

Product Design A Level Year 12

A good A Level Product Design student is defined less by raw making skill and more by how they approach learning, problem-solving and the NEA. They are curious and intrinsically motivated. They question how and why products work, look beyond the brief to explore users, contexts, emerging issues and innovation, and engage with design beyond the classroom. Students see product design as a way of thinking, not just making. They take ownership of their learning. They work independently, use lesson time productively, seek feedback and act on it, and manage long-term deadlines independently, particularly during the NEA. They understand that A-level Product Design rewards initiative and self-direction. A strong student thinks like a designer, not just a student. They identify real problems worth solving, justify decisions using evidence, research and testing, and understand there is rarely one correct answer — only better reasoned solutions. They design with intent rather than to complete tasks.

They are reflective and evaluative. Students review their own work regularly, evaluate realistically, accept critique and failure, and understand iteration as a normal and valuable part of the design process. Reflection is continuous, not something added at the end. A good student balances creativity with precision. They generate original ideas while also considering materials, manufacturing processes, sustainability, safety, cost and feasibility. They understand that good design must function in the real world. They are resilient and comfortable with ambiguity. They persevere when ideas fail, cope well with open-ended briefs and uncertainty, and maintain momentum during challenging stages of development. They do not give up when solutions are not immediately obvious. They communicate ideas clearly and professionally. They use sketching, CAD, modelling, annotation and testing effectively, explain why decisions were made, and communicate in a way suitable for users, clients and examiners. They understand assessment and work strategically. They know the AQA course rewards evidence-based decisions, logical iteration, clear links between research, development and outcomes, and quality of thinking over quantity of work.

Summary of course content

The Product design A Level syllabus is split into two areas:

Timescale	Exams	NEA
Two hours per component, four sessions total per week.	- Paper 1 – 30% of A-level Technical principles (TP) – 2.5 hours 120 marks - Paper 2 – 20% of A-level Design and making principles (DMP) – 1.5 hours 80% marks - Combined written paper weighting – 50% of the A-level	- Assesses practical application of technical principles and designing and making principles. - Substantial design and make project. - Written or digital portfolio not exceeding 45 pages. - Candidate developed brief. 50% of the A-level qualification.

You can find the AQA specification here: <https://www.aqa.org.uk/subjects/Product Design/a-level/Product Design-7552/specification/specification-at-a-glance>

Weekly:	Completion of set work as outlined in the grid below
Fortnightly:	- Review of recent lessons, learning key terminology, producing revision resources such as cards and mind maps; completion of additional reading from anthologies using pro-forma Independent Study Folder (ISF): this will be checked fortnightly by your tutor and logged.
Half termly:	Revision: Review knowledge quizzes. Review topics and produce revision resources, e.g., flashcards, mind maps, posters, etc. Complete planning of past exam paper answers.

In addition to those provided for specific tasks by your teacher, resources include:

TEAMS: reading lists; knowledge organisers; lesson PowerPoints and reference materials; end of unit summaries.

Independent Learning Schedule – two hours directed by each of your teachers (subject to change):

Week beginning	Teacher 1 CEN (7 hours per fortnight)	Teacher 2 SSD (2 hours per fortnight)
7 th September	Enrolment week	Knowledge Organiser: Classification of materials
14	Ref: 3.1.1 Materials and Applications; Classification of materials. Students to establish definitions of mechanical and physical properties	
21	Ref: 3.1.1 Investigating and testing materials. Videos of laboratory material testing are available online and can be used to compare the processes to the equivalent workshop tests. Recalling definitions of mechanical and physical properties from Week 1 and using the first-hand knowledge gained from testing, identify products that exemplify the property.	Compare a biodegradable cup with a polymer equivalent – draw conclusions about the environmental impact.
28	Ref: 3.1.2 Performance characteristics of materials – Papers and boards. Disassemble a series of cardboard packages to identify the different shapes nets used.	
5 th October	Ref:3.1.2 Performance characteristics of materials - Polymer based sheet and film. - Biodegradable Polymers. Explore the rise of biodegradable packaging and research both the positive and negative arguments.	Flashcards / revision resources on key terminology
12	Ref: 3.1.2 Performance characteristics of materials - Woods. - Smart and modern materials. Research the steam bending process used to produce components parts of a Thonet 14 chair. This can be demonstrated in the workshop if a steam chamber is available. Can be linked to material testing to illustrate the change in material characteristics.	Create a revision aid – ‘Smart Materials and their uses’. Categorise those that react to changes in light, temperature and pressure.
19	Ref: 3.1.2 Performance characteristics of materials Metals. Record images of the products and materials; Research the original source material, working properties and characteristics. Compile these into a power point presentation.	End of unit KO test
26	Half term	
2 nd November	Ref: 3.1.2 Performance characteristics of material – Polymers.	Knowledge Organiser: Design styles, design movements and influential designers
9	Ref: 3.2.1 Design methods and processes. Link to Maths and Science Representation of data used to inform design decisions and evaluation of outcomes. The use of ergonomic and anthropometric data when designing for humans and specific applications.	Independent research and study notes: yankodesign.com , designcouncil.org.uk and dexigner.com
16	Ref: 3.2.2 Design theory - Design influences. - Designers and their work.	

	Create a timeline illustrating the major design movements of the 20 th century.	
23	Ref: 3.2.3 How technology and cultural changes can impact on the work of designers • Socio economic influences. • Major developments in technology. • Social, moral and ethical issues. Students to research how packaging has evolved highlighting the more modern sustainable options that are being used.	Students to create a visual image board covering one of the designers or movements. Research the movement or designer and present the board to the group.
30	Ref: 3.2.4 Design processes • the use of the design process in the NEA. • prototype development. • iterative design process in industrial or commercial contexts. Case Study – Investigate how Dominic Wilcox designed and developed a range of 'blue sky' products for Kellogg's. Create notes to discuss.	
7th December	Ref: 3.2.5 Critical analysis and evaluation. Case Study: Trunki – Product testing. See the extensive product testing that takes place before a product goes to market, also highlight how user feedback and focus groups have influenced design improvements. A supporting video resource can be found on the STEM website.	Study the approaches used by the product designer producttank (YouTube) . Take notes to discuss.
14	Ref: 3.2.6 Selecting appropriate tools, equipment and processes. Be aware of, discuss and demonstrate good and safe working practice create a revision aid.	Flashcards / revision resources
21	Christmas holidays	
28	Christmas holidays	
4 th January	Ref: 3.2.7 Accuracy in design and manufacture. Design a Jig for a key ring or coat hook for accuracy.	Knowledge Organiser: Design and Manufacture
11	Ref: 3.2.8 Responsible design: • environmental issues • conservation of energy and resources • how products are designed to conserve energy, materials and components • the reuse of material off cuts, chemicals, heat and water. Analyse the packaging design of a mobile phone or small electronic device. Redesign and develop the packaging to reduce its environmental impact.	Take a product and undertake a life cycle analysis. A study into its environmental impact from raw material extraction, manufacture and disposal.
18	Ref: 3.2.9 Design for manufacture • planning for accuracy and efficiency • quality control • accuracy in scale production • quality assurance • go/no-go gauges, laser scanning and measuring • non-destructive testing. Create a power point that arranges the devices by the level of accuracy that can be achieved when in use e.g., steel rule, vernier callipers, digital callipers. Demonstrate their correct use and function.	Students to identify polymers that have degraded due to exposure to UV. Focus on outdoor seating, covers on notice boards, polymer rubbish bins etc. Notice the discolouration and brittleness. Produce a document that provides both the positive and negative arguments for the use of bio batch additives in polymers.

25	Ref: 3.1.3 Enhancement of materials - polymer enhancement - wood enhancement - metal enhancement.	
1 st February	Work experience	
8	Ref: 3.1.4 Forming, redistribution and addition processes: - paper and board forming processes - wood processes. Visit the British Plastics Federation website Plastipedia and study the animations of the polymer manufacturing processes in preparation for the next session.	
15	Half term	
22	Ref: 3.1.4 Forming, redistribution and addition processes: - polymer processes - introduce joining methods, adhesives and fixings along with the use of jigs and fixtures where appropriate. Understand how scales of production influence the choice of polymer process. Issue students with supplementary information on forming, redistribution and addition processes (papers and boards – wood processes) or refer them to an AQA approved textbook – read and explore the content for the next lesson.	
1 st March	Ref: 3.1.4 Forming, redistribution and addition processes - Metal processes. - Introduce joining methods, adhesives and fixings along with the use of jigs and fixtures where appropriate. Understand the wastage processes that can be used to shape metal.	
8	Ref: 3.1.5 The use of finishes - Paper and board finishing. - Paper and board printing processes. Create a resource or PowerPoint that illustrates the finishes, their function and the method of production or application.	Redesign the cardboard packaging for a small product of their choice. This can be combined with a small modelling task in Styrofoam.
15	Ref: 3.1.5 The use of finishes – Polymer finishing. Explore online sources to see practical examples of the powder coating process.	
22	Ref: 3.1.6 Modern and industrial commercial practice – Scales of production. Watch the 3 minute video Life of a bolt – Red Bull racing (YouTube). What are the pros and cons of this system against the company using a standard bought in component? Watch the 4 minute video How it's made – aluminium and How it's made – steel (YouTube).	How has CAD changed the work of a product designer? What came before?
29	Easter holiday	
5 th April	Easter holidays	

12	Ref: 3.1.7 Digital design and manufacture. Generate or create a dimensioned orthographic or assembly drawing of the students NEA piece.	AO1 Section A – Identifying and investigating design possibilities (20 marks)
19	Ref: 3.1.8 The requirements for product design and development Product development and improvement. Students to use assessment of an existing product against the critical evaluation of the final NEA outcome. Use this third-party feedback to suggest improvements to the chosen prototype.	
26	Ref: 3.1.9 Health and safety. Students to create a file of notes on safe working practices, the legislation and agencies responsible for health and safety. Students need to identify and take precautions to limit the potential hazards in a school workshop. Understand the legislation set out to protect consumers.	Health and Safety Notes
3 rd May	Ref: 3.1.11 Design for manufacturing, maintenance, repair and disposal • Manufacture. • Repair. • Disposal. Students to analyse a bicycle, identify the components that can be maintained and those that are disposed at the end of life. Identify how the designer has considered maintenance. What are the advantages and disadvantages to the user?	Flashcards / revision resources Students to research how bamboo and PLA have been used in products as more eco-friendly material alternatives.
10	Ref: 3.1.13 Enterprise and marketing in the development of products. Explore recent degree show booklets from product design schools to gain inspiration. This could also provide valuable UCAS research.	KO revision
17	Ref: 3.1.12 Design communication. • Scaling drawings. • Representation of data used to inform design decisions and evaluation of outcomes. Presentation of market data, user preferences and outcomes of market research.	KO and revision – all yr. 12 topics
24	Ref: 3.2.3 Technology and cultural changes – Product lifecycle. Research the work of Trevor Bayliss. Explore how his clockwork radio was used in South Africa to help spread health information. Paying particular attention to how the specification for the radio was developed from a specific user group.	
31	Half term	
7 th June	NEA pages Revision: Exam prep	NEA Pages Revision: Exam prep
14	NEA pages Revision: Exam prep	
21	Trial examinations	Trial examinations
28	NEA pages	
5 th July	QLD response notes	
12		
19		