



General Certificate of Secondary Education

**Design and Technology
(Graphic Products)
3543
Full Course**

Coursework

3543/C

Report on the Examination

2007 examination - June series

Further copies of this Report are available to download from the AQA Website: www.aqa.org.uk

Copyright © 2007 AQA and its licensors. All rights reserved.

COPYRIGHT

AQA retains the copyright on all its publications. However, registered centres for AQA are permitted to copy material from this booklet for their own internal use, with the following important exception: AQA cannot give permission to centres to photocopy any material that is acknowledged to a third party even for internal use within the centre.

Set and published by the Assessment and Qualifications Alliance.

The Assessment and Qualifications Alliance (AQA) is a company limited by guarantee registered in England and Wales (company number 3644723) and a registered charity (registered charity number 1073334). Registered address: AQA, Devas Street, Manchester M15 6EX
Dr Michael Cresswell Director General.

General Comments

Care needs to be taken by centres when posting the selected folders to the moderator. The following points should be observed.

- Folders should be in rank order.
- Folders should be secure – wrapping in a sheet of sugar paper, does not secure the candidates work, the work often arrives out of order.
- Centres with 20 or fewer candidates are failing to post ALL of the candidates work to the moderator by the 5th May deadline.

It is vital that candidates are allowed to select an area to develop that will provide them with the appropriate opportunities to address the three assessment objectives.

There was evidence of good internal standardising taking place in centres this year. This was seen in the centres' holistic assessments for both designing and making.

Some centres were found to be rewarding candidates for elements when there was no evidence provided in the candidate's coursework.

Centres need to focus their candidates on the production of concise folders.

Help provided to the moderators by the centres to facilitate a smooth and professional visit have been appreciated by the moderating team.

Designing Skills

Research

- Centres have started to encourage candidates to only carry out research when it is needed; this is taking place throughout the design process and is recognised as good practice.
- Many centres are now encouraging candidates to create concise design folders, containing only relevant and appropriate research.
- There were still some centres rewarding candidates for generic research sheets, these had no bearing on the final product being developed by the candidate. Centres are treating this section as a didactic teaching exercise, with candidates submitting identical sheets, regardless of their task. This cannot be rewarded by centres with the higher grades for this element of the designing element.
- If downloading information from internet sources, candidates need to filter this evidence, distilling the key pieces of information and recording only the relevant information.
- Disassembly of existing products has continued to be used successfully in many centres. This aspect of research has a focus and encourages the candidate to address their design situation from a commercial perspective. Disassembly provides a valuable method of analysing products and can also be rewarded as a relevant industrial practice. Many candidates have included digital images of similar products, addressing key construction detail.

Analysis

- There has been evidence of candidates analysing their product and key pieces of information throughout the development of their Graphic Product.
- Task analysis has started to be addressed by some candidates, where early in the design process the candidates have shown an appreciation of how to organise the production of their final product.
- Candidates have started to realise the advantages that could be gained by following a careful analysis of their problem, task and research.
- Candidates have continued to draw conclusions gained from their research. This information has then been used to formulate a design specification.

Specification

- An area of continued improvement in many centres again this year. Candidates have started to carefully consider the requirements of their product.
- Candidates are starting to carefully consider their products' requirements.
- Specifications need to focus upon the product being developed; some candidates created a specification for the design process.

- A technique that has been successfully applied by centres was the creation of a specification using bullet points. These key generators have then formed the basis of the final product evaluation.

Generation of Ideas

- Candidates are starting to show evidence of a range of potential ideas; these early ideas form the basis of the selected idea that is modified into the final product.
- This section of a candidates' design work provides an ideal opportunity for candidates to exhibit a high level of drawing technique; candidates should be able to illustrate their ideas using a range of graphical techniques. Three dimensional drawing techniques, including perspective and isometric projection should be encouraged.
- Drawing enhancement techniques have been used by some candidates to enhance the sophistication of their representations.
- Candidates who are attempting simplistic outcomes that do not stretch them need to be awarded levels that are appropriate for this type of project. Advice can be found on the CD ROM issued by AQA to support centres in Autumn 2006.
- Candidates have provided thumbnail downloads showing the incremental developments of their ideas when ICT applications have been used.
- Candidates need to exhibit a balance in this section between hand and ICT generated images.
- When only a finished idea or solution is provided for the moderator, it is difficult to reward the candidate as often these pieces of evidence may be completed to a professional standard. It is essential that the candidate can show how ICT has been used to modify and sequentially develop the final product.
- When nets are downloaded from a commercial CD or CAD program, this must be acknowledged by the candidate.
- Many centres and individual candidates are prototyping potential ideas at an early stage of the design process, and in most cases this has proved to be a useful exercise. With the increased use of CAM in centres, many candidates are taking advantage of this technology to create incremental modifications to improve the function of their selected product.

Development of solution

- Some candidates are being rewarded with high levels for this element, when they have shown a lack of development or improvements to their earlier ideas.
- Many successful candidates integrated hand drawn and ICT techniques into this section.
- Some centres use modelling / prototyping in this section of the candidates' design process.

- Models need to be supported by photographic evidence if they are tested to breaking point by the candidate.
- Some candidates simply regurgitated their earlier drawings, not showing any development or refinements which could be incorporated into their proposal.
- There is growing evidence of high level applications of CAD in this section. Candidates are exhibiting competence in a range of different programs.
- Prodesktop is being used in a wider range of centres – this is proving to be a useful program to model the candidate's proposals / ideas.
- Incremental modifications / improvements should form a key element of this designing skill, leading to a series of drawings that would enable a 3rd party to manufacture the product/s.
- Orthographic drawings should be created of the final product /s. This system of drawing could either be drawn out using drawing instruments, or CAD applications. This is also a useful technique to develop for the examination.
- If a candidate is intending to manufacture their product using CAM, evidence should be provided relating to the settings and operation of the selected machinery.
- There are still valid areas of research that could be carried out by the candidate at this stage of the design process to show how their product/s could be developed into successful products.

Planning of Making

- Many candidates have started to appreciate that this is not a retrospective exercise.
- Candidates are planning out their construction, taking into account industrial elements such as Just In Time, and also planning, that takes into account QA / QC elements which have been introduced into candidate's work.
- Critical control points have been identified by candidates. This is a relevant industrial technique and makes the Gantt charts that form the evidence presented by many candidates seem more appropriate.
- Flow charts have continued to be used by many candidates; these have been seen in many centres, with candidates introducing feedback and QC elements into their systems.
- Some centres have used the panning element to illustrate how their product would be modified to be produced as a batch or mass produced product
- Some candidates provided no evidence of planning, yet they were given due credit by the centre. This has a major impact when the holistic grade is awarded.

Evaluation, testing and modification

- Candidates must appreciate that this is not intended as a self praise exercise.

- The evaluation needs to focus upon the product/s that candidates have developed. Often this year candidates have not focussed upon their product.
- A successful technique adopted by some centres has been to address the key elements of the design specification.
- In many candidates' folders they have noted the final amendments and improvements that have been incorporated into the manufactured product/s. It is essential that this evidence is rewarded in the modifications element of the making element. This needs to be noted on the individual Candidate Record Form.
- There was still evidence that many candidates had failed to address the two other subsections in this skill – testing of their product or recording modifications that could be made to improve the next generation of their design solution.

Use of communication, graphical and use of ICT skills

- Centres need to appreciate that candidates should exhibit a range of graphical skills.
- A design folder should to show a balance between hand drawn graphical techniques and ICT generated work.
- There seems to be reliance upon 2D drawing, many candidates are not even attempting 3D drawings to illustrate their ideas. The design folder provides candidates with an opportunity to practice drawing techniques that could be examined as part of their examination at the end of their GCSE course.
- Some candidates are still using oblique projection as a system of recording their ideas. This drawing style does not form part of this KS4 specification.
- An increasing use of Prodesktop has been witnessed in many centres. This provides candidates with an opportunity to model and amend their proposal.

Social issues, Industrial practices and systems and control (including the use of CAD)

- A key element of the specification is to design and manufacture a *quantity* of the final product. Many candidates are not taking this key tenet into consideration when developing their products. This concept needs to be addressed at the introductory stage of the design project.
- Many centres are just providing candidates with generic sheets which relate to this element. The information often has limited relevance to design situation being followed by the candidate.
- In some centres, candidates are starting to integrate this key element into all sections of their design work. This is seen as good practice. It is essential that when this approach is adopted, the teacher annotation points out where the best evidence is located in the candidate's submission.
- Many, candidates ignored this section completely, yet they were rewarded by centres.

Making Skills

The standard of making skills exhibited by candidates has shown a marked improvement in many centres visited this year. Candidates have created appropriate products for this GCSE specification, with many quality products seen which were manufactured using a range of appropriate compliant materials.

Candidates have created a range of products and in many cases this has enabled the candidate to exhibit a wider range of making skills.

There are concerns where some centres have allowed candidates to develop solutions where the outcome would have been better suited to a GCSE in Resistant Materials. The specification provides guidance for centres on the use of appropriate materials that could be used by candidates to manufacture their product/s.

Centres and candidates have continued to create mock ups of the final product. This is recognised as an appropriate industrial technique, used to test the function / feasibility of a product. This aspect of the making element can be carried out by the candidate at different stages of the design process.

Correction of working errors (where needed) including modifications

- Only a minority of candidates covered this section explicitly. Many centres awarded high levels for this section, with no evidence presented.
- A candidate needs to justify as well as record any working errors in order to achieve higher than a Grade C for this making skill.
- Some centres used prototyping as a technique to check the feasibility of candidates' ideas. Modifications/changes were then incorporated into a final product. This evidence needs to be recorded by the candidate or on the CRF

Use of appropriate equipment and processes (including the use of CAM)

- The vast majority of centres have continued to use a range of appropriate materials, equipment, and processes to produce an effective outcome/s.
- There has been a significant increase and a wider range of applications where CAM has been used; this has often enhanced the quality of the finished product.
- The use of laser cutters is a growing area of technology. Candidates are showing a high level of accuracy when using this technology. It enables candidates to adjust and make incremental adjustments to their selected products.
- Good evidence of prototyping was provided by many candidates which has enriched the number of processes covered by candidates.
- Architectural models need to be supported by a range of products that will enable the candidate to address the three Assessment Objectives.

Production and effectiveness of outcome

- Many candidates produced effective products, often completed to a professional standard; these exhibited complexity of construction and showed a high level of finish.
- Some candidates opted to make outcomes that lacked the rigour and challenge needed for the higher grades.

Level of accuracy and finish

- There has been a continued improvement in this element this year. In many cases this was due to an increase in the use and sophistication applied by candidates when using CAM equipment.
- The finish of products in many cases has affected the holistic assessment of the candidates' making skills.
- The finish of products in many cases has affected the holistic assessment awarded for the candidates' making skills.
- Where foam coreboard is used, some candidates failed to provide a suitable edge finish.
- When modelling block foam is used, candidates need to pay attention to the standard of finish.

Use of Quality Assurance (QA) and Quality Control (QC)

- Candidates often referred to this element in their design folder, however they did not apply this check to their making. This should form part of a candidate's product evaluation.
- The best evidence for this section was often witnessed in the planning of making.

Mark Ranges and Award of Grades

Please see the following link:

<http://www.aqa.org.uk/over/stat.html>