 and 3. Stock forms.	Tools, equipment, and processes. Isometric drawing. 2d Designs – the basics.	Tools, equipment, and processes.
Assessment	Teacher assessment of workbook and practical ability recorded on knowledge steps (Highlighting step achieved) - thus indicating Developing / Mastery / Expert achievement and working grade for strands. Exam style question assessments with score and %	Teacher assessment of workbook and practical ability recorded on knowledge steps (Highlighting step achieved) - thus indicating Developing / Mastery / Expert achievement and working grade for strands. Exam style question assessments with score and %	Teacher assessment of workbook and practical ability recorded on knowledge steps (Highlighting step achieved) - thus indicating Developing / Mastery / Expert achievement and working grade for strands. Exam style question assessments with score and % End of unit submission and assessment, which is assessed overall using the knowledge steps. Highlighted steps achieved reviewed and a module grade given.
Reading opportunities	Knowledge organisers. Textbooks to support content.	Knowledge organiser. Textbooks to support content.	Knowledge organiser. Textbooks to support content.
Writing Opportunities	Workbook Assessment	Workbook Assessment	Workbook Assessment
Vocabulary focus	Hardwood, Deciduous / Softwood, Coniferous. Ferrous / Non-ferrous / Alloys. Thermo plastics / Thermo set plastics. Natural and Man made fibres. Stock forms	Cutting, Sawing, Drilling, Filing, Sanding, Laser cutter, cutting.	Measurement – BS = mm, tolerances, jigs, patterns, templates.

<p>NC benchmark</p>	<p>Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions</p> <p>AQA (8552) 3.1.6 / 3.2.4 / 3.2.6</p>	<p>Use research and exploration, such as the study of different cultures, to identify and understand user needs.</p> <p>Use a variety of approaches [for example, biomimicry and user-centred design] to generate creative ideas and avoid stereotypical responses</p> <p>Develop and communicate design ideas using annotated sketches</p> <p>select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture</p> <p>AQA (8552) 3.1.1 / 3.3.5 / 3.3.10</p>	<p>Select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture.</p> <p>AQA (8552) 3.3.6 / 3.3.10 / 3.3.11</p>
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<b>Year 8</b>	<b>HT 1 / HT4</b>	<b>HT 2 / HT5</b>	<b>HT 3 /HT6</b>
<b>Overview</b>	Review health and safety. Review material sources and origins. Review material working properties. Ecological and social footprint. The 6 R's. Developments in new materials Using and working with materials	Design strategies. Communicating ideas, develop concepts. Shaping and forming materials. Developments in new materials. Material properties and components used in commercial products. Using and working with materials	Surface treatments. Surface preparation. Using and working with materials. Modification of material properties. To make prototypes to a high standard.
<b>End point</b>	The knowledge of new materials, composite, smart, modern. Technical textiles. Know sustainability issues, and designers' responsibilities. Ability to work with materials and components.	Confident designing. Use of design strategies to develop concepts that are wholly appropriate for brief. To understand developments in new materials. Have clear communication and development of design ideas.	Confident practical working. Appropriate process undertaken. Knowledge of surface treatments for specific materials, applications, and environments. Products are complete and show a high standard and finish.
<b>Knowledge and Skills</b>	Remember content - on health and safety. Material sources and origins. Material working properties. Learn that there is an ecological and social footprint to material use. Show skill in shaping and forming materials. Be able to assemble material parts with joining methods and or components.	The understanding that designers use strategies when designing. That the needs of others must be considered. Learn about new technologies and how they are being applied in products. Understand the Perspective and oblique drawing methods. Annotation is effective on design work. Modelling has been completed and that they are all part of effective design development.	The ability to work through a series of processes with minimal supervision. The understanding of working practices and processes. The understanding that materials require surface treatments and finishes.
<b>Knowledge Organiser</b>	Year 7 KO's. Materials 1 - 3. Sustainability and the 6R's.	Design strategies.	Material treatments and Finishes.
<b>Assessment</b>	Teacher assessment of workbook and practical ability recorded on knowledge steps (Highlighting step achieved) - thus indicating Developing / Mastery / Expert achievement and working grade for strands. Exam style question assessments with score and %	Teacher assessment of workbook and practical ability recorded on knowledge steps (Highlighting step achieved) - thus indicating Developing / Mastery / Expert achievement and working grade for strands. Exam style question assessments with score and %	Teacher assessment of workbook and practical ability recorded on knowledge steps (Highlighting step achieved) - thus indicating Developing / Mastery / Expert achievement and working grade for strands. Exam style question assessments with score and % End of unit submission and assessment, which is assessed overall using the knowledge steps. Highlighted steps achieved reviewed and a module grade given.
<b>Reading opportunities</b>	Knowledge organisers. Textbooks to support content.	Knowledge organiser. Textbooks to support content.	Knowledge organiser. Textbooks to support content.
<b>Writing Opportunities</b>	Workbook Assessment	Workbook Assessment	Workbook Assessment
<b>Vocabulary focus</b>	Smart, Modern, composite materials. Technical textiles. Reduce, refuse, re-use, repair, recycle, rethink.	Collaboration, systems approach, iterative design, fixation. Perspective. Oblique. Annotation.	Additives, Seasoning, Annealing, Stabilisers, Flame retardants, Photosensitive. Print, emboss, UV varnishing. Painting, varnishing, tantalising. Dip / power coat, galvanising. Polishing, vinyl decals. Dyes, stain protection. PCB Lacquering, Anodizing. Lubrication.
<b>NC benchmark</b>	Understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists.	Use research and exploration, such as the study of different cultures, to identify and understand user needs Use a variety of approaches [for example, biomimicry and user-centred design] to generate creative ideas and avoid stereotypical responses.	Select from and use specialist tools, techniques, processes, equipment, and machinery precisely, including computer-aided manufacture.  AQA (8552) 3.2.9 / 3.2.5

	<p>Select from and use specialist tools, techniques, processes, equipment, and machinery precisely, including computer-aided manufacture.</p> <p>AQA (8552) 3.2.3</p>	<p>Test, evaluate and refine their ideas and products against a specification, considering the views of intended users and other interested groups.</p> <p>Select from and use specialist tools, techniques, processes, equipment, and machinery precisely, including computer-aided manufacture.</p> <p>AQA (8552) 3.3.5 / 3.3.4</p>	
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<b>Year 9</b>	<b>HT 1 / HT4</b>	<b>HT 2 / HT5</b>	<b>HT 3 / HT6</b>
<b>Overview</b>	Investigation and analysis of the work of others. Market research. Primary / secondary data. Communicating design ideas - working drawings.	Mechanical devices. Different types of motion. Forces and stresses. Tolerances. To make prototypes to a high standard. Inc (CAD / CAM)	Selection of materials and components. To make prototypes to a high standard. Evaluate and test against client / user needs.
<b>End point</b>	Students will know about other influential designers and how they have shaped the world we live in today. Primary and secondary researching, presentation of data. To understand and have the skill to communicate ideas through working drawings.	To understand mechanical devices, movement, and motion. To know and understand the impact of forces and stresses, ways to reinforce materials. Products show a high standard of accuracy and finish.	To select materials and components with full consideration of factors. Products are complete and show a high standard and finish. Evaluated prototype against specification points.
<b>Knowledge and Skills</b>	Learn about iconic designers / companies past and present to inform their own designs. The understanding of investigation, analysis, and evaluation of research. Understand client / users needs. To be able to complete orthographic drawings, exploded views, with conventions, dimensions, scale. To learn 3 <sup>rd</sup> Angle Orthographic drawing, drawing to scale. To understand dimensions.	To learn the four types of motion and how linkages can change the magnitude and direction of force. To learn the impact of forces and stresses, and how materials behave. To learn that tolerances are important in manufacture, construction, and quality control. To understand the international systems of units. Tool and equipment are used appropriately to carry out practical activities.	To be able to select materials and components considering functionality, environmental, availability, aesthetics, cost, social, cultural, and ethical factors. Tools and equipment are used appropriately to complete products. Products are comprehensively evaluated against client / user needs.
<b>Knowledge Organiser</b>	The work of others.	Movement and motion. Forces and stresses.	Materials & Components.
<b>Assessment</b>	Teacher assessment of workbook and practical ability marked against GCSE (8552) criteria recorded on knowledge steps (Highlighting step achieved) - thus indicating Developing / Mastery / Expert achievement and working grade for strands. Exam style question assessments with score and % End of unit submission and assessment, which is assessed overall using the GCSE (8552) marking criteria and knowledge steps and a module grade given.	Teacher assessment of workbook and practical ability marked against GCSE (8552) criteria recorded on knowledge steps (Highlighting step achieved) - thus indicating Developing / Mastery / Expert achievement and working grade for strands. Exam style question assessments with score and % End of unit submission and assessment, which is assessed overall using the GCSE (8552) marking criteria and knowledge steps and a module grade given.	Teacher assessment of workbook and practical ability marked against GCSE (8552) criteria recorded on knowledge steps (Highlighting step achieved) - thus indicating Developing / Mastery / Expert achievement and working grade for strands. Exam style question assessments with score and % End of unit submission and assessment, which is assessed overall using the GCSE (8552) marking criteria and knowledge steps and a module grade given.
<b>Reading opportunities</b>	Knowledge organisers. Research content. Textbooks to support content.	Knowledge organiser. Textbooks to support content.	Knowledge organiser. Textbooks to support content.
<b>Writing Opportunities</b>	Write up of and presentation of research.	Workbook – Movement types and descriptions.	Evaluation of prototype. Summary and conclusion work.
<b>Vocabulary focus</b>	Market research. Primary and secondary data. Working drawings. 3 <sup>rd</sup> Angle orthographic drawing. Scale. Dimensions.	Graphene. Metal foam. Nanomaterials. Motion. Rotary. Linear. Reciprocating. Oscillating. Lever, Linkage, Tension. Compression. Bending. Shear. Torsion. Reinforced. Reinforced stiffened. Lamination.	ACCESS FM Suitability. Modification/s Ergonomics. Aesthetics, Product life cycle.
<b>NC benchmark</b>	Analyse the work of past and present professionals and others to develop and broaden their understanding  Develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations.	Understand how more advanced mechanical systems used in their products enable changes in movement and force Develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling. Identify and solve their own design problems and understand how to reformulate problems given to them.	Investigate new and emerging technologies Select from and use specialist tool, techniques, processes, equipment and machinery precisely including CAD / CAM. Select from and use a wider, more complex range of materials, components, and ingredients, considering their properties.  AQA (8552) 3.2.1

	AQA (8552) 3.3.1, 3.3.3, 3.3.5	Select from and use a wider, more complex range of materials, components, and ingredients, considering their properties.	
		AQA (8552) 3.1.5, 3.2.2, 3.3.8	

Year 10	HT 1	HT 2	HT 3	HT 4	HT5	HT6
Overview	Scales of production. New and emerging technologies. Functionality needs. Energy sources and storage. Batch production tasks.	Systems approach. Circuit building.	Practice NEA Section A01 A & B. A02 C. Identification and Investigation of design possibilities. Production of design brief and specification. Generation of ideas.	Practice NEA A02 D & E. Generation of ideas. Prototype development. Manufacturing specifications. Materials and components. Production aids.	Practice NEA A02 E. A03 F. Realising design ideas. Analysis and evaluating.	Contextual challenge released. Candidates make selection. New and emerging technologies. Industry, enterprise, sustainability. FMS / Lean manufacturing.
End point	Knowledge of - scales of production, reason for manufacturing methods. – Production techniques, Use of commercial processes. Identical product produced.	Functionality of electronic systems. Completed prototypes.	Completed investigation, analysis, research. Written brief and specification.	Appropriate prototypes developed. Full material selection justified. Full manufacturing specification.	Correct use of tool, equipment, materials including CAD / CAM. High level of skill demonstrated. Quality controls used. Prototype fully meets the clients / user needs.	Students have selected a contextual challenge. A01 A started.
Knowledge and Skills	To understand production methods and manufacturing systems. Develop and batch produce items. Selection of appropriate materials and components. Understanding and use of production aids and commercial processes. Application of quality controls.	To understand electronic systems and programmable components. Correct selection of materials and components.	Analysis of contextual challenge. Market research. Investigation of existing product. Brief and specification in direct response to client needs. To generate design proposals that meet the needs of the client / user.	Understanding of client / user needs when designing. Development of prototype. Material selection is justified and appropriate through 2D / 3D techniques. Working drawings. Cutting lists. 3D graphics.	To understand the appropriate processes and techniques needed to produce proposal. Carry out making with high level of quality controls and skill. The understanding of review and modify	Independent research. Selection of appropriate content. Analysis of research. Presentation of research.
Knowledge Organiser	Production methods. Energy & Energy storage.	Electrical components.	NEA bible. Presenting data. Drawing skills.	NEA Bible. Production Aids.	NEA bible. Presenting data.	NEA Bible. Resource consumption
Assessment	Teacher assessment of folio work and practical tasks marked against GCSE (8552) criteria recorded on knowledge steps (Highlighting step achieved) Grade awarded to reflect GCSE. Exam style assessments /SENECA tasks / Google forms / with scores / % / GCSE grade as appropriate.	Teacher assessment of folio work and practical tasks marked against GCSE (8552) criteria recorded on knowledge steps (Highlighting step achieved) Grade awarded to reflect GCSE. Exam style assessments /SENECA tasks / Google forms / with scores / % / GCSE grade as appropriate. Autumn Mock exam, full paper.	A01 A & B assessed using GCSE (8552) marking criteria. Scores indicate a 'working at' grade for these assessed sections. Exam style assessments /SENECA tasks / Google forms / with scores / % / GCSE grade as appropriate.	A02 C & D assessed using GCSE (8552) marking criteria. Scores indicate a 'working at' grade for these assessed sections. Exam style assessments /SENECA tasks / Google forms / with scores / % / GCSE grade as appropriate.	A02 E & F assessed using GCSE (8552) marking criteria. Scores indicate a 'working at' grade for these assessed sections, Exam style assessments /SENECA tasks / Google forms / with scores / % / GCSE grade as appropriate.	Practice NEA sections totalled; NEA graded. Summer Mock. Exam style assessments /SENECA tasks / Google forms / with scores / % / GCSE grade as appropriate. Summer Mock exam, full paper.

Reading opportunities	KO's. Textbooks to support learning.	KO's. Textbooks.	Research material.	Material specifications and properties.	Review of investigation material, specification.	Research Material. Positive / negative impact of new products on the environment.
Writing Opportunities	Argument for / against energy selection.	Folio work.	Presenting research gathered. Analysis of information and data.	Annotation of design ideas. Decision making documentation.	Recording on on-going feedback.	
Vocabulary focus	Prototype. Batch. Mass. Continuous. JIT. Automation. Finite / Non-finite. Nuclear / Fossil Fuels. Renewable energy. Jigs. Templates. Production aids. Quality controls.	Input – light, temperature, pressure sensors and switches. Processes – programming microcontrollers. Counters, timers, decision making. Output – Buzzers, speakers, lamps.	Contextual challenge. Analysis, Data, Client, User, Comprehensive investigation. Social, economic effects. Justification.	Imaginative, creative, iterative, aesthetics, ergonomics, design strategy, 3 <sup>rd</sup> Angle Orthographic Projection. Cutting lists. Quantity. Quality controls. Production methods / aids.	Quality controls, Tolerances, production processes. Review, feedback.	Industry automation, robotics. Enterprise business innovation. Sustainability resource consumption finite, non-finite, disposal of waste. Global warming, pollution.
AQA benchmark	AQA (8552) 3.2.1, 3.2.7, 3.2.8, 3.3.63.3.7	AQA (8552) 3.1.4, 3.3.6, 3.3.7	AQA (8552)3.3.6 AQA (8552) 4.4.4 1 Section A. 4.4.4 2 Section B	AQA (8552) 4.4.4 3 Section C. 4.4.4 4 Section D. 4.4.4 5 Section E	AQA (8552) 4.4.4 5 Section E 4.4.4 6 Section F	AQA (8552) 3.1.1 AQA (8552) 4.4.4 1 Section A

Year 11	HT 1	HT 2	HT 3	HT 4	HT5	HT6
Overview	NEA A01 A - Identifying and investigating design possibilities. A01 B - Producing a design brief and specification. A02 C - Generating design ideas. A21 D - Developing design ideas undertaken.	NEA. A02 C- Generating design ideas completed. A02 D – Developing design ideas completed. A02 E - Realising design ideas embarked on.	NEA A02 E - Realising design. A03 E - Analysing Evaluating. Folio and practical work submitted.	Collation of NEA. Exam Revision. Industry. Enterprise. Sustainability. People / culture / Society. Ecological and Social issues.	Exam revision Core technical principles. Specialist technical principles. Designing and making principles.	Exam revision Core technical principles. Specialist technical principles. Designing and making principles.
End point	A01 A & B Complete. A02 C started and ongoing. A02 D ongoing.	A02 C & D completed. A02 E Started and substantial progress made.	A02 E complete. A03 E completed All sections of the NEA submitted.	All NEA work is collated and submitted in correctly. Students engage in exam revision.	Demonstrate understanding and knowledge of revision content. High scores in exam question marks	Demonstrate understanding and knowledge of revision content. High scores in exam questions.
Knowledge and Skills	Research and analysis. Decision making. Understand the wants and needs of others. Time management. Taking influence. Drawing skills. Iterative approach.	Drawing skills. Taking influence. Iterative approach. Material and component properties. Material management, nesting / cutting from stock forms. Practical knowledge and making skills. Time management.	Practical knowledge and making skills. Time management. Understanding how to review work critically. The ability to realise modifications needed. Time management.	The ability to adhere to the submission requirements of the NEA. Time management. Revision strategies.	To learn and retrieve information. To employ revision techniques to improve learning of exam content and exam question requirements.	To learn and retrieve information. To employ revision techniques to improve learning of exam content and exam question requirements.
Knowledge Organiser	Presenting data. Drawing skills. NEA bible.	Drawing skills. Materials and components. Production methods. NEA bible.	Materials and components. Production methods. Material treatments and finishes. NEA bible.	CGP GCSE AQA Design & Technology complete revision and practice book.	CGP GCSE AQA Design & Technology complete revision and practice book.	CGP GCSE AQA Design & Technology complete revision and practice book.

Assessment	NEA sections RAG rated. Exam style assessments /SENECA tasks / Google forms / with scores / % / GCSE grade as appropriate. Quiz general knowledge tasks.	NEA section RAG rated. Exam style assessments /SENECA tasks / Google forms / with scores / % / GCSE grade as appropriate. Quiz general knowledge tasks.	NEA sections RAG rated. Exam style assessments /SENECA tasks / Google forms / with scores / % / GCSE grade as appropriate. Spring mock exam. Full paper.	Exam questions. Exam style practical revision activities / assessments. SENECA tasks / Google forms / with scores / % / GCSE grade as appropriate.	Exam questions. Exam style practical revision activities / assessments. SENECA tasks / Google forms / with scores / % / GCSE grade as appropriate.	Exam questions. Exam style practical revision activities / assessments. SENECA tasks / Google forms / with scores / % / GCSE grade as appropriate.
Reading opportunities	Research material.	Knowledge organiser. Textbooks to support content.	Knowledge organiser. Textbooks to support content.	Revision material	Revision material	Revision material.
Writing Opportunities	Presentation of investigation and research	Evaluating of ideas. Specification check. Client feedback.	Evaluation of prototype.	Question answers to Section B and C of exam paper.	Question answers to section B and C of the exam paper.	Question answers to section B and C of the exam paper.
Vocabulary focus	Comprehensive, extensive investigation. Impact on society, economical factors. Fair trade, deforestation, global warming.	Functional need. Cost. Availability. Social, Ecological issues, carbon footprint, social footprint.	2D 3D development. Working drawings. Dimensions. Tolerances. Cutting lists. Production processes. Manufacturing methods.	Explain. Describe / discuss State.	Analyse. Evaluate. Ergonomics. Aesthetics. Anthropometrics.	Analyse. Evaluate. Ergonomics. Aesthetics. Anthropometrics.
AQA benchmark	AQA (8552)3.3.2, 4.4.4 1 Section A. 4.4.4 2 Section B. 4.4.4 3 Section C	AQA (8552) 3.2.3, 3.3.7, 3.3.9. 4.4.4 3 Section C. 4.4.4 4 Section D 4.4.4 5 Section E	AQA (8552) 4.4.4 5 Section E 4.4.4 6 Section F			