

AQA Design and Technology Product Design A-Level

Assessment overview:

Component	Assessment	% of final A-Level grade
Paper 1: Technical principles	Paper 1: Written examination- 2 hours 30 minutes /120 marks	30%
Paper 2: Designing and making principles	Paper 2: Written examination- 1 hour 30 minutes/ 80 marks	20%
NEA	Substantial design and make project/ 100 marks	50%

Curriculum Map Year 12

Structure of the year is subject to change

	Topic	Key Knowledge <i>What will students know by the end of this topic?</i>	Key Skills <i>What skills will students have developed by the end of this topic?</i>	Assessment Opportunities <i>How will student progress be measured? What are the key assessment pieces?</i>
Half Term 1	Introduction to theoretical studies: Materials and applications	- Physical/Mechanical properties - Timber and woodManufactured boards - Ferrous and non-ferrous metals - Alloys - Thermoplastic and thermosetting polymers - Elastomers and biopolymers	Students will be able to: - Understand the key definitions, categories, applications and manufacturing steps for the listed processes and material areas. - Be able to answer a range of past paper questions based on these topics.	Past paper question given to students for every topic. Graded, mark recorded and given back to students. Gaps in knowledge addressed at end of half term.
	Practical skills development:	Timber wasting and addition skills and modelling skills, polymer deformation and vacuum forming.	Students will apply their theory skills to make a vacuum formed Sushi box- utilising cutting and joining techniques to manufactured board and deformation of polymers. They will refresh their CAD design skills from KS4. They will also practice effective cardboard prototyping techniques.	Teacher feedback on practical skills.

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Half Term 2	Theoretical studies: Materials and applications and performance characteristics	- Paper and card - Card and board - Composite materials - Smart materials - Modern materials - Glass/ceramic/textile - Testing - Enhancing materials	Students will be able to: - Understand the key definitions, categories, applications and manufacturing steps for the listed processes and material areas. - Be able to answer a range of past paper questions based on these topics.	Past paper question given to students for every topic. Graded, mark recorded and given back to students. Gaps in knowledge addressed at end of half term.
	Practical skills development:	Advanced CAD skills- Fusion 360.	Students will develop design skills essential to their NEA by learning Fusion 360 CAD software. Taught over approximately 5 weeks alongside theory lessons via self-accessible tutorials done in class and at home.	Teacher feedback on practical skills.
Half Term 3	Theoretical studies: Forming and redistribution.	- Wasting processes - Redistribution; deforming - Redistribution; reforming - Fabrication in wood and metals - Fabrication in polymers/fittings and fittings	Students will be able to: - Understand the key definitions, categories, applications and manufacturing steps for the listed processes and material areas. - Be able to answer a range of past paper questions based on these topics.	Past paper question given to students for every topic. Graded, mark recorded and given back to students. Gaps in knowledge addressed at end of half term.
	Practical skills development:	Lamp project- advanced design and manufacturing project, independently-led.	Students will have full independent access to the workshops to design and create a lamp, based on a chosen designer or movement on the course. It must not overly rely on laser cutting and use a mixture of hand and CAD skills. Students will create a short design portfolio alongside this which will prepare them for their NEA.	In-class 'mini mock' paper 1 exam Teacher feedback on practical skills.
Half Term 4	Theoretical studies:	- Finishes for paper and board - Finishes for polymers, woods and metals	Students will be able to:	Past paper question given to students for every topic.

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Half Term 6	Theoretical studies: design for manufacturing, feasibility studies, enterprise, design communication. NEA	• Design for disassembly, repair and maintenance • Feasibility studies • Advertising and marketing • New products and entrepreneurs • Reporting, graphs and drawings • Mixed media and rendering Design brief Start of section C	Students will be able to: • Understand the key definitions, categories, applications and manufacturing steps for the listed processes and material areas. • Be able to answer a range of past paper questions based on these topics.	Past paper question given to students for every topic. Graded, mark recorded and given back to students. Gaps in knowledge addressed at end of half term. Teacher Feedback on NEA idea and pages

Curriculum Map Year 13:

Structure of the year is subject to change

	Topic	Key Knowledge <i>What will students know by the end of this topic?</i>	Key Skills <i>What skills will students have developed by the end of this topic?</i>	Assessment Opportunities <i>How will student progress be measured? What are the key assessment pieces?</i>
Half Term 1	Theoretical studies: design methods, design theory, advances in technology, design processes.	• Design methods • Development of a design proposal • Design history (socio economic change) • Pre-modernism and modernism • Post war design and post modernism • Key designers • Major advances in technology • Computers, batteries and new technologies • Product life cycles • Use of a design process • Design roles, development and testing	Students will be able to: • Understand the key definitions, categories, applications and manufacturing steps for the listed processes and material areas. • Be able to answer a range of past paper questions based on these topics.	Past paper question given to students for every topic. Graded, mark recorded and given back to students. Gaps in knowledge addressed at end of half term.
	NEA	Development of design proposals	Students will be able to: • Sketch a range of possible design ideas that could be solutions to the problem. • Annotate these sketches with comments that help explain the idea. Comment on aesthetics, function, materials, size, possible construction methods, how they address the user's needs, etc. • Include iterative sketches of their product ideas, showing slight modifications and improvements. These could be close up sketches of particular features.	Teacher Feedback on NEA pages

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			- Evaluate the strengths and weaknesses of each idea against their design specification. Comment on possible modifications. - Include client feedback and testing and suggested improvements. - Produce simple models of their preferred design ideas, first in paper, then card. - Refine the models using more substantial materials. - Test your models and get feedback from the client. - Copy photographic evidence into their work. - Include CAD drawings of their design proposals. - Evaluate models against the specification criteria.	
Half Term 2	Theoretical studies: critical analysis of existing products, selecting tools/prototype , accuracy in design, responsible design, design for manufacture, international standards.	- Critical analysis - Critical analysis of existing products - Selecting tools and processes - Accuracy in design - Environmental issues and green design - Social, moral and ethical issues - Planning for accuracy and efficiency - Critical path analysis and quality control - International standards	Students will be able to: - Understand the key definitions, categories, applications and manufacturing steps for the listed processes and material areas. - Be able to answer a range of past paper questions based on these topics.	Past paper question given to students for every topic. Graded, mark recorded and given back to students. Gaps in knowledge addressed at end of half term.
	NEA	Development of design prototypes	Students will be able to: Produce a detailed and accurate final design drawing of the product. Use isometric and orthographic drawings to show how the product will look and work. Include dimensions. (These drawings could be done in CAD).	Teacher Feedback on NEA pages

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		Theory topics will be revisited during this time	- Produce a detailed cutting list of all the materials and components they need, including sizes and costs. - Conduct research into possible materials, components and manufacturing processes they may use. - If necessary, experiment with materials, components and processes. Record these experiences. For example, testing out different wood stains for aesthetics. - Select the most appropriate materials, components and manufacture processes for their product and justify these decisions. - Produce a week-by-week manufacture plan detailing the tools, techniques and QC they will do. - Manufacture their prototype using a wide range of tools, equipment and processes. - Demonstrate and document regular quality checks on their product, inspecting it for accuracy. - Photograph the progress of their practical work and copy this into their PowerPoint. - Produce a step-by-step manufacture diary of their practical work which shows all the processes and techniques used, the quality checks they made and safety rules you followed.	
Half Term 3	NEA	Development of design prototypes and analysing and evaluating Theory topics will be revisited during this time	Students will be able to: - See above - Test their product in a real-life context. Include 6-7 photographs as evidence. - Present their finished prototype to their client and conduct a follow-up interview to find out if it meets their requirements. - Summarise how well the product performed in a bullet point list of strengths and weaknesses. - Identify improvements the user would like.	Y13 Mock Exams- Paper 1 and 2 Teacher Feedback on NEA pages Theory quizzes and past paper questions

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Half Term 4	Revision	Revision of key topics in preparation for DT A-Level Paper 1 and 2. Students will spend some time this term making final adjustments to NEA before marking in April.	Students will be able to: competently and confidently answer a range of past paper questions without prompts.	NEA marked by teacher and sample-checked by AQA. Theory quizzes and past paper questions
Half Term 5	Revision	Revision of key topics in preparation for DT A-Level Paper 1 and 2.	Students will be able to: competently and confidently answer a range of past paper questions without prompts.	NEA marked by teacher and sample-checked by AQA. Theory quizzes and past paper questions
Half Term 6		N/a		