



## External Assessment Report 2009

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Subject	Product Design
Level	Higher

**The statistics used in this report are pre-appeal.**

**This report provides information on the performance of candidates which it is hoped will be useful to teachers/lecturers in their preparation of candidates for future examinations. It is intended to be constructive and informative and to promote better understanding. It would be helpful to read this report in conjunction with the published question papers and marking instructions for the Examination.**

# Comments on candidate performance

## General comments

### Paper 1

The paper followed the same format used in previous years. It should be noted however that although the paper will always be in the same format, this does not mean that topics tested in Question 1 will remain the same. Subject matter in this question will depend upon the product being used and questions will develop along with the subject. This year candidates had difficulty with Question 1c which, as last year, was based on manufacturing. Candidates' understanding of manufacturing techniques and issues was again disappointing with very few candidates able to look at component parts and discuss issues surrounding their manufacture.

Overall, marks were slightly poorer than in previous years, although there were some outstanding Design Assignment folios earning full or near full marks and fewer candidates with particularly low marks. Overall the exam produced very similar results to last year so grade boundaries were unchanged resulting in a very slight decrease in pass rates.

Candidates generally scored higher marks in the Design Assignment than the written paper. This is in line with previous years.

Year	2006	2007	2008	2009
Written Paper Av. Mark	35	35.3	35.3	33.6
Design Assignment Av. Mark	42.6	41.2	42.3	42.5

### Question 1 (30 marks)

Generally responses in Question 1 showed a similar level of response to last year.

- As last year, many candidates' specification points are still too simplistic and not appropriate for this level. Specification points are generic for this question and simply lifting data from the Question Paper will not earn marks. The information given is intended to enable candidates to identify issues which would appear in a Design Specification. Technical Specification points will not gain marks if they are simply lifted from the data given.
- Answered quite well.
- A variety of responses varying from excellent to very poor. As indicated above, many candidates did not answer this question in terms of manufacturing processes. Injection moulding, press forming, piercing and blanking, extrusion, drop forging, investment casting, etc.
- Slightly disappointing.
- Answered very well
- Answered reasonably well

### Question 2 (8 marks)

- (3 marks) Not answered well. There seemed to be a poor understanding of thermosetting plastics. Candidates had to demonstrate knowledge that the manufacturing technique was aimed at a thermoset plastic to accrue a mark for the process e.g. compression moulding or thermoset injection moulding. (Injection moulding on its own was not enough).
- (5 marks) Answered quite well

### Question 3 (8 marks)

- a) (4 marks) This is a familiar question which has been asked in a variety of forms over past examinations. This entire question is aimed at unit one of the Course. The average mark for this question was under 2. This was disappointing for a question that should be straightforward
- b) (4 marks) see comments above.

### Question 4 (8 marks)

- a) (2 marks) Mixed responses. Some very good answers but generally answers were not extended enough to gain full marks.
- b) (6 marks) Some excellent answers in this question, but there were more instances where candidates described the graph rather than explained why the graph was shaped as it was by discussing the issues that form the graph and how the graph could be altered etc.

### Question 5 (6 marks)

- a) (4 marks) Answered quite well
- b) (2 marks) Answered very well

### Question 6 (10 marks)

- a) (6 marks) A testing question designed to differentiate the more able candidate. Candidates found this a difficult question. There were however quite a few who attained full marks. Candidates in general were not able to extend answers to gain further marks. Issues such as targeting strengthening webs so as to enable new shapes to be designed or experimented with were not explained. Or the ability to shape or bend materials to avoid or replace jointing methods of construction.
- b) (4 marks) Considering composite materials have appeared in the paper quite frequently recently, the responses for this section were very disappointing. Candidates were given the opportunity to demonstrate what they knew about composites in general for 4 marks. Few took the opportunity in such an open ended question.

## Design Assignment

Centres were, as last year, given a choice of design options based upon a theme. The range of tasks was devised to give as much opportunity as possible to candidates, while being able to keep a level of control on the assessment process.

As usual candidates were given four scenarios giving an opportunity for candidates to show creativity and expression. **This was done to enable candidates with a wide variety of talents and with a wide background knowledge to be able to show their capabilities. It is essential that centres encourage candidates to choose the topic they are about to embark upon carefully.**

The Design Assignment followed the same format where candidates are limited to 8 pages of material. There was little evidence of candidates producing complex front covers and contents pages which are superfluous in the design folio. Once again the addition of page numbers by centres this year greatly assisted assessment.

The format was generally followed; there were few instances of folios exceeding 8 pages.

### Section 1 Initial ideas (15 marks)

This section is generally done well by candidates although decisions reached are still not highlighted and referred back to the specification.

In some cases **candidates still use 4 or 5 pages** for this section. This does not leave adequate opportunity to gain marks in the rest of the folio. Some time spent before in class looking at the balance of their work and relating this to the DA Specification could minimise this problem.

## **Section 2 Development of ideas towards a design proposal (30 marks)**

This is where the more able candidates tend to gain significantly more marks than others. Developments of ideas can be aesthetic, can use information from the research material supplied with the DA topics, can look at construction/production methods, standard parts etc. All should show progression, sketches must be well annotated and relevant to the topic. Decisions should be being made throughout the folio and highlighted. **Candidates who score high marks in this section consider technical as well as aesthetic development.**

This section is worth 30 marks and should be where most marks are gained by candidates; this was not the case in for some, however there was once again an improvement in candidate responses in this section.

## **Section 3 Communication**

This is split into three sections

### **Section 3 (a) Communication of ideas towards a design proposal (10 marks)**

The marks awarded for this was for the communication of information both graphical and textual throughout the Design Assignment. Examiners are looking for links to the information given, use of the specification and progression of ideas and developments towards a final design proposal. The candidates' folios which scored well clearly demonstrated this.

### **Section 3 (b) Recording decisions made in producing a design proposal (10 marks)**

Again marks are allocated right across the folio for this. In many cases the decisions made were not justified and evaluated so that it was unclear why they had been reached. This area is still a problem for candidates.

### **Section 3 (c) Communication of design proposal (5 marks)**

More centres are now using computer modelling in this section which is aiding presentations for candidates with less ability in manual graphics. There are still examples of impressive manual graphics which is encouraging.

## **General Comments on Design Assignment**

Overall, marks were slightly poorer than in previous years, although there were some outstanding Design Assignment folios earning full or near full marks and fewer candidates with particularly low marks.

The use of the research information given is minimal in some cases which partly explains why some candidates performed less well in the Development stage of the DA. This is particularly the case with the anthropometric data.

## **Areas in which candidates performed well**

In general candidates performed well in the generation of ideas stage of the Design Assignment

## **Areas which candidates found demanding**

Candidates did not leave themselves enough room to adequately develop their ideas. There is still some difficulty with this section for some candidates. Teachers have a very important role in guiding the candidate at the preparation stage before they commence their Design Assignments. Candidates must be encouraged to choose the task carefully so that the topic suits their strengths and gives them the opportunity to perform to their best ability.

Some design tasks allow more creativity aesthetically while other allow for more technical detail and development.

## **Advice to centres for preparation of future candidates**

Ensure that the exemplar material on the SQA website is being used to illustrate the format for the Design Assignment.

The SQA Understanding Standards website is a valuable source of information on assessment procedures.

Centres should bear in mind that there are 10 hours allocated for the Design Assignment.

Teachers have an important role in teaching pupils about planning the structure of a Design Assignment to make best use of the 8 pages available. The choice of topic is also important. Guidance in choosing a topic that will allow the candidate to show their strengths is vital.

Preparation for the written paper must consist of training in examination techniques and acceptable responses. Candidates who have not had practice at writing extended answers are not likely to be able to do so in the final exam. Candidates should be encouraged to discuss and debate so that they can acquire a technical vocabulary that will enable them to give acceptable answers.

## Statistical information: update on Courses

Number of resulted entries in 2008	2122
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Number of resulted entries in 2009	2390
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## Statistical information: Performance of candidates

### Distribution of Course awards including grade boundaries

Distribution of Course awards	%	Cum. %	Number of candidates	Lowest mark
Maximum Mark - 140				
A	13.4%	13.4%	320	98
B	23.1%	36.5%	553	83
C	29.2%	65.8%	699	68
D	13.5%	79.3%	323	60
No award	20.7%	100.0%	495	-

## General commentary on grade boundaries

- While SQA aims to set examinations and create marking instructions which will allow a competent candidate to score a minimum of 50% of the available marks (the notional C boundary) and a well prepared, very competent candidate to score at least 70% of the available marks (the notional A boundary), it is very challenging to get the standard on target every year, in every subject at every level.
- Each year SQA therefore holds a grade boundary meeting for each subject at each level where it brings together all the information available (statistical and judgemental). The Principal Assessor and SQA Qualifications Manager meet with the relevant SQA Business Manager and Statistician to discuss the evidence and make decisions. The meetings are chaired by members of the management team at SQA.
- The grade boundaries can be adjusted downwards if there is evidence that the exam is more challenging than usual, allowing the pass rate to be unaffected by this circumstance.
- The grade boundaries can be adjusted upwards if there is evidence that the exam is less challenging than usual, allowing the pass rate to be unaffected by this circumstance.
- Where standards are comparable to previous years, similar grade boundaries are maintained.
- An exam paper at a particular level in a subject in one year tends to have a marginally different set of grade boundaries from exam papers in that subject at that level in other years. This is because the particular questions, and the mix of questions are different. This is also the case for exams set in centres. If SQA has already altered a boundary in a particular year in say Higher Chemistry this does not mean that centres should necessarily alter boundaries in their prelim exam in Higher Chemistry. The two are not that closely related as they do not contain identical questions.
- SQA's main aim is to be fair to candidates across all subjects and all levels and maintain comparable standards across the years, even as arrangements evolve and change.