

Design & Technology (Graphic Products)

General Certificate of Secondary Education **GCSE 1955**

General Certificate of Secondary Education (Short Course) **GCSE 1055**

Report on the Components

June 2006

1955/1055/MS/R/06

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GCSE Design & Technology (Graphic Products) (Short Course) - 1055

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Chief Examiner's Introduction

The reports for the written examinations should be read in conjunction with Papers 1-4 and the appropriate Mark Schemes.

The Coursework report should be read in conjunction with the Assessment Objectives in the Specification.

The written papers should not be considered as a test of theory recall. They are intended to examine the knowledge and understanding the candidate has acquired through the practical activities of 'designing' and 'making'. It is vital therefore that candidates are able to relate these practical activities to the nature of the examination questions. Candidates need to be familiar with the range of graphic materials and their related construction methods. Increasingly, candidates need to have a knowledge and understanding of appropriate commercial construction and production methods, including print finishing processes employed in the manufacture of commercial graphic products.

It is disappointing that in some centres candidates do not appear to be gaining a knowledge of these commercial production methods.

The questions in the examination papers require the candidates to respond in a variety of ways; for example, using one-word answers, detailed explanations, annotated sketches and accurate drawings. It is important that whichever method is used, candidates try to make their answers as clear as possible and also relate their responses to the number of marks available. Candidates need to have practice in demonstrating technical knowledge learnt through the course and to avoid the use of generalised terms such as easy, cheaper.

The general level of response achieved in the individual papers of this specification shows an improvement. However, there are areas identified in the reports where the candidate's performance could be improved. In particular, there is a general lack of knowledge related to commercial and industrial methods of production for graphic products.

The overall standard of Coursework has also shown some small improvement, although generally standards seem to be reaching a plateau. Although the coursework project is divided into six separate assessment objectives it is important that candidates retain an overall view of the whole 'design and make' process from start to finish rather than seeing it as six hurdles to be overcome. It is important that candidates are able to identify the relevance of research material and subsequently show its use in their design work.

Centres should strive to get candidates to complete their project in 25-30 sheets of A3 paper. All work needs to be focused and limitations on quantity should lead to a rise in quality in the candidate's design activity.

Centres should also strive to ensure that candidates have the opportunity to use CAD/CAM within their project work. Whilst it is accepted that this can involve resource implications for Centres, it is essential for the progress of the specification that this is taken on board by Centres. There is some anecdotal evidence, gained from moderator visits, to suggest that in some centres CAD/CAM equipment is available but students are not allowed to use it and in other centres equipment is simply not being used. It is important that adequate training is available to staff in order for this equipment to be used effectively.

Candidates need to be reminded that they are to design and make a 'marketable' product and that their designs must include a control system that would enable the product to be manufactured as the first of a batch of approximately 50.

1955/1 (1055/1) - Foundation Tier

General Comments

This paper proved to be accessible to all candidates and a good range of responses were seen to all of the questions.

The vast majority of candidates attempted to answer all of the questions and there was no evidence to suggest that they did not have sufficient time to complete the paper.

In many cases candidates demonstrated a good understanding of both the graphical and written requirements of the questions.

There were some inaccurate drawings seen, perhaps as a result of the appropriate drawing equipment not being available or candidates choosing not to use it.

In a good number of cases specific detailed information about materials, commercial practices, the use of ICT and constructional techniques relevant to graphic products was missing in candidates' answers. A number of candidates responded to questions, which included these aspects, using general knowledge rather than by applying an understanding of subject specific knowledge.

It is important that candidates read the questions carefully before they start to produce their answers.

Comments on Individual Questions

- 1 (a) (i) The vast majority of candidates completed the letter E and the letter P with at least some degree of accuracy.
Common errors were to draw the middle bar of the letter E too long and to draw the semi circles freehand. Very few totally freehand answers were seen.
- (ii) A number of candidates failed to attempt this part of the question. Those that completed the rectangle generally produced answers which were within the tolerance allowed and gained the one mark available.
- (b) Most candidates were able to give at least one advantage of using a computer to produce a design which requires the same shape to be repeated several times. Acceptable answers included that it would be quicker, easier, more accurate, that you could copy and paste the drawing and you only needed to draw the image (in this case the star) once.
- (c) Two marks were available for this part of the question. One mark was given for a sketch that showed some form of perforation, for example a broken line. The second mark was awarded if the candidate went on to explain that a perforation consisted of a series of small cuts or holes along the line to be torn. Most candidates gained at least one of the two marks available.
- (d) Only a limited number of candidates correctly ticked the offset litho box. The majority of candidates failed to take into account the large scale of the production run and commonly gave photocopying as their answer.

Report on the Components Taken in June 2006

- 2 (a) (i) This part of the question required candidates to add four additional lines to the drawing. One mark was available for each fold line correctly added using either broken (dotted) lines or the fold line convention. Those candidates who drew solid lines had only a maximum of two of the four marks available to them. Most candidates gained at least two marks.
- (ii) Candidates needed to add two glue tabs correctly (at least 5mm wide with angled ends) to gain one mark. If candidates added all three of the missing glue tabs they gained both of the available marks. Generally this part of the question was answered well.
- (b) Very few candidates identified die cutting as the industrial process that would be used to cut out and score the trays. Many gave the name of a school based process suitable only for producing one offs or small batches. Answers to questions of this type must be appropriate to the scale of production and/or the type of production.
- (c) A large number of correct answers were seen to this part of the question such as double sided tape not being as messy as glue, not having to wait for the glue to dry, the fact that the fixing method could be attached to the tray by the manufacturer and that the assembly of the tray did not require the use of any additional materials.
- (d) This part of the question was generally well answered with many responses showing that candidates understood appropriate factors such as trays in a flat pack form take up less space, they are cheaper to send, less likely to be damaged, cheaper for the manufacturer to produce and easier to transport.
- 3 (a) Many inappropriate suggestions were made as to why it would be an advantage to the user to have information about the car stored on a CD ROM. Advantages needed to relate to factors such as the CD ROM being able to hold very large amounts of information, that it would be possible to include the use of sound and moving pictures and be interactive. It could also provide easy access to specific information. Candidates were better at identifying disadvantages with many correctly stating that people might not have access to a computer or be familiar with how to use a CD ROM.
- (b) (i) While many candidates were able to demonstrate at least some understanding about what the required net would need to look like far fewer were able to draw the net with any real degree of accuracy. The size and/or scale of the octagon was frequently wrong with not many regular octagons being seen. The fold out triangles were often drawn without sufficient regard to the size of the octagon that had been drawn. In questions of this type marks are awarded for correctly interpreting what the net should be like as well as the degree of accuracy with which the net has been drawn.
- (ii) A good number of candidates tried to suggest over complex, inappropriate ways in which the eight triangular flaps could be secured together when they were closed. The most straight forward way of solving the problem was to show a self adhesive sticker placed over the apex of each of the eight triangles. Other workable solutions such as interlocking tabs or Velcro were considered acceptable.

Report on the Components Taken in June 2006

- 4 This was the least well answered question on the paper and clearly demonstrated why it is so important for candidates to read questions both carefully and thoroughly. The question was based around explaining how the given **prototype** invitation would be produced.
- (a) (i) Common errors included using the internet to obtain the photograph or scanning the photograph. A good number of candidates mentioned 'mail merge', which would have been an appropriate part of the final production stage but not for the initial prototype. The word 'edit' was frequently used without any explanation of what was to be done by way of editing. There was lots of long rambling text that frequently still missed the key stages and key words. There were three marks linked to the photograph of the car. These were awarded for explaining that the photograph would best be taken using a digital camera (1 mark). That the image would be transferred to a computer using a method such as a disc, DVD, memory card, cable or USB port (1 mark). The use of a program to manipulate/crop/enhance or re-size the image (1 mark).
- (ii)(iii) Adding the text required at least five key stages and each of these was allocated one mark. The key stages needed to make reference to the text style **Helvetica** being chosen (1 mark), text size of **18pt.** being chosen (1 mark), **centred text justification** chosen for the personalised invitation (1 mark), the appropriate use of **bold** text (1 mark) and the showroom address being positioned using **right justification** (1 mark).
- (b) A large number of candidates did not attempt this part of the question. Only a limited number of those that did make a response were able to demonstrate an understanding of how thermochromic inks change with temperature. Appropriate modifications included the colour of the car, or part of the car such as the lights, changing as the invitation was held.
- 5 (a) While many candidates identified the fact that it would be easier to get the catalogues out of the tray and gained the first mark available fewer gained the second mark by going on to explain why it would be easier. To gain the second mark candidates had to relate the ease of removal to the fact that two of the corners of the tray had been cut away.
- (b) There was evident confusion in some candidates' responses over 'recyclable' and 'recycled' material. Most candidates gained one mark for making reference to 40% but far fewer went on to gain the second mark. Correct answers need to explain that the card from which the tray was made contained 40% (1 mark) of recycled material (1 mark).
- (c) While many candidates showed at least some understanding of a slot and tab fixing few produced a fully workable solution that would securely join the corners and not be easily pulled apart. If any slot was shown one mark was given, any form of tab gained one mark. If a 'locking' tab was shown a further mark was awarded and if the tab was longer than the slot therefore ensuring a secure fixing method the fourth mark was gained.
- (d) Many of answers presented did not look at the disadvantage from the manufacturers' point of view. Appropriate answers needed to relate to the fact that the design would be more expensive/difficult/harder to produce (1 mark) because it was a more complex design (1 mark).

1955/2 (1055/2) - Higher Tier

General Comments

This paper proved to be accessible to all candidates and a good range of responses were seen to the questions.

The vast majority of candidates attempted to answer all of the questions and there was no evidence to suggest that they did not have sufficient time to complete the paper.

Almost all candidates were able to demonstrate some understanding of both the graphical and written requirements of the questions.

There were some inaccurate drawings seen, perhaps as a result of the appropriate equipment not being available or candidates choosing not to use it.

In a good number of cases specific detailed information about materials, commercial practices, the use of ICT and constructional techniques relevant to graphic products was missing in candidate's answers. Some candidates responded to questions, which included these aspects in a general knowledge way rather than by applying an understanding of subject specific knowledge.

It is important that candidates read questions carefully before they start to produce their answers.

Comments on Individual Questions

- 1 This question was answered better than on the Foundation Tier paper but never the less still clearly demonstrated why it is so important for candidates to read questions both carefully and thoroughly. The question was based around explaining how the given **prototype** invitation would be produced.
 - (a) (i) Common errors included using the internet to obtain the photograph or scanning the photograph. A good number of candidates mentioned 'mail merge', which would have been an appropriate part of the final production stage but not for the initial prototype. The word 'edit' was frequently used without any explanation of what was to be done by way of editing. There was lots of long rambling text that frequently still missed the key stages and key words. There were three marks linked to the photograph of the car. These were awarded for explaining that the photograph would best be taken using a digital camera (1 mark). That the image would be transferred to a computer using a method such as a disc, DVD, memory card, cable or USB port (1 mark). The use of a program to manipulate/crop/enhance or re-size the image (1 mark).
 - (ii)(iii) Adding the text required at least five key stages and each of these was allocated one mark. The key stages needed to make reference to the text style **Helvetica** being chosen (1 mark), text size of **18pt.** being chosen (1 mark), **centred text justification** chosen for the personalised invitation (1 mark), the appropriate use of **bold** text (1 mark) and the showroom address being positioned using **right justification** (1 mark).

Report on the Components Taken in June 2006

- 2 (a) While many candidates identified the fact that it would be easier to get the catalogues out of the tray and gained the first mark available fewer gained the second mark by going on to explain why it would be easier. To gain the second mark candidates had to relate the ease of removal to the fact that two of the corners of the tray had been cut away.
- (b) There was evident confusion in some candidates' responses over 'recyclable' and 'recycled' material. Most candidates gained one mark for making reference to 40% but far fewer went on to gain the second mark. Correct answers need to explain that the card from which the tray was made contained 40% (1 mark) of recycled material (1 mark).
- (c) While many candidates showed at least some understanding of a slot and tab fixing few produced a fully workable solution that would securely join the corners and not be easily pulled apart. If any slot was shown one mark was given, any form of tab gained one mark. If a 'locking' tab was shown a further mark was awarded and if the tab was longer than the slot therefore ensuring a secure fixing method the fourth mark was gained.
- (d) Many of answers presented did not look at the disadvantage from the manufacturers' point of view. Appropriate answers needed to relate to the fact that the design would be more expensive/difficult/harder to produce (1 mark) because it was a more complex design (1 mark).
- 3 (a) The majority of candidates were able to give at least one reason why the lift up flap would make the flyer more expensive to manufacture. These reasons included the fact that it would require more materials that more processes would be involved and manufacture would take longer. A number of repeat answers were seen where the candidate gave the same response using slightly different words. In these situations credit was only given for one of the reasons
- (b) This was well answered with many candidates gaining both of the available marks. Appropriate reasons why it would be an advantage to the car manufacturer to have the lift up flap on the flyer included making the flyer more likely to attract peoples' attention, the flap would make the flyer more interesting, people would be curious to see what was underneath and that it provided more space for printing information.
- (c) In general this part of the question was poorly answered. Only a limited number of candidates correctly named the industrial process of cutting out the flyers as die cutting. Many candidates gave answers such as craft knives and scissors, processes which are only suitable for 'one off' or making small numbers as a 'batch'. Candidates must have a knowledge of both school based and industrial processes
- (d) Candidates' ability to draw an accurate ellipse varied centre by centre. This common geometrical construction appears on many examination papers but still a high proportion of candidates were unable to draw the required curve with any real degree of accuracy. The flap was generally well drawn and credit was given for this even if the ellipse may not have been correct.

Report on the Components Taken in June 2006

- 4 (a) Many candidates demonstrated an understanding of the construction of corrugated plastic by producing sketches that showed the outer layers and the corrugations of the material. Both 2D and 3D sketches were acceptable
- (b) Many unclear and inappropriate answers were seen to this part of the question. A good number of candidates suggested that this type of plastic needed to be heated in order to bend it. Some simply stated that it was plastic and therefore hard to bend. Only a very limited number of answers correctly stated that the material was difficult to bend across the corrugations.
- (c) The required net was generally completed to a good standard. There was one mark available for drawing each of the three missing parts, the reversed letter E, the fold over section and the tab.
- (d) Many candidates were able to draw a letter P in isometric form and therefore gained the first mark available. Most of these were able to progress by adding depth to the letter and as a result gained a second mark. Fewer candidates were able to show an appropriate way of joining the two sides of the letter P using the method of construction shown on the given letters. A good number of candidates failed to gain the mark available for the proportion and style of the P being the same as the given letters.
- 5 (a) This part of the question was generally answered well with most candidates' responses addressing most or all of the specification points. In order to gain the marks candidates needed to show a suitable one piece net for their design (1 mark), an appropriate window/s large enough to show most of the model car (1 mark), an appropriate method that would allow the packaging to hang from a display hook (1 mark) and a method that would allow the box to open and close. The most commonly missed part was the opening/closing method with frequently just the word 'lid' put on the sketch. A lot of inappropriate methods of hanging the box were seen such as pieces of string and holes for a crane type hook. In some cases extra pieces had been added to what should have been 'a one piece net'.
- (b) Some very good answers were seen. Candidates' answers needed to show a suitable net that would join together to hold the model car (1 mark), all of the fold lines clearly identified (1 mark), fold in flaps that were bigger than glue tabs (1 mark), appropriate number of glue tabs (1 mark), window drawn in an appropriate position and to an appropriate size (1 mark) appropriate hanging method that used no additional material (1 mark). Most candidates drew a suitable net and window. A number of errors concerning size were seen where the different sides of the box would not have joined together. A good number of candidates failed to clearly identify the fold lines, glue tabs and fold in flaps. Many candidates failed to make the fold in flaps large enough and quite a few failed to include a method that would enable the box to hang.

1955/3 - Foundation Tier

General Comments

It was generally felt that candidates were entered for the appropriate tier.

The majority of candidates were able to complete all five questions on the examination paper. In addition it was pleasing to see that the majority of candidates completed most parts within each question.

Whilst the number of questions involving the use of formal drawing techniques has reduced in this Specification it is still important that candidates have access to suitable drawing equipment in the examination room.

Candidates also need to be well prepared for the questions involving sketching and design skills. Well executed and legible design sketches and notes will improve candidate access to the higher mark allocation within this type of questions.

The level of response demonstrated in written questions has shown some improvement. Fewer candidates use very simplistic language such as saying a process is cheap, quick or easy without any justification or reason as to why this is the case. There was little evidence this year of candidates proposing solutions using resistant materials.

Comments on Individual Questions

- 1 (a) The majority of candidates drew a six sided figure on the given starter line, however few of these were accurately drawn.
A minority of responses considered the thickness of the corrugated board in their responses.
 - (b) The large majority of candidates correctly ticked hexagon as the name for the shape drawn in (a).
 - (c) (i) Most candidates correctly completed the six sides of the development to the required degree of accuracy.
Many candidates drew their responses without the use of a drawing board, simply using a ruler.
Fold lines were generally shown in an acceptable way, however a few used a solid line, therefore not differentiating between a cut and a fold line.
 - (ii) Most candidates were able to show a suitable glue tab or slots and tabs; a considerable number of candidates failed to answer this part.
 - (iii) The position of the cut out hole was almost always in the correct position, and because of its small size was within tolerance to gain the two marks available.
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- 2 (a) A high percentage of candidates correctly identified embossing as the correct process for raising the sun 2mm above the surface of the box.

- (b) Many candidates gained at least one of the two marks available by showing some form of raised surface. To gain the second mark it was necessary to correctly add the relief to at least one of the three rays.
 - (c) (i) Many candidates were unable to give the correct diameter of the circle as 50.
There was a lot of confusion between centimetres and millimetres and also between diameter and radius measurements
 - (ii) Many candidates were able to correctly identify the line tool.
Whilst many made reference to variations of a line going the centre, few made reference to the fact that it also had to be a horizontal line.
 - (iii) This part of the question was generally well answered, with most candidates correctly drawing the semi-circle and gaining all three marks.
- 3
- (a) (i) Candidates were asked to complete the front view of a card box.
Many candidates failed to correctly draw the required semi-ellipse.
Few were able to demonstrate any degree of knowledge of the construction of an ellipse.
 - (ii) In this part of the question, candidates had to project an end view of the box, including the edge of the lid and the closing tab.
Many drew the tab at the very top of box. Many of the semi circles were drawn freehand and/or to the wrong size.
- (b) Many candidates identified the correct thickness of the card as 300 microns.
 - (c) Candidates were required to select the most appropriate printing method for 300,000 and also 20.
These extreme quantities were selected with the hope of directing the candidates to offset litho for the larger quantity and either screen printing or colour photocopying for the 20 quantity.
Responses varied with some evidence to suggest that many candidates simply guessed their answers.
- 4
- (a) Whilst many candidates gave correct variations on 'centred' as their answer, a large number simply made reference to a text style; misunderstanding the term 'alignment'.
 - (b) Most candidates were able to draw a rectangle, but a good number were not in the correct position around the farmyard image.
Some candidates drew a frame around the whole screen showing a total lack of knowledge of the term 'picture frame' in the context of DTP.
Some drew actual handles rather than resizing grips.
Some candidates drew angle lines around the farmyard and put handles on it ending up with something which resembled a tea tray.
- (b) Many disappointing responses were seen to this question, where candidates simply repeated information already given in the question.

Report on the Components Taken in June 2006

Correct responses usually related to the need to change colours, tone, lighting, or to resize the image.

- (c) Responses were very mixed with few gaining all four marks.
Few candidates were aware of the correct planometric angles of 45/45 or 30/60.
Many candidates did correctly identify some form of colouring medium, such as pencils or markers.
The most popular response for the 3D software was Prodesktop, although Techsoft 2D Design was also considered correct along with industrial software packages such as Solidworks
Most candidates were able to identify that rendering software could be used to add some form of tone, texture etc to the drawing.

- 5 This product analysis question was based on the packaging of light bulbs. Pre- release material is provided to centres and gives clear guidance of the aspects to be covered in this question. Despite this it was evident that many candidates were ill prepared for some of the specific content of this question, although there was more evidence than in previous years that candidate's had been given some appropriate input. Centres would serve their candidates best by spending a few lessons prior to the examination studying in detail the content of the pre release material. It is appropriate for teachers to produce material for their candidates and little benefit is served by simply making them aware of the content and then leaving any research up to the individual candidates.

Centres were candidates had looked at different forms of packaging were clearly at an advantage and this was evident in their responses to this question.

- (a) A wide variety of responses were seen to the requirement to draw a symbol of a long life bulb.
Some candidates simply copied the given pictorial view freehand, whilst the best responses were instrument drawn, using separation techniques for the three elements of the bulb, and using the proportions of the given drawings.
- (b) Again a very wide variety of responses were seen to this part of the question.
The best responses were those where isometric exploded detail was added to the given drawing showing some form of additional card inserts which would both stop the bulbs touching each other and also prevent them from moving in the outer box.
Many candidates wasted time by simply adding graphics to the exterior of the carton.
- (c) Most candidates correctly identified that the bulbs would be able to be seen through the clear plastic blisters.
- (d) A reasonable number of candidates correctly gave vacuum forming or moulding as the process used for producing the blisters, but blank spaces and incorrect responses were much in evidence. This is surprising as the theme sheet and bullet points made clear reference to this process and candidates should have been aware of its likely appearance in some form within this question.

1955/4 - Higher Tier

General Comments

It was generally felt that whilst the majority of candidates were entered for the appropriate tier, in some cases candidates would have achieved much higher marks on the foundation tier.

The majority of candidates were able to complete all five questions on the examination paper. In addition it was pleasing to see that the majority of candidates completed most parts within each question.

Whilst the number of questions involving the use of formal drawing techniques has reduced in this specification it is still important that candidates have access to suitable drawing equipment in the examination room.

Candidates also need to be well prepared for the questions involving sketching and design skills. Well executed and legible design sketches and notes will improve candidate access to the higher mark allocation within this type of questions.

Centres should be encouraged to prepare their candidates for the 'newer' aspects of the specification, particularly in relation to commercial production methods and materials used in the manufacture of graphic products.

Geometrical constructions method such as the ellipse must be taught to all candidates.

On the higher tier candidates need to be aware that the level of response required to achieve a particular mark is higher on the later questions on the paper.

Comments on Individual Questions

- 1 (a) Whilst many candidates gave correct variations on 'centred' as their answer, a large number simply made reference to a text style; misunderstanding the term 'alignment'.

- (b) Most candidates were able to draw a rectangle, but a good number were not in the correct position around the farmyard image.
Some candidates drew a frame around the whole screen showing a total lack of knowledge of the term 'picture frame' in the context of DTP.
Some drew actual handles rather than resizing grips.
Some candidates drew angle lines around the farmyard and put handles on it ending up with something which resembled a tea tray.

- (d) Many disappointing responses were seen to this question, were candidates simply repeated information already given in the question.
Correct responses usually related to the need to change colours, tone, lighting, or to resize the image.

- (e) Responses were very mixed with few gaining all four marks.
Few candidates were aware of the correct planometric angles of 45/45 or 30/60.
Many candidates did correctly identify some form of colouring medium, such as pencils or markers.

Report on the Components Taken in June 2006

The most popular response for the 3D software was Prodesktop, although Techsoft 2D Design was also considered correct along with industrial software packages such as Solidworks

Most candidates were able to identify that rendering software could be used to add some form of tone, texture etc to the drawing.

- 2 This product analysis question was based on the packaging of light bulbs. Pre- release material is provided to centres and gives clear guidance of the aspects to be covered in this question. Despite this it was evident that many candidates were ill prepared some of the specific content of this question, although there was more evidence than in previous years that candidate's had been given some appropriate input. Centres would serve their candidates best by spending a few lessons prior to the examination studying in detail the content of the pre release material. It is appropriate for teachers to produce material for their candidates and little benefit is served by simply making them aware of the content and then leaving any research up to the individual candidates. Centres were candidates had looked at different forms of packaging were clearly at an advantage and this was evident in their responses to this question.
- (a) A wide variety of responses were seen to the requirement to draw a symbol of a long life bulb.
Some candidates simply copied the given pictorial view freehand, whilst the best responses were instrument drawn, using separation techniques for the three elements of the bulb, and using the proportions of the given drawings.
- (b) Again a very wide variety of responses were seen to this part of the question. The best responses were those where isometric exploded detail was added to the given drawing showing some form of additional card inserts which would both stop the bulbs touching each other and also prevent them from moving in the outer box. Many candidates wasted time by simply adding graphics to the exterior of the carton.
- (c) Most candidates correctly identified that the bulbs would be able to be seen through the clear plastic blisters.
A reasonable number of candidates correctly gave vacuum forming or moulding as the process used for producing the blisters, but blank spaces and incorrect responses were much in evidence. This is surprising as the theme sheet and bullet points made clear reference to this process and candidates should have been aware of its likely appearance in some form within this question.
- 3 (a) Most candidates were able to draw the outline cuboid for the assembled isometric view of the desk tidy.
The 'raised' curve and the 'recessed' curve, however, were often drawn either totally freehand or as a semi-circle using a compass. A limited number of candidates used an appropriate construction method for the isometric curves which were accurate to the overlay.
The majority of candidates correctly identified the correct orientation of the drawing.
- (b) Surprisingly few candidates were able to identify a suitable card thickness within the range 200 -500 microns.

Report on the Components Taken in June 2006

Many candidates correctly gave die cutting as an appropriate cutting and creasing method.

- (c) Most candidates were able to understand how the two pieces of card needed to slot together.

Most drew only a 2D view and often the length of slots was not appropriate.

Generally the standard of sketching was poor or the answer was drawn with instruments.

- 4 (a) (i) Most candidates were able to draw a net that would fit together to make the tray. However, the top section of the tray which included the semi-ellipse was frequently poorly drawn. The majority of candidates drew the curve totally freehand with no attempt to use an appropriate construction method. It was pleasing to see that some candidates that had used a trammel to construct the ellipse had attached the trammel to their exam paper.
- (ii) Whilst a reasonable number of candidates drew slot and tab fixing, they were often of a design which would not have held the sides securely.
- (iii) Whilst most candidates identified the fold lines on the net, few used the correct convention, which has now been used on the exam questions for a number of years.
- 5 (a) (i) A reasonable number of candidates were able to identify a suitable flexible material for the window. Some incorrectly stated acrylic or just thin plastic.
- (ii) Whilst many candidates drew a hexagon in the correct position on the lid few took account of the curved nature of the surface.
The quality of sketching for this final question was poor.
- (b) Most candidates were able to show the box lid squashed down, but failed to show the two sides pushed out.
Few candidates used the style of the first diagram in the design of their answer.
Very few candidates used arrows to help indicate the forces on the box.
- (c) In general this final part of the paper was poorly answered, with many candidates demonstrating a poor level of design communication.
There was still some small evidence of the inappropriate use of metal and wood in some candidates answers. Few candidates were able to adequately propose a suitable design and gain the 4 marks available.

1955/5 (1055/3) - Internal Assessment

Overview

Most of the work undertaken by candidates was appropriate for the OCR D&T: Graphic Products specification. It is clear that there are many very talented students, producing excellent work in Centres where they have received commendable guidance from their teachers. However, moderators have reported a noticeable increase in the number of non subject specialist teachers being used to deliver this specification and this has generally had a negative effect upon the performance of candidates within Centres so affected.

Moderators have reported that Centres are acting positively on advice given in previous years and at OCR INSET events. It is pleasing to report that the majority of Centres are ensuring that candidate's design and manufacture three-dimensional products from compliant graphic materials as outlined in the specification.

As Graphic Products carries the prefix "D&T", coursework projects submitted for this specification must culminate in a three-dimensional outcome. 2D outcomes such as posters, menus, music CD or DVD covers and inserts, are not acceptable; neither are booklets, leaflets or greetings cards, unless the latter contain some form of card mechanism. Similarly, Centres need to differentiate whether a project is suitably challenging for a KS4 student nearing the end of their Secondary studies - or more suited to a KS3 mini-project.

Again, there has been evidence of unrealistic marks being awarded by Centres. A significant number of Centres had marked the coursework outside the agreed tolerance when compared to the OCR standard. Some Centres had assessed candidates inaccurately to the extent of over 20 marks. Unrealistic assessments often resulted from a lack of understanding of the assessment criteria.

Centres are reminded that the OCR GCSE Design and Technology mark scheme is based upon a system of numerical values rather than grades. Each numerical value is directly related to a description of an activity undertaken by the candidate that relies upon evidence being clearly presented within the folder, or clearly evident in the modelling and the final prototype product. Centres should ensure that evidence to justify the marking is readily accessible. Those Centres who made available some form of annotation for the sample to explain how marks had been awarded contributed to a successful moderation.

The number of Centres being reported as awarding marks when there was no clear evidence within any of the activities undertaken by the candidate to justify those marks, has fallen slightly this year. Disturbingly, moderators have reported instances of marks being awarded for Objective Five, outside of the Planning mark, when there was no evidence of any practical work.

The number of Centres that allowed candidates to produce products that were not functioning prototypes and were not suitable for quantity (batch) production, remains a concern. Projects that result in a 'One-off' type of outcome do not meet the requirements for the current specification. Typical unsuitable examples are the 'Shop Front' corporate identity and 'Interior Design' style of project; a number of 'Sports Stadiums' were also reported. Teacher guidance on topic and content in the early stages of the coursework project continues to make a significant contribution to the success of candidates.

A small number of Centres are still allowing their candidates to follow projects that are more suited to a Resistant Materials course. Centres are reminded that such non-compliant

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materials are only acceptable when used in a supporting role and should not be the dominant type of material used in work submitted for a Graphic Products course.

New technologies continue to have an impact upon the work submitted by candidates and the use of Laser Cutters has been most evident this year. While Centres should embrace such new developments, their use must still be balanced against the requirements of the current specification. A number of Centres failed to recognise that Laser Cutters are excellent at cutting, scoring and engraving compliant materials, and their candidates submitted artefacts made entirely out of materials that cannot be classed as compliant, for example thick acrylic sheet. Similarly, Centres who have successfully followed OCR D&T: Graphic Products for a number of years confounded their moderators by suddenly changing tack and producing projects - the most common example being Clocks - made wholly out of Resistant Materials, produced using a Laser Cutter.

When using CAD and CAM, candidates must show evidence of their understanding of both the software and hardware, and how they can be utilised to help in the execution of high quality designing and making. Too often moderators have reported instances of CAM produced artefacts (2D and 3D) suddenly 'appearing' with no supporting evidence in the candidates' design folios.

ICT should be used appropriately to aid candidates in their designing and making; Centres are advised to ensure candidates fully appreciate the term 'appropriate' within the context of their chosen project. The range of use of ICT varied from excellent through to non-existent; Centres should ensure their students have some access to ICT facilities.

Evidence of excessive teacher guidance was again noted in a number of Centres this year. Teachers need to take greater care when making the distinction between guidance and *prescription*. In such cases individual ability can be hard to assess and moderators found it difficult to justify the marks awarded by the Centre.

Centres are reminded that there are a number of subject-specific support systems in place to aid teachers in the delivery of this specification, ranging from written advice on coursework proposals, to dedicated telephone numbers, and to a full programme of In-Service Training meetings.

Administration

Administration by Centres prior to the moderation visit was reported as a major cause for concern by many moderators. Moderators have reported speaking to Centre staff, sending confirmatory letters and faxes, but on arrival for the visit have been unexpected by the actual teaching staff concerned. Voice-mail systems would appear to be a particular problem. Centres are requested to ensure adequate communication is maintained within the school and that administrative staff are aware of the importance of moderation.

Centres are reminded that the moderator should be given a quiet area to carry out their task, where they will be uninterrupted by both students and staff of the Centre. The majority of Centres are to be congratulated on their ability and willingness to help ensure the moderation visit ran smoothly.

Internal moderation in Centres was not always effectively carried out which created problems when trying to justify the rank order of candidates' marks. The attention of Centres is drawn to the fact that this very important process must be carried out with due care and sufficient time allocated to the task.

Report on the Components Taken in June 2006

The generic Coursework Summary Form (CSF), which includes the breakdown of marks for Objective 5 into its four component parts, was generally used correctly. This form is also available online in an Excel format to automatically calculate the addition of marks and has generally led to fewer errors. However, where manual calculation has been used, a high number were completed incorrectly, the vast majority of errors being incorrect additions. The new CSF includes a check column to be ticked to indicate that Centres have confirmed the calculations; unfortunately, many errors were still evident. The transfer of marks between CSF and MS1 produced a greater number of errors. Obviously more care is required here.

The majority of Centres used the Centre Authentication Form for Coursework (CCS160) correctly. Centres are reminded that the teacher(s) responsible for carrying out the internal assessment must complete one Centre Authentication Form for Coursework and post this to the moderator with the MS1 and CSF. Each candidate must complete one Candidate Authentication Statement and include this within their coursework. A small number of Centres failed to make the Centre Authentication Form for Coursework available.

Centres are advised to carefully check that the above forms are completed correctly, to liaise closely with their examinations officer when completing these documents and if in any doubt, to contact OCR for guidance. It would be helpful if Centres used the correct and current forms.

A number of Centres are still failing to send a copy of the completed CSF form(s) to the moderator along with the Moderator Copy of the MS1. This inevitably leads to delays in the moderation process, as does the late posting of moderation paperwork to the visiting moderator.

Centres are reminded that there is a full range of documentation, including downloadable forms and other subject specific support materials, on OCR's website: www.ocr.org.uk

Content

The specification clearly states that candidate's projects should represent a maximum of 40 hours work (20 hours short course). Guidance to Centres has been that this can be accomplished with a target of 25 sheets (12 – 15 short course) of A3 paper providing the work is concise and that candidates edit the content. Very few instances of projects with excessive sheets of A3 paper have been reported this year.

There remain a small number of Centres who are allowing their candidates to spend an inordinate amount of time on elaborate sheet layouts and the use of large font sizes, often at a cost to the content.

Centres should guide their candidates into ensuring all of the content for their coursework is relevant.

Performance of Candidates in Assessment Objectives

The more successful candidates showed evidence of having used the Internal Assessment mark scheme as printed in the specification along with the Internal Assessment Comment Sheets as published in the OCR Teacher Guide for Design and Technology. As already noted, teacher guidance played a great role in the success of candidates.

Centres are reminded to determine the amount of time that they allow for candidates to work on each Assessment Objective by considering carefully the number of marks that the Objective carries in comparison to the total score of 105 marks.

Centres are advised to encourage candidates to cut down Objective 2 and to extend the work evidenced for Objectives 4 and 6. All Centres are asked to ensure that candidates spend sufficient time on Objective 5 by bearing in mind that this Objective alone accounts for half of the total marks available.

Assessment Objective One

This Objective is very important in providing a good starting point for candidates and teacher guidance, with intervention where appropriate, at this early stage helps the candidate steer the project towards an achievable outcome that meets the requirements of the current specification. In particular, the need for a three-dimensional outcome made from compliant materials.

The content of this Objective should be relevant and concise. This year a number of moderators reported an increase in the use of 'mood boards' that contain little relevant information or imagery pertinent to the situation. Frequently, the mood board was little more than a collection of cut and paste images with no description, evaluation, analysis nor conclusions being drawn, and was therefore not worthy of any credit.

A few Centres are still allowing candidates to work to unrealistic briefs; the more successful candidates clearly identified a real need for a real user or client. Some challenging briefs were evident where candidates had been encouraged to explore real life contexts. The attention of Centres is drawn to the list of exemplar outline tasks given in the 1955/1055 Specification.

Candidates clearly need guidance on the structure of Objective One and reminding that the brief should be clear, concise and precise. Design briefs are improving but too many still fail to include the need for a marketable product capable of being produced in quantity.

Many candidates are still spending too much time on this Objective for the four marks available.

Successful candidates gave examples of the range of users and the user's needs (*rather than the candidates*), and the target market, using evidence in the form of photographs, graphs/charts and diagrams to clearly describe the situation and need for design. They identified and described a target user or user group. They briefly analysed the information gathered before using this to generate a concise Design Brief that clearly identified the product, user(s) and target market, and highlighted the production of a marketable prototype product capable of quantity (batch) manufacture.

Assessment Objective Two

Candidates continue to spend too much time on this Objective and producing considerably more, frequently irrelevant work, than is required for the twelve marks available. Three or four sides of A3 paper containing edited relevant, coherent, and concise work should suffice.

Candidates need to *plan* their research if they are to produce relevant, coherent, concise and appropriate work. Many instances of compartmentalised work with little understanding of the integral nature of Objective Two were seen. Candidates should include evidence of primary as well as secondary research and would benefit from guidance as to whether work is relevant to this Objective, or would be better suited to Objective Four.

Questionnaires remain one of the most common activities evident in this Objective, but many questions (and whole questionnaires) are still being used that have no relevance to the brief, frequently being very general in nature. The vast majority of graphs and charts evident are now produced using ICT and generally they are being edited, sized appropriately, and some used concisely. Analysis of the results of questionnaires or surveys is often shallow and conclusions drawn are not always used in the Design Specification. It must be impressed upon candidates that it is the analysis of the results and conclusions drawn that gains credit.

Evaluating and analysing existing products would appear to be very reliant upon downloaded or cut and paste images rather than 'hands-on' detailed testing, observation and disassembly. It is very important that candidates realise that they should focus on how existing products meet the users' needs. There was much evidence of product analysis work being restricted to labelling and basic descriptions of the appearance of the product rather than investigating and analysing aspects such as materials, construction, production techniques, target market for the product, etc. Candidates should be encouraged to use higher scoring analytical and evaluative comments.

Product analysis often contains a great deal of irrelevant material, for example candidates designing a Point of Sale display to hold a music CD often collect a great deal of material about the music and the band, but will fail to collect and analyse basic information about the CD case such as its physical dimensions or how the PoS is to be distributed. Teacher guidance and intervention is very important here.

Many candidates continue to collect copious quantities of material and data, and then fail to analyse it, draw conclusions or make any useful reference towards it in the development of the Design Specification. Candidates are advised to provide a clear link between their research and the Design Specification by analysing all of their findings and drawing conclusions that will subsequently form part of their Specification.

Design Specifications continue to improve and most candidates made reference to producing their product in quantity. However, many Specifications appear to be generic and many are superficial, being applicable to almost any product. Candidates need reminding that this Objective should give direction to and aid their design work, and Centres should be aware that a good Design Specification is essential to scoring highly in all the remaining Objectives. The better Design Specifications seen were open in nature and so provided a framework to aid creative design work.

Successful candidates planned their research. They identified and carried out research into the needs of a range of possible users, and fully analysed and evaluated appropriate existing products. They used ICT to find or contact other sources, to help sort, analyse, edit and communicate their results, and to keep their work concise. They explored the facilities

available to them in their Centre to manufacture more than one product. They were very selective about what to include and produced work that had great depth, with all findings analysed and evaluated. They drew conclusions from all this work and incorporated them into a structured, detailed, bullet-point Design Specification that included reference to a system to ensure control over the production of the product in quantity.

Assessment Objective Three

Objective Three continues to be the most accurately marked; the range of techniques and media used varied widely but was generally accurately assessed. Most moderators felt that the actual quality and range of graphic work, graphic techniques and graphic ability has fallen when compared with previous years.

Graphic ability and the skills to successfully utilise a range of graphic media and techniques, remain core to this qualification. Many moderators felt that the teaching of basic drawing and graphic communication skills has been neglected in the rush to adopt new technologies. There were some instances reported of work for this Objective being relegated to a mainly text-based exercise with scant evidence of drawing and sketching.

Centres are advised to ensure their candidates are equipped and fluent with a range of graphic skills and experience, and have access to, a range of graphic media. Candidates should be encouraged to initially explore pencil sketches and generate a range of free-flowing ideas in the first instance. There was some evidence of design work demonstrating preconceived solutions; this limits the credit that the candidate can be given.

Many Centres are still producing work with the formulaic approach of drawing a fixed number of ideas and then selecting one or two to consider as the best solution, with minimal development. This can lead to unresolved design issues and poorly developed solutions. Annotation by the candidate and particularly critical evaluation of ideas/solutions continues to be an area where candidates would benefit from greater guidance. If candidates are to score highly, there must be evidence that they have used their design specification in the generation and subsequent development of their design solutions. Many candidates are failing to justify their final choice of design proposal and to evaluate it against their design specification.

Candidates could improve their response by taking a more holistic view to their designing instead of concentrating on one aspect of their product. For example, candidates who are designing items such as pop-ups and CD/DVD packaging are tending to focus more on the graphics to be applied onto the product than the product itself. More attention to and focus upon the possibilities for construction of potential prototypes should be encouraged.

Centres are reminded that there are marks within this objective for communication that uses a "wide range of appropriate techniques" and Centres' attention is drawn to the range of communication techniques listed in the current 1055/1955 Specification. Moderators have reported a predominance of either totally ICT, or pencil crayon rendering on freehand three-dimensional sketches. Candidates who have used a limited range of techniques should be given limited credit.

The use of ICT and particularly CAD continues to improve, and many candidates who had access to such facilities produced work of a very good standard using a range of software. Centres are reminded that good graphic, freehand and formal drawing skills are still fundamental to the written examinations.

At the end of this Objective, the final chosen design proposal should be clearly presented, described and evaluated against the Design Specification. It should be clear as to why this proposal was chosen. This is clearly stated in the mark scheme.

Successful candidates produced a range of rough, initial pencil-sketch ideas, which could then be explored and developed into a workable solution. They used a wide range of freehand and formal graphical techniques to communicate their ideas, which they evaluated against the Design Specification. They used ICT appropriately to enhance, develop and communicate their designs. They produced simple 2D and 3D models to justify decisions about size and form. They annotated, evaluated and discussed their proposals to ensure their chosen solution was fully developed and resolved. They skilfully used a range of graphic media to present their chosen design proposal on a separate sheet of A3 paper and fully justified their choice with reference to their Design Specification and the users needs.

Assessment Objective Four

This is an area where Centres are successfully guiding candidates in how to improve the content of their work and so gain greater credit. However, it remains the Objective that requires a great deal of teacher guidance and more importantly, a clear understanding of the aims of the specification. Moderators have commented that many Centres still encourage candidates into *design development* rather than *product development*. All design development should take place in Objective Three - Objective Four should be concerned with turning the design proposal into a prototype product suitable for quantity manufacture.

Although evidence of materials testing was seen in most folders, this tended to be of a general nature and on occasion unrelated to the product. Higher scoring candidates carried out more specific tests appropriate to their product. Information copied, photocopied or downloaded on the theory of industrial processes is still relied upon by many candidates, yet is worthy of very limited credit if conclusions are not drawn from it.

Two and three-dimensional model making and testing was much more evident than previously, but the testing of the models and subsequent drawing of conclusions remains lacking. Part and detail modelling was also generally weak. Many candidates fail to relate what they have learnt from their model making to the actual manufacture of their product and final choice of materials and construction methods. Candidates should be encouraged to see model making, testing and trialling as an essential part of a design and make activity, and record and analyse the results of their tests.

Limited evidence was seen of candidates considering and exploring the possibilities of school-based technologies to manufacture a batch of their prototype product, or of tackling the problem of quality control through the use of jigs, templates, etc. It would appear that many Centres are ignoring the requirement for a control system to produce the product in quantity and consequently losing marks.

There was good evidence of the use of ICT in many Centres to model and communicate ideas but moderators reported limited evidence of presentation drawings, dimensioned working drawings and formal production drawings. These should be present in all Graphic Products candidate's folders, whether produced by hand or by CAD.

Reviews and revisions of the original design specification, and Final Product Specifications were evident in some candidates work and are to be encouraged if candidates are to score highly in Objective Five.

Successful candidates produced a range of full or part models to test their design proposal. They explored the materials, tools and equipment available to them in their Centre, tested and evaluated their suitability for their prototype product, and then justified their final selection. They tested materials through modelling (sometimes to destruction) and recorded the evidence through photographs, nets (developments), etc. Small-batch systems of manufacture, i.e. templates, stencils or simple jigs, had been designed and produced, tested for effectiveness and then evaluated. They made reference to their Design Specification and Design Brief to check their proposal.

Any modifications to the design proposal brought about by this testing were recorded and evaluated, before the final design proposal was drawn out accurately and fully dimensioned. At this point they successfully incorporated Industrial Processes into their work by considering the consequences of higher volumes of production should a major manufacturer take up their prototype product. They used ICT appropriately to model, test and communicate their proposal.

Successful candidates then reviewed and analysed all of their findings from Objective Four and considered their original Design Specification in the light of these findings. They then produced a Final Product Specification to guide them in the manufacture of their prototype product.

Assessment Objective Five

As with Objective Three, many moderators reported a decline in the depth, breadth and quality of work seen this year. There was some outstanding work seen, but this was unfortunately in the minority. Once again, the work produced for this Objective caused the greatest number of differences between the Centre's marking and OCR's agreed standard. It would appear that a plateau of quality has been reached, even though the impact of new technologies and equipment in Centres should be raising the quality of work produced.

Centres are generally marking too leniently, particularly where the outcome is of reasonable or poor quality. Many Centres continue to find it difficult to objectively judge the quality of their candidates' prototype products and more rigorous marking of work should be undertaken in this Objective. Many Centres are reported as marking 'reasonable standard' work as 'good standard' and marking 'good standard' work as 'high quality'. Complexity of outcomes is also an issue which has been poorly interpreted by a number of Centres, especially when candidates have chosen the theme of pop-ups or packaging. For example, a simple, basic, rectangular box cannot be considered a challenging task for a KS4 student and should be marked accordingly. Many instances were noted of outcomes more suited to KS3 work.

At this stage of a candidates work, all design features should be resolved but there was evidence of candidates apparently having to consider basic constructional details during the actual making of the prototype product. Such activities should have been researched during Objective Two, designed during Objective Three and modelled, tested and finalised in Objective Four. Moderators are still reporting work that appears in this Objective with no preceding evidence of any design activities having taken place.

Centres are reminded that the outcome should be a *high quality* prototype product, whose manufacture has been *planned* and *recorded* in *detail*. Candidates must be given clear guidance about what constitutes a *high quality* graphic product.

Planning in this Objective continues to be very variable in both amount and content. Basic items such as cutting lists and materials lists are still frequently absent; some folders still lack

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any indication of sizes. Good, careful planning is more likely to produce the high quality product that this Objective requires. Candidates should be encouraged to ask themselves the question: "Could someone make my product from the details I have provided?" It is expected that to score the higher marks for planning, candidates produce at least three sheets of detailed planning on A3 paper.

Where there is no evidence of planning in candidates folders, the marks allowed for planning are directly linked to the mark for quality of outcome.

This means that a folder with no evidence of planning and an outcome awarded a quality mark of 4 or less, cannot be given any credit for planning. At the other extreme, a project outcome awarded a quality mark of 13 or more, again where there is no evidence of planning in the folder, may only be awarded a maximum of 3 marks. Intermediate planning and quality marks are worked out pro rata where there is no evidence of planning in candidates folders.

Centres are reminded that the marks for Objective Five are effectively broken down into four strands:

Planning: 12 marks;

Being economic, resourceful and adaptable: 12 marks;

Independent work and safe working procedures: 12 marks;

Production of a high quality graphic product: 16 marks.

Evidence was readily found for the Quality mark and frequently evident to justify the Planning mark, but there was insufficient evidence *in candidate's folders* to justify the marks awarded for the middle two assessment headings as listed in the assessment criteria. Candidates need to be aware that out of the total mark of 52 for Objective Five, only 16 marks are directly attributable to the final prototype product. The remaining 36 marks are dependent upon evidence being present within the candidate's folder.

Candidates must show evidence of how they have economically marked out and prepared materials, and how they have been resourceful and adaptable. They should also show evidence of having carried out Risk Assessment on the materials, tools, equipment and processes to be employed, and how they have worked independently and safely if Centres are to give them credit. Those candidates that tackled this successfully used facilities such as photography to record their progress and produced detailed production diaries.

Centres with a range of ICT facilities including CAD/CAM used it effectively to increase the quality of the outcomes and produce work moving towards a professional, industrial standard. Good use was made of screen-shots to show how ICT had been used.

Successful candidates produced detailed evidence in their folios for the production of their prototype product, including items such as:

For planning (12 marks):

Annotated time plans including constraints and deadlines;

Flow charts including sub-assemblies and quality control loops;

Gantt charts which had been annotated as work progressed;

Annotated storyboards showing logical sequencing;

Lists of equipment, materials and tools required.

For being economic, resourceful and adaptable (12 marks):

Economical marking out and preparation of materials with sizes;

Lists of processes;

Clear explanations of how and where tools and processes are to be used.

For independent work and safe working procedures (12 marks):

Illustrated Production Diaries with modifications or problems highlighted;

Clear evidence of how any problems were overcome;

Health and Safety considerations including Risk Assessment.

This allowed the candidates full access to the 36 marks available for planning, resourcefulness, independent work and safe working procedures.

Such candidates produced some excellent, high quality, prototype graphic products, demonstrating creativity, attention to detail, pride and enthusiasm in their work. They made frequent reference to their Final Product Specification and Design Brief to check their prototype product.

Assessment Objective Six

Responses to this Assessment Objective were very mixed, with some candidates producing excellent examples of thorough testing and evaluating, followed by detailed proposals for modifications and improvements. However many candidates are still only evaluating the *project* rather than the *product*, or reporting on the activities that had taken place.

Most candidates evaluated their product against the original Specification but many failed to justify their responses in detail, relying on simple 'yes' or 'no' statements. Evidence of testing is increasing, although it still remains mainly superficial. Testing generally involved a questionnaire or survey, often limited to peers, friends and family, with limited conclusions being drawn from the results gathered. There were far too many descriptions of the product or personal opinions expressed by the candidate, rather than structured and analytical questioning of the intended user(s) leading to reasoned proposals for modifications and improvements.

There was little evidence of candidates reviewing or evaluating their system to control manufacture, i.e. how well the templates or jigs functioned. Modifications tended to be limited to brief descriptions; there was little evidence of sketching or formal drawing to effectively communicate proposals for further development.

Teacher guidance is clearly needed in this Objective if candidates are to address the assessment objectives accurately. Centres need to allow sufficient time for testing and evaluating to take place.

Successful candidates compared their final prototype product with their Final Product Specification point-by-point and analysed how well it had been met. They reviewed their original brief in light of their experiences. They drew upon their Production Diary from Objective Five and evaluated the changes made. They tested their products in an appropriate environment with the target users and interviewed them. They produced questionnaires and carefully analysed the results. They produced photographic evidence of testing, often with the target user and annotated the outcome. They reviewed the use of the system to control production and analysed its effectiveness in manufacturing a batch of the product. They produced annotated sketches and drawings to show suggestions for further development.

Presentation

Most Centres applied this mark fairly and accurately. Candidates would benefit from greater guidance with the final content and structure of the design folder before it is submitted for assessment and moderation. Centres should guide candidates in producing concise work and presenting it in a logical order.

**General Certificate of Secondary Education
Design & Technology: Graphic Products (Short Course) 1055
June 2006 Assessment Series**

Component Threshold Marks

Component	Max Mark	A	B	C	D	E	F	G
01 Paper 1	50			28	24	20	17	14
02 Paper 2	50	35	31	27	22			
03 Coursework	105	83	70	58	46	34	23	12

Syllabus Options

Foundation Tier

	Max Mark	A*	A	B	C	D	E	F	G
Overall Threshold Marks	175				97	80	63	47	31
Percentage in Grade					21.8	15.0	18.0	25.5	10.5
Cumulative Percentage in Grade					21.8	36.8	54.9	80.4	90.9

The total entry for the examination was 193

Higher Tier

	Max Mark	A*	A	B	C	D	E	F	G
Overall Threshold Marks	175	144	128	112	96	77	67		
Percentage in Grade		15.0	19.2	29.7	17.0	16.4	1.37		
Cumulative Percentage in Grade		15.0	34.2	63.9	80.8	97.3	98.6		

The total entry for the examination was 252

Overall

	A*	A	B	C	D	E	F	G
Percentage in Grade	9.3	11.9	18.4	18.7	15.9	7.7	9.6	3.9
Cumulative Percentage in Grade	9.3	21.3	39.7	58.5	74.4	82.1	91.7	95.7

The total entry for the examination was 445

**General Certificate of Secondary Education
Design & Technology: Graphic Products (Full Course) 1955
June 2006 Assessment Series**

Component Threshold Marks

Component	Max Mark	A	B	C	D	E	F	G
01 Paper 1	50			28	24	20	17	14
02 Paper 2	50	35	31	27	22			
03 Paper 3	50			31	27	23	19	15
04 Paper 4	50	34	29	25	19			
05 Coursework	105	83	70	58	46	34	23	12

Syllabus Options

Foundation Tier

	Max Mark	A*	A	B	C	D	E	F	G
Overall Threshold Marks	175				97	80	64	48	32
Percentage in Grade					26.7	24.7	19.5	13.8	8.9
Cumulative Percentage in Grade					26.7	51.4	70.9	84.7	93.6

The total entry for the examination was 9271

Higher Tier

	Max Mark	A*	A	B	C	D	E	F	G
Overall Threshold Marks	175	144	127	110	94	75	65		
Percentage in Grade		8.9	22.2	30.6	22.0	11.3	2.3		
Cumulative Percentage in Grade		8.9	31.1	61.8	83.8	95.1	97.4		

The total entry for the examination was 11426

Overall

	A*	A	B	C	D	E	F	G
Percentage in Grade	4.9	12.3	16.9	24.1	17.3	9.9	6.2	3.9
Cumulative Percentage in Grade	4.9	17.3	34.2	58.3	75.6	85.6	91.8	95.7

The total entry for the examination was 20697

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