



GCE A LEVEL EXAMINERS' REPORTS

DESIGN AND TECHNOLOGY A LEVEL

SUMMER 2023

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DESIGN AND TECHNOLOGY
GCE A LEVEL
Summer 2023
COMPONENT 1 – PRODUCT DESIGN

General Comments

For many students sitting their A Levels this year, this is the first set of public examinations they have taken as their GCSE grades were determined by CAGs in 2021. Though candidates would have had the opportunity to sit end-of-year and mock examinations in a formal setting at their centres.

The 2023 paper tested a wide range of topics from the course specification and, again, it is pleasing to see that the majority of candidates are able to access and respond well to these questions. This indicates that centres are delivering a well-balanced A Level Design & Technology course. Throughout the paper there are opportunities for candidates to answer questions using the examples provided in the question stem, but for some questions, candidates are able to bring in additional knowledge and understanding from other products, designers or design movements they have studied, journals they have read or documentaries they may have watched. There are opportunities for candidates to use their experience of completing their Major Project to reinforce and exemplify their answers, and this should be encouraged. However, questions are always given in context, and candidates are reminded to make sure their answers refer to the context of the question so they are relevant and can be awarded marks in line with the mark scheme.

Access across the paper was generally very good, though candidates should be encouraged to practise long answer responses for questions 8,9 and 10 to make sure they are used to writing extended answers that build up relevant points rather than repeating the same point throughout the answer. For these questions, candidates should get into the habit of planning their response before starting to write it. The highest performing candidates tended to plan their responses in the form of a mind map or list, leading to a more coherent response with less repetition of key points.

When preparing for the examination and completing practice questions candidates should get into the habit of underlining key words in the question to make sure they fully address all aspects in their response. It is also worthwhile candidates checking the mark allocation for each question to make sure their answers are sufficiently detailed to allow access to the full mark allocation. In some cases, candidates provided correct answers but in insufficient detail to be able to access the full mark allocation.

Comments on individual questions/sections

- Q.1** (a) Candidates generally answered this question well with the majority being able to identify a suitable material for production of the face shields. The range of materials given by candidates was extensive and credit was given where appropriate. In the best responses, candidates were able to explain the choice of material by making specific reference to the question context and to the purpose and use of the face shields. Anchoring the response to the question stem allowed candidates to discuss the materials in lots of detail making it easier to access the full mark allocation.

- (b) Most candidates opted for laser cutting and 3D printing as good CAM options for production of the face shields. Candidates were able to provide good answers to this question even if they did not have first-hand experience of using such equipment. In future examination series, candidates are encouraged to provide exhaustive answers in order to gain full marks, as some candidates justified their chosen CAM method with just one reason. This limited their potential in the opening question of this paper.

Several candidates provided definition of CAM, without any reference to the question or context. While it is clear that those candidates understood CAM in general terms, they could not be full given credit if they don't address the question directly. Candidates should be encouraged to underline key words in each question to make sure they are addressing the question directly rather than providing generic answers.

In a small number of cases, candidates provided responses explaining how the components could be drawn using software such as Techsoft 2D Design V2/V3 or Solidworks showing that they did not read the question carefully enough to be awarded marks for their answer.

- Q.2**
- (a) Candidates were able to provide good explanations of the properties of cellulose-based corrugated board that make it a suitable material for packaging. Most candidates were able to access at least some of the marks for this question by identifying and explaining one suitable property, but the strongest candidates provided a detailed discussion covering more than one property that allowed them to access the full mark range.
- (b) Candidates showed good knowledge and understanding of the base material for cellulose based boards with most able to identify trees as the primary material source. Many students also discussed the use of recycled paper and boards as the initial stage of production, rather than sourcing virgin materials, and were credited. Some students confused paper and board production with the production of composite sheet materials such as plywood and were unable to access marks as a result.
- (c) Candidates responded very well to this question with a large proportion able to access all six marks by working out the relevant surface areas and calculating material wastage as a percentage. Candidates who did not access all six marks were able to gain some credit for correct steps when solving the problem. A few candidates left this question blank, candidates should be reminded to attempt all questions as some credit may be given for partially correct responses. This is especially relevant in the maths questions as candidates are not penalised for errors carried forward.
- Q.3**
- (a) Most candidates were able to differentiate between temporary and permanent fixings. The stronger responses provided a full explanation of why temporary fixings might be used, providing multiple examples allowing access to the full mark allocation.
- (b) Candidates responded well to this question, with many using their experience from completing their Major Project to help answer the question. Using the Major Project as a source of reference allowed for full and detailed responses by lots of candidates.

- Q.4**
- (a) The vast majority of candidates were able to provide at least a basic explanation of how the digital vernier callipers are used to check dimensional tolerances. Again, candidates need to make sure they check the mark allocation for each question carefully, as some candidates stopped at a relatively brief description that limited their mark potential in this question.
 - (b) Knowledge and understanding of the go/no go gauge was very good, with most candidates being able to access at least some marks for this question by referencing the upper and lower tolerance limit. Some candidates failed to gain the full mark allocation for this question as they did not make reference to the gauge speeding up quality control checks and focused their answer solely on how the gauge is used.
 - (c)
 - (i) This question was answered very well with most candidates being able to calculate the correct numerical outcomes. A small number of candidates failed to access both marks for the question as they calculated the acceptable tolerance in mm but did not state the maximum and minimum sizes as specified in the question.
 - (ii) Candidates responded well to this question with the majority able to calculate the percentage tolerance as a mm measurement. There were a minority of candidates who did not access both marks for the question as they did not identify whether the tube referenced in the question would be suitable for the table shown.
 - (iii) This was evidently the most challenging mathematics question on the paper. Some candidates did not calculate the volume of the cylinder and others did not convert their workings to m³. Despite this, a good proportion of candidates were able to access the full mark allocation.
- Q.5**
- (a) Many candidates were able to explain what is meant by the term 'iconic design', with some opting to explain what makes a product iconic using their own examples which have clearly been taught in lessons or studied independently. Those candidates who used the 'Alessi bird kettle' provided in the question stem were able to use the image to help bolster their answer. However, most candidates provided an answer that was too brief and lacking in specific details to be able to access the full mark range.
 - (b) Candidates made good use of the reference image in the question paper, anchoring their responses to features influenced by historical design movements and trends. At the top end students were able to discuss design, material, colour and form choices eloquently and in detail. The responses that scored lower marks for this question made limited references to historical influences and tended to repeat the same point. For some candidates, it was clear that discussing and explaining historical influence on contemporary design was not a common activity.
- Q.6** The term 'collaboration' as a design strategy was understood by the majority of candidates. Most were able to discuss the benefit of sharing ideas and that 'two heads are better than one'. Weaker responses tended to stop at this initial point, but it was pleasing to see such varied and detailed responses at the middle and top end with candidates able to fluently discuss different members of the team taking on different roles and making use of specialist areas of expertise.

Candidates are reminded to always make qualified statements or explain points in order to access the full range of marks. Where it is possible to explain a point, they should always do so rather than expecting an examiner to infer an explanation or justification.

- Q.7**
- (a) Most candidates were able to explain what a focus group was and how information gathered can impact on the design process. The candidates were able to explain how focus groups can be used to gather more detailed information than a survey, and how a facilitator is able to explore responses by asking follow-up questions. On the flip side, 'group bias' was a common feature of candidates' answers, which shows a full understanding of the value focus groups play during research phases of the design process.
 - (b) Some candidates confused qualitative with quantitative data, and therefore were unable to access marks for this question. A minority of candidates were also unable to provide any tangible examples of quantitative data that could be used throughout the design process to judge the success of a design, this meant the answers appeared convoluted and difficult to follow so awarding marks was difficult. The most successful responses came where candidates gave an example of quantifiable data and then explained how, specifically, this could be used to judge the success of the design. Numerous candidates used 'tolerances' as referred to in question four to form part of their answer.
 - (c) It is clear that the concept of a 'specification' is well understood, and again, candidates were able to use their experience from completing their Major Project to anchor their responses. In a small number of cases candidates explained what a specification is, rather than the importance of it to help develop design ideas, and in these cases it was difficult to award marks as the question had not been addressed directly. The most successful responses explained how the specification is a design checklist, generated from research and used to guide the development of ideas and judge their success based on qualitative and quantitative criteria. The highest scoring responses from candidates explained how iterations of an idea are developed using the specification as a checklist and how this specification can be used as a 'common hymn sheet' when designers work in teams with other professions, clients, and manufacturers.

- Q.8** Candidates generally scored well in this question. The candidates were able to discuss in detail the differences one would expect to find between the two guitars based on the principles of one off or mass manufacturing. The question asked candidates to explain the differences in relation to three areas: time, quality, and cost. The best responses to this question clearly split out all three parts and this allowed candidates to organise their answers enabling them to access the whole mark range. This year, as in previous years, the strongest responses were from candidates who planned their answers first in the form of a mind map or bullet point list. This tended to make the answers more coherent and prevented candidates from repeating the same point over and over again. Candidates should build 'planning' time into their exam preparation work.

Candidates were able to eloquently discuss automation, level of skill, set up and running costs and production quality showing a full and comprehensive understanding of the key concepts.

Responses that scored on the lower end of the mark range tended to lack detail in one or more of the three areas or tended to repeat information. Some candidates provided very brief answers more synonymous with 3 or 4 mark responses. Candidates should practise developing and expanding their points for the extended answers in future series.

- Q.9** Candidates were able to use the examples of the three electrical products shown as part of the question to provide detailed explanations of closed loop systems providing feedback to enhance functionality. Many candidates were also able to provide additional examples not given in question to extend and add detail to their responses and were given credit. This was lovely to see. It was clear that some candidates were unable to describe a closed loop system in the context of the electrical items shown as part of the question, in these cases some candidates were able to use the images to infer what a closed loop was which led to some credit at the lower end of the mark range. Candidates should be reminded to attempt every question as examiners don't negative mark.
- Q.10** Candidates were generally able to grasp the broad context of the question, but many did not expand their answers to explain how global products and brand imagery is adapted to suit local markets. In order to access marks in the middle or top of the mark range for extended answers, candidates must be able to address every part of the question and be mindful of the question context. I reiterate that candidates should plan their answers before starting to write, as those who did, in general, were able to provide more detailed and coherent responses. Use of paragraphs and correctly punctuated sentences also help present points and arguments in a way that allows the response to build to an effective summary or conclusion. This question allowed candidates to use a range of examples to reinforce their answers and there were many references to dietary needs of different cultures affecting global menu choices of multinational brands, colour association, electronics providing different language settings, or ideograms to avoid language barriers among other things. It is clear that some candidates are well practised at writing extended answers as their response was clearly presented, well-structured and answered the context of the question.

Summary of key points

- Candidates need to read questions carefully and prepare responses that answer all of the question. Sometimes parts are repeated or missed completely, which prevents access to marks.
- Some questions require a broader or brief response, and others can be quite narrow and deep. Candidates need to provide the appropriate response demonstrating the skills, understanding and knowledge to answer the question and access the higher end marks.
- Extended responses require continuous writing, and bullet pointed lists do not help candidates access higher marks. Essay plans can help, but not as a replacement for a written response.
- Where useful, candidates can use examples of products, processes, methods and materials to help illustrate or exemplify responses.

DESIGN AND TECHNOLOGY
GCE A LEVEL
Summer 2023
COMPONENT 1 – FASHION & TEXTILES

General Comments

The number of entries for this GCE qualification in Fashion and Textiles is very low when compared to Product Design. The majority of candidates taking this examination are female which is consistent with past exam series. For many candidates it was their first experience of sitting externally set and marked examinations as external GCSE examinations did not take place for this cohort in 2021.

Questions were drawn from a broad range of topics listed in the full course specification. The style and demand of questions varied and were set to test candidates' ability to demonstrate knowledge, understanding and skills acquired over the two-year period of study. The structure and demand of the paper was similar to past series, as was candidate performance. The overall attempt rate for each question was good with only a minority of candidates failing to attempt all questions. It is apparent that a few centres have delivered a well-balanced course covering the breadth and depth of the course specification. There were many examples of excellent papers where candidates demonstrated sound subject knowledge and had clearly been well-prepared for the examination. It was however equally clear that some candidates appeared less well prepared. Some responses were considered superficial, clearly lacking subject specific technical knowledge which is expected at this level.

Comments on individual questions/sections

- Q.1** This question was considered accessible to all candidates with a good attempt rate for both parts of the question.
- (a) Overall responses were good. Most candidates focused on the weft knit but were less clear about the use of a rib fabric which was a key point of the question. Candidates need to be reminded to carefully read and consider the question construct before attempting an answer. (b) Responses related to warp and weft knitting lacked detailed subject knowledge. Most responses were superficial and not indicative of the level required at GCE.
- Q.2** This question was considered accessible with a very good attempt rate; most candidates achieved at least half of the available marks.
- (a) Responses to making a piped edge and inserting it into a seam varied. There were some excellent annotated diagrams which fully explained the process down to very basic sketches with limited subject knowledge.

- (b) Most candidates understood the term bias and why it would be needed when making piping. (c) Many candidates achieved full or close to full marks for the maths calculation. Some however did not realise the piping is on both faces of the floor cushion, consequently the final answer was incorrect but were awarded a few marks where the method used was correct.

Q.3 As there was a good attempt rate for this question, it was considered accessible although responses that included detailed technical knowledge that the question demanded were rarely seen.

- (a) Knowledge related to applying a crease-resistant finish to cellulosic fibres was weak, good answers were not evident. Cellulosic fibres require a specific finish for crease resistance; they are not simply sprayed with a chemical which most responses seemed to imply. (b) Responses explaining the purpose of blending polyester and linen were mostly good. Full marks were often awarded for this part question.

Q.4 This question was considered accessible to all candidates with a good attempt rate. Most candidates understood the requirement of the maths calculation.

- (a) There were three minor issues with this part question: errors in adding up the totals needed for the calculation, incorrectly including viscose in the total for synthetic fibres or omitting acrylic as a synthetic fibre. Some marks were awarded for the correct method even if the final answer was incorrect. (b) There were no issues with this part question. (c) Most candidates knew what regenerated fibres were and where they originate but overall responses were quite limited and basic. Detailed knowledge and understanding relating to the properties of viscose were rarely seen.

Q.5 Some candidates did not attempt this question therefore it was considered slightly less accessible than other questions although the mean was still around half marks.

- (a) Responses to this part question were disappointing. This question was about the iterative process and the re-invention of a product over decades not just about very recent events related to the pandemic. Good responses were rarely seen. Candidates need reminding to carefully consider the context for each question. The stem of the question which puts the scenario into context was mostly ignored consequently the main point of the question was missed. There was little reference to how leggings are worn throughout fashion as indicated by the images. (b) Some good responses, supported by clearly explained diagrams.

Q.6 As the mean mark for this question was above half marks with a good attempt rate, it was considered accessible.

This question was specifically about the properties relating to wool.

Where candidates had sound subject specific knowledge relating to the structure of a wool fibre and its inherent properties candidates were able to explain its use in the transportation of products in detail. There was a lack of maturity in other responses.

Q.7 Some candidates did not attempt this question therefore it was considered slightly less accessible than others although the mean was still above half marks. Responses overall, lacked detailed subject knowledge and understanding. Full marks were rarely awarded for either part question.

(a) Once again there is a need to remind candidates to carefully consider the question construct before attempting an answer. Some did not appear to know what a fabric specification was, others simply described the properties a high-performance jacket might need but did not consider the needs of the user in the context stated. Please note in an AO3 'evaluate' style question full marks cannot be awarded for a response if there is little or no evidence of appraisal. (b) Responses to this part question varied but full marks were rarely awarded. In this AO3 'analyse' question there needs to be evidence of reasoning. This skill was lacking in a number of responses. Knowledge of measurable criteria continues to be problematic for some, this is also reflected in the NEA. Reference could be made dimensions, size of parts, weight, ability to withstand stress, costs, anthropometric and ergonomic data. Whilst some of these were referenced, reference to end testing of the product – a critical point - was not considered.

Q.8 Although there was a good attempt rate for this question it appears slightly less accessible as the mean mark falls below half marks. Most candidates demonstrated an understanding regarding the principles of 3D printing but were less able to relate it to the development of new ideas and the possibilities it offers. Some referenced the speed at which products can be manufactured but at a superficial level - similar to manufacturing using other CAM methods. The innovations associated with this new modern manufacturing method were not known. Detailed subject specific knowledge was not evident, high marks were rarely awarded.

Q.9 Some candidates did not attempt this question and although the mean mark was above half marks it was considered less accessible than other questions. Most candidates demonstrated a good understanding of the 4Ps of marketing but were far less able to explain how the digital world impacts product launch. Candidates could have referred to for example super-connectivity, online consumerism, digital footprints used for marketing purposes, global accessibility, social media, use of influencers to name a few. Detailed understanding was not evident. High marks were rarely awarded.

Q.10 All candidates attempted this question; the mean mark suggests it was very accessible to all candidates. Almost all candidates answered this question quite well with some exceptionally well written, detailed responses.

Some however were over long and strayed away from the main focus of the question. Issues related to sustainability and the environment continue to be a strength in subject knowledge for fashion and textile candidates.

Summary of key points

- Detailed subject specific technical knowledge particularly relating to fibres, fabrics, properties and finishes needs to be taught and reinforced throughout the two-year study period.
- It is vitally important that whole questions are read and carefully considered before attempting a response. Centres are advised that each question is set in a context – a picture of a product for example, or an outline scenario is stated. Candidates should be encouraged to carefully consider the context of each question before attempting an answer. Too often this information is not fully taken into consideration.
- Overlong answers do not necessarily gain more credit as they often stray away from the context of the question. Candidates need to apportion time according to the marks available and keep the context in mind when answering.
- It is incumbent on candidates to read the information and follow the instructions set out on the front of the examination paper and answer booklet. It is their responsibility to complete the grid on the front cover of the answer booklet with the question numbers in the order they are answered.

This report should be read alongside the 2023, component 1 paper and mark scheme. Centres are reminded of the item level data available on the WJEC secure website when they reflect on their candidates' performance. It is hoped that the feedback provided in this report will enable centres to reflect on the strategies and advice given to their candidates as they prepare for the 2024 examination. Resources that support the GCE Fashion and Textiles course are available on the Eduqas website.

DESIGN AND TECHNOLOGY

GCE A LEVEL

Summer 2023

COMPONENT 2 – NEA – DESIGN AND MAKE

General Comments

With a return to a post covid concession free cohort, the work moderated at A Level component 2 has overall been well interpreted. Centres have generally re-adapted well to the original format following a testing period for all. Moving forward, consideration to the following comments and recommendations should be made.

Centres need to continue ensuring that candidates explore and analyse a range of project possibilities. These project possibilities could come under a range of contextual situations or could be under one broad context. There are still some centres directing candidates in certain briefs or context. The candidates must choose and develop their own briefs and it is not expected that whole samples show the same contexts. The aim of the iterative process is to allow the students to consider a range of problems and briefs based on analysis of client requirements, research and deconstructing existing products and problems. At A level it is also expected that candidates demonstrate a clear and logical plan or sequence for the development of their project. A notable issue arising this year was the need for candidates to ensure that their specifications are 'working documents' and contain some evaluative comments and ongoing iteration throughout the process. It would be acceptable to produce an initial specification with furthermore precise measurable criteria added once further investigation and iteration has been completed.

Comments on individual questions/sections

Design folios again were generally well laid out with good examples of the iterative process being followed by many centres. This was evident in A3 folios and some good use of sketchbooks. Centres should continue to encourage candidates to model, develop and iterate as much as possible. These models, tests, concepts could take on the form of a physical model or a 3D CAD model. Sketch books must also continue to be developed and encouraged as an iterative working tool, marks for good use of sketch books should be rewarded in the generating and developing ideas section. At A level greater reference to the implications of the design and its impact on social, moral and sustainability issues should be evident. There is no directive as to where the design process should start, and modelling or deconstructing could be the starting point for designing.

Product solutions and prototypes across many centres were appropriate however, centres should consider the timing and marks allocated to their prototype. Products should still represent a finished functioning prototype. When centres are making concept models, the products, regardless of function, must look and feel like a real product. Quality of finish is vital at this level. Could the product be taken to an investor? Please also note, only the finished prototype/s can have marks awarded in this section. Marks cannot be awarded for models and test pieces; these are rewarded in 'generating and developing design ideas.'

Along with the finished prototypes centres should ensure that the logical sequence and timeline completed should be in a pre-emptive context. Centres should also ensure that flow charts and manufacturing plans contain sufficient detail, considering the '3rd party' aspect.

Moderators are seeing Gantt charts as a means of planning the manufacturing; although this is an acceptable method, a simple coloured box on a chart is meaningless unless it is reinforced with realistic detail including reference to H&S, QC and timings that reflect the true manufacturing process. The logical sequence should not be confused with the project planning noted in section A.

The depth and quality of evaluations varies across centres, a consideration of the time apportioned to this should be revised by many centres when considering the marks available. In general centres need to ensure that far greater time and emphasis is placed at A level on evidencing, testing and user trials and live feedback from the proposed intended users. Good examples are of using video evidence, this has been a successfully used tool by many. Consideration here should also be made to how the product could better meet the needs of the user throughout its life cycle. Modifications should be fully realised in annotated sketches or CAD presentations.

Summary of key points

- A range of problems must be identified by the candidate not prescribed by the centre.
- The problems could come from one in-depth context, or a range of different contexts could be considered.
- Initial specifications must be annotated and include developed, specific measurable criteria following on from research and iteration.
- Encourage more modelling and testing of concepts to aid the iterative process. Including CAD modelling.
- Continue to develop the use of sketchbooks as an iteration tool.
- The journey candidates have followed should be clear throughout the folio and sketch book.
- Concepts and prototypes of designs made can only have marks awarded in the 'generating and developing ideas' section.
- The final concepts and prototype should look and feel like a real product. Quality of finish is important. Could the product be taken to an investor?
- Logical sequences should be pre-emptive and should be sufficient for a 3rd party to make the product.
- Evaluations should contain end testing and user trials with clear suggestions of possible modifications to the product. Use of video evidence here can be highly beneficial.



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