

# **Design & Technology (Graphic Products)**

General Certificate of Secondary Education **GCSE 1955**

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

## **Report on the Components**

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**June 2010**

**1955/1055/R/10**

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This report on the Examination provides information on the performance of candidates which it is hoped will be useful to teachers in their preparation of candidates for future examinations. It is intended to be constructive and informative and to promote better understanding of the specification content, of the operation of the scheme of assessment and of the application of assessment criteria.

Reports should be read in conjunction with the published question papers and mark schemes for the Examination.

OCR will not enter into any discussion or correspondence in connection with this report.

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**General Certificate of Secondary Education (Short Course) Graphic Products (1055)**

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## **Chief Examiner's Report**

The reports for the written examinations (components 1 – 4) should be read in conjunction with the appropriate mark schemes. The coursework report (component 5) should be read in conjunction with assessment objectives outlined in the Specification.

The overall standard of responses to the written papers was comparable to previous years. The questions are intended to examine the knowledge and understanding the candidate has acquired through the practical activities of designing and making. They require candidates to respond in a variety of ways such as, using one word answers, detailed explanations, annotated sketches and accurate drawings. Whilst many excellent responses were seen it was apparent that there are still general weaknesses in structuring the explanation of processes, knowledge of commercial production methods and in producing accurate drawings.

The overall standard of Coursework was comparable with previous years and many centres had their marks confirmed by external moderation. Although the coursework project is divided into six assessment objectives it is important that candidates retain an overall view of the whole designing and making process. There is some evidence to suggest that candidates in some centres have become over reliant on guidance sheets and that this is limiting their creativity. It is also apparent that many centres are spending considerably more than the recommended time on the coursework. Nevertheless, the coursework achieved a high degree of differentiation. At the top end there was some outstanding work that demonstrated excellent designing and making skills. Projects with a low total mark often failed to complete sections rather than demonstrating low ability throughout the six assessment objectives. Centres continue to make progress in terms of guiding candidates towards suitable projects and making sure the project is of the required length.

Centres are to be congratulated on their efforts in preparing candidates for assessment in this specification. In almost all cases it was evident that the candidates were well prepared and this allowed them to demonstrate their ability in each of the assessment opportunities.

Although there was a slightly larger proportion of candidates entered for the higher papers this year the overall standard of work, in both the papers and coursework, was not considered to represent a significant increase in the achievement of the candidature.

## 1055/01, 1955/01 Paper 1 (Foundation)

### General Comments

The 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 all questions and there was no evidence that candidates did not have enough time to complete the paper.

There was, however, evidence to suggest that some candidates did not read all parts of the questions carefully enough and/or check their responses. This could have helped to avoid some of the unnecessary errors that were made. In some cases it appeared that candidates were 'scanning' questions rather than reading them fully.

The drawn parts of questions frequently gained reasonable marks but there were a fair number of inaccurate drawings seen. This was often as a result of candidates failing to make full use of the sizes given in the question and/or appropriate drawing equipment not being available or candidates not choosing to use it.

### Comments on Individual Questions

#### Question 1

- (a) (i) There were some excellent answers seen to this part of the question with a lot of candidates gaining full marks. Most candidates added the three missing squares in the correct positions. In the vast majority of cases the squares were drawn within the acceptable tolerance of +/- 2mm.
- (ii) Some candidates failed to complete this part of the question. While a number of inaccurate rectangles were seen most were drawn within tolerance.
- (b) A number of good quality pictorial sketches showing the leaflet correctly folded in half were seen. In cases where a 2D drawing had been produced candidates could still gain one of the two available marks so long as the fold line was clearly shown.
- (c) The quality of printing was generally of an acceptable standard.. Almost all candidates used capital letters and many drew guide lines to aid their printing.
- (d) While a good number of candidates correctly identified die cutting as the method that would be used to cut out the square holes, ticks in all of the other boxes were seen. Computer was perhaps the most common incorrect answer.

#### Question 2

- (a) This part of the question was generally well answered with the majority of candidates correctly sketching a rectangle around design B and an octagon around design C.
- (b) Many candidates failed to identify that cutting out circular and octagonal mouse mats would create waste material which would need to be disposed of. Some did relate their response to 'waste' and gained one of the two available marks.

## *Report on the Components taken in June 2010*

- (c) This was quite well answered with a good number of candidates correctly stating that the circle could be drawn once then 'copied and pasted'.
- (d) Accuracy was a major problem with this part of the question. Most candidates completed the large circle correctly. The angled lines were often not at the correct angle and the small circles drawn freehand. Many candidates failed to gain the one mark that was available for accuracy.
- (e) Most candidates answered this part of the question correctly with laminating being the most common of the acceptable answers.

### **Question 3**

- (a) Surprisingly the tonal shading required to complete this part of the question was frequently poorly done. It was rare to see three tones of shading being added to the drawing to enhance its 3D appearance. Some of the responses seen consisted of little more than random areas of 'scribble' added to the drawing.
- (b) Some candidates failed to attempt this part of the question. When it was answered candidates frequently gained at least three of the four marks available. Common errors were not drawing the front view in line with the given end view and/or drawing at least part of the view the wrong size.
- (c) Some candidates incorrectly tried to draw a one piece net of the whole model rather than a net of part A. Incorrect sizes were again a problem, as were correctly identifying the fold lines and glue tabs even though the methods for doing this were shown on the question paper.

### **Question 4**

- (a) The majority of candidates correctly identified 2D CAD as being the type of computer software that would be the best to produce the given design. However, ticks were seen in all of the boxes.
- (b) As in previous years some candidates continued to give 'quicker' or 'easier' as their answer to this type of question. However it was pleasing to see that many candidates correctly related their responses to aspects such as 'logo does not have to be redrawn', 'logo can be easily resized' and 'the logo can be easily imported into other designs'.
- (c) The majority of candidates correctly stated a method that could be used to import a photograph into a computer system. Correct answers included the use of a memory card or USB lead. Some incorrectly suggested that a scanner could be used. This was not appropriate in this situation as it would have required the photograph to have been printed.
- (d) In parts (d) and (e) of the question the first mark was awarded for correctly identifying the tool to be used and the other two marks for explaining how the tool would be used. In part (d) most candidates showed at least some degree of computer literacy by identifying the pointer as the tool that would need to be used but frequently its use was not fully explained. Candidates often gained at least two of the three marks available.
- (e) As with part (d) most candidates correctly identified that the fill tool would need to be used but fewer went on to fully explain how it would be used. Candidates often gained two of the three marks available.

**Question 5**

- (a)** The card thickness could have been given in either microns or millimetres and it was pleasing to see an increase in candidates' awareness of the use of microns.
- (b)** A good number of candidates were able to show at least some understanding of what the assembled leaflet holder looked like. However many failed to realise that the struts went through the slots in the back and therefore produced sketches that were only partially correct. The standard of sketching was very variable.
- (c)** Very varied responses. Some confused a stencil with a template while others showed no knowledge about what a template was. Generally candidates drew a rectangle with the logo on it (enough to gain one mark) but frequently went no further. Issues of how the template would be made and used were often overlooked.

## 1055/02, 1955/02 Paper 2 (Higher)

### General Comments

The 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 all questions and there was no evidence that candidates did not have enough time to complete the paper.

There was, however, evidence to suggest that some candidates did not read all parts of the questions carefully enough and/or check their responses. This could have helped to avoid some of the unnecessary errors that were made. In some cases it appeared that candidates were 'scanning' questions rather than reading them fully.

The drawn parts of questions frequently gained reasonable marks but there were a fair number of inaccurate drawings seen. This was often as a result of candidates failing to make full use of the sizes given in the question and/or appropriate drawing equipment not being available or candidates not choosing to use it.

There were some candidates who might have been better entered for the Foundation Tier.

### Comments on Individual Questions

#### Question 1

- (a) The vast majority of candidates correctly identified 2D CAD as being the type of computer software that would be the best to produce the given design. However, ticks were seen in all of the boxes.
- (b) As in previous years a few candidates continued to give 'quicker' or 'easier' as their answer to this type of question. However it was pleasing to see that a good many candidates correctly related their responses to aspects such as 'logo does not have to be redrawn', 'logo can be easily resized' and 'the logo can be easily imported into other designs'.
- (c) The vast majority of candidates correctly stated a method that could be used to import a photograph into a computer system. Correct answers included the use of a memory card or USB lead. Some incorrectly suggested that a scanner could be used. This was not appropriate in this situation as it would have required the photograph to have been printed.
- (d) In parts (d) and (e) of the question the first mark was awarded for correctly identifying the tool to be used and the other two marks for explaining how the tool would be used. In part (d) the majority of candidates showed a reasonable degree of computer literacy by identifying the pointer as the tool that would need to be used but sometimes its use was not fully explained. Candidates often gained full marks.
- (e) As with part (d) most candidates correctly identified that the fill tool would need to be used and many went on to fully explain how it would be used. Candidates often gained full marks.

**Question 2**

- (a) The card thickness could have been given in either microns or millimetres and it was pleasing to see an increase in candidates' awareness of the use of microns.
- (b) A good number of candidates were able to show at least some understanding of what the assembled leaflet holder looked like. However many failed to realise that the struts went through the slots in the back and therefore produced sketches that were only partially correct. The standard of sketching was very variable. A number of excellent sketches of the assembled leaflet holder were seen.
- (c) Very varied responses. Some confused a stencil with a template while others showed no knowledge about what a template was. Generally candidates drew a rectangle with the logo on it (enough to gain one mark) but sometimes went no further. Issues of how the template would be made and used were sometimes overlooked.

**Question 3**

- (a) Most candidates showed three layers of material which was enough to gain them one mark. Fewer went on to gain the second available mark by going on to name either the card or the foam.
- (b) Some excellent answers were seen to this part of the question. However, many proposals had slots that were too long (often running almost the full height of the model), too short, too thin (often a single line) or too wide. A good number of the proposals would have only allowed the two parts of the model to partially slot together. Standards of visual and written communication ranged from vague to the totally clear.
- (c) A number of suitably sized/shaped bases were seen showing a cross shaped slot. However, many proposals were over complex and incorrectly made use of additional materials. This could have been a result of candidates not fully reading the question. Some of the design proposals would have only allowed the model to partially fit into the base

**Question 4**

- (a) The isometric circle was frequently added to an acceptable standard but surprisingly the hands were often in the wrong position.
- (b) The standard of shading was very variable and frequently only good enough to gain one of the two available marks. It was rare to see good variation of tone between the different surfaces.
- (c) The majority of candidates gained marks for adding the additional sides, triangles and base. Poor accuracy was an issue for some candidates. Fewer candidates went on to add the correct number of glue tabs and/or use the correct convention for the fold lines and identify the glue tabs in an appropriate way.
- (d) Most candidates showed one part of the model opening but few gave sufficient details about such features as securing the opening to gain both of the available marks.

**Question 5**

Answers to this question varied Centre by Centre.

- (a)** Most candidates did not know the correct names for the two types of movement. General terms such as 'up and down' were commonly seen.
- (b)** A limited number of excellent solutions were seen to this part of the question. Most candidates did show a linkage made from card which used some sort of pivots but frequently they just joined part A to the two given pivots resulting in a mechanism that would not move. Few showed any real understanding about how to obtain the required movement.
- (c)** Poorly answered by many candidates. Few seemed to understand the difference between 'fixed' and 'moveable' pivots.
- (d)** Drawings of paper fasteners were the most common correct answer but these were frequently given the wrong name.

## 1955/03 Paper 3 (Foundation)

### General comments

Almost all candidates attempted all five questions. There was no evidence to suggest that candidates did not have sufficient time to answer the questions to the best of their ability. This would appear to indicate that the content and challenge were appropriate.

There was a wide range of responses to the questions. At the top end of the ability range candidates demonstrated knowledge and understanding of the specification content by producing appropriate drawings and detailed explanations. At the lower end of the ability range candidates often produced written answers that were lacking in detail.

### Comments on individual questions

#### Question 1

- (a) The majority of candidates were able to successfully complete the drawings of the three designs for the cards. Many candidates scored maximum marks for this question and there was only a limited degree of differentiation.
- (b) Almost all candidates named two pieces of equipment. The most popular correct answers were a safety rule and a craft knife. A number of candidates incorrectly named equipment, such as a vinyl cutter or ruler, which would not be used with the cutting mat.
- (c) Candidates were usually successful in producing sketches to show how the card could be folded so that it would stand in an upright position. A number of excellent sketches were seen.

This proved to be a good opening question with the majority of candidates scoring more than half marks.

#### Question 2

- (a) Most candidates were able to construct a pie chart in the given circle and identify the four segments with appropriate labels or a key. In many cases the four segments were the correct size and maximum marks were awarded.
- (b) In some respects the responses to this question were disappointing, with a significant number of candidates not stating an environmental reason why people should be encouraged to walk to work. The most popular correct answers were to do with pollution and carbon emissions.
- (c) Almost all candidates added the 'footprint' and the word 'work' to the rectangular shaped sticker. In some cases the word 'work' was in a different style to the words that were given in the question. Nevertheless, a number of excellent answers were seen to this question.
- (d) Many candidates failed to identify the main advantages of producing 8 stickers on a single sheet. Very few candidates indicated that the larger sheet of stickers would be easier to store, the rectangular shapes fit together with very little waste or that it would be cheaper or easier to print. Common incorrect answers included 'uses less ink' and 'cheaper' without any qualification.

A good range of responses were seen to this question. The parts of the question that required written responses proved to be the most challenging.

### **Question 3**

- (a)** A significant number of candidates failed to understand the requirement to draw a front view and plan. Common errors were to produce a development (net) or an oblique view. Candidates who produced a front view and plan usually managed to do so in the correct positions and to the correct size.
- (b)** Responses to this question were very variable. Whilst some candidates clearly understood what would happen to the stand when a load was applied to one corner many did not. The quality of annotation (in terms of arrows and labels) was generally disappointing.
- (c)** There was a good range of responses to this question although, rather surprisingly, a significant number of candidates did not produce a drawing of a development (net) but produced a plan view. Of those candidates who produced a drawing of a development (net) very few correctly showed the fold lines and glue tabs.
- (d)** Many candidates indicated that the modified stand was a better structure but failed to explain that was because the diagonal member introduced an element of 'triangulation'. The quality of written communication was very variable.

This question produced the expected range of responses and there was a good level of differentiation.

### **Question 4**

- (a)** Many candidates were successful in identifying the three key aspects of adding the photograph to the identity card as taking a digital photograph, uploading the photograph to the computer and then pasting it into the electronic template. Variations upon this, such as scanning a photograph or taking the photograph with a mobile telephone were given full credit.

Many candidates were successful in identifying the key stages in laminating the identity card as placing it in a pouch and then passing it through a laminating machine. The degree of detail in the explanations was very variable indeed. A number of excellent answers were seen that described in detail how the laminating pouch would pass through heated rollers.

- (b)** The majority of candidates were successful in stating that the reason why the card was 85mm x 54mm in size was that it would fit in a wallet/purse or be easier to carry around.
- (c)**
  - (i)** Responses to this question were rather disappointing in that many candidates failed to identify an advantage to the card holder. The most common correct answers were linked to the idea that the personal details would not be seen and were, therefore, more secure.
  - (ii)** Responses to this question were rather disappointing in that many candidates failed to identify an advantage to the company. The most common correct answers were to do with security or restricting access.

- (d)** A very good range of responses were seen to this question. Most candidates added the letters 'A' and 'K' and many completed these to a high standard within the given grid. A small number of candidates added the letters without using the grid.

A good range of responses were seen to this question with almost all candidates attempting all the parts. Candidates often failed to score high marks because they did not focus on the key words in the question.

### **Question 5**

- (a)**
- (i)** The majority of candidates correctly identified that the self adhesive vinyl sign would easily attach to any surface without the need for additional fixing materials such as glue or screws.
  - (ii)** The majority of candidates produced a sketch, typically a rounded corner, to show a modification to the PVC sign to make it safer to handle. A common incorrect answer was to draw the sign with a handle added.
  - (iii)** The majority of candidates correctly identified that green and white colours are often associated with 'go' or stand out well. Many candidates incorrectly interpreted the green and white colours as luminous paint that would glow in the dark.
- (b)**
- (i)** Surprisingly few candidates were able to identify that corriflute would be suitable for the safety sign because it is waterproof or could easily have a message printed on it. Common incorrect answers were 'strong' or 'rigid'.
  - (ii)** This question produced an excellent range of sketches and notes. Unfortunately, a significant number of candidates used these to describe a permanent fixing method, such as glue or tape, rather than a temporary fixing method. The most popular correct answers involved Velcro, clips or magnets.
- (c)**
- (i)** Many candidates correctly identified that the barricade tape would not be a problem to the environment because it would 'dissolve' or 'disappear'. A number of candidates indicated that the tape could be recycled but did not explain this line of thinking.
  - (ii)** This question produced an impressive range of sketches and notes. Many candidates successfully explained how the tape would come out of a slot in the box and be cut by pulling down onto a 'serrated edge' or 'blade'. Candidates were less successful in explaining how the tape would be positioned inside the box so that it would 'roll round'.

This question achieved the expected range of responses, with a good level of differentiation, although responses to (b) (i) and (ii) were a little disappointing.

## 1955/04 Paper 4 (Higher)

### General comments

The majority of candidates attempted all the questions and completed these to the best of their ability. This would appear to indicate that the content was appropriate for the ability of the candidates and the time allocation.

There was a wide range of responses to the questions. The majority of candidates were able to explain processes, design ideas and modifications through the use of sketches and notes. The standard of accurate drawing and knowledge of processes and techniques was variable.

There were a very small number of candidates who performed particularly poorly on this paper. It was unclear whether they were inappropriately entered for the higher paper or simply unable to answer the questions on the day.

### Comments on individual questions

#### Question 1

- (a) Many candidates were successful in identifying the three key aspects of adding the photograph to the identity card as taking a digital photograph, uploading the photograph to the computer and then pasting it into the electronic template. Variations upon this, such as scanning a photograph or taking the photograph with a mobile telephone were given due credit. The quality of written communication was usually at least sufficient to explain the key stages.

Many candidates were successful in identifying the key stages in laminating the identity card as placing it in a pouch and then passing it through a laminating machine. Some excellent answers were seen that described in detail how the laminating pouch would pass through heated rollers.

- (b) The majority of candidates were successful in stating that the reason why the card was 85mm x 54mm was that it would fit in a wallet/purse or be easier to carry around.

- (c) (i) Responses to this question were a little disappointing in that many candidates failed to identify an advantage to the card holder. The most common correct answers were linked to the idea that the personal details would be more secure because they are hidden from view.

- (ii) Responses to this question were a little disappointing in that many candidates failed to identify an advantage to the company. The most common correct answers were to do with security or restricting access.

- (d) A very good range of responses were seen to this question. Most candidates added the letters 'A' and 'K' and the majority completed these to a high standard within the given grid.

A good range of responses were seen to this question and the majority of candidates scored above half marks.

## Question 2

- (a) (i) The majority of candidates correctly identified that the self adhesive vinyl sign would easily attach to any surface without the need for additional fixing materials such as glue or screws.
- (ii) The majority of candidates produced a sketch, typically a rounded corner, to show a modification to the PVC sign to make it safer to handle. A common incorrect answer was to draw the sign with a handle added.
- (iii) The majority of candidates correctly identified that the green and white colours are often associated with 'go' or stand out well. Many candidates incorrectly interpreted the green and white colours as luminous paint that would glow in the dark.
- (b) (i) The majority of candidates were able to identify that corriflute would be suitable for a safety sign because it is waterproof or could easily have a message printed on it. Common incorrect answers were 'strong' or 'rigid'.
- (ii) Many good responses were seen to this question in terms of the quality of sketches and notes. Unfortunately, a significant number of candidates used these to describe a permanent method, such as glue or tape, rather than a temporary fixing method. The most popular correct answers involved Velcro, clips or magnets.
- (c) (i) Many candidates correctly identified that the barricade tape would not be a problem to the environment because it would 'dissolve' or 'disappear'. A number of candidates indicated that the tape could be recycled but did not explain this line of thinking.
- (ii) This question produced an impressive range of sketches and notes. Many candidates successfully explained how the tape would come out of a slot in the box and be cut by pulling down onto a 'serrated edge' or 'blade'. Candidates were less successful in explaining how the tape would roll round inside the box.

This question achieved the expected range of responses, and a good level of differentiation, even though the responses to (b) (i) and (ii) were a little disappointing.

## Question 3

- (a) (i) Many candidates were successful in completing the front view and drawing the plan of the counter. The quality of drawing was generally of a high standard. A small number of candidates incorrectly added three dimensional drawings, such as isometric, to the given starting lines.
- (ii) Most candidates were able to add a dimension to the front view of the counter but few were able to add this dimension correctly in terms of conforming to a recognised standard.
- (b) The responses to this question were pleasing and most candidates managed to add shading to the drawing of the counter. A significant number of candidates produced high quality shading that gave the drawing a three dimensional appearance.
- (c) Whilst most candidates managed to transfer the design to the three dimensional view a significant number failed to adjust the horizontal lines to follow the curve of the upper or lower rim of the cylinder. Correctly drawn answers that saw the design as a small part of the pictorial view were allowed to score maximum marks.

Responses to this question were pleasing and a good range of graphical skills were seen.

#### **Question 4**

- (a)** The majority of candidates were able to draw a bar chart to show the number of products returned to the electrical repair centre. A very small number of candidates produced a drawing of a pie chart. Candidates were also reasonably successful in selecting a suitable scale and plotting the number of returns against this scale. A small number of candidates produced a two dimensional bar chart and were only awarded a maximum of two marks.
- (b)** Responses to this question were very variable. Where candidates clearly understood what was required from 'exploded' and 'pictorial' they tended to score high marks. Unfortunately, a significant number of candidates produced a two dimensional view or a fully assembled view. The quality of sketching ranged from outstanding to average in terms of parallel lines and the quality of lines.
- (c)** It was clear that many candidates had some understanding of bar codes but were unable to explain how this would improve communication in the electrical repair centre. The use of the word 'scan' or 'scanning' was common in answers that scored maximum marks.

Responses to this question were disappointing because far too many candidates failed to respond appropriately to the key words of 'pictorial (3D) bar chart' and 'exploded pictorial view'.

#### **Question 5**

- (a)** Very few candidates were able to identify the fact that the sloping sides on the vacuum formed holder were so that the moulding could easily be released from the mould.  
  
The majority of comments identified that the indentations in the corners were to identify the positions of screws that could be used to fasten the holder to a wall.  
  
The majority of candidates correctly identified that the sides of the holder were lowered so that the bottle could be easily removed.
- (b)** The key to this question was in understanding '...why self adhesive vinyl is suitable for this specific application'. The most popular correct answers centred on the fact that the vinyl would be waterproof or bend to the curved shape of the bottle.
- (c)** The understanding of vacuum forming was a little disappointing in that some candidates seemed to have little idea of the shape of the former required for vacuum forming but instead sketched a vacuum forming machine. Nevertheless, some excellent answers were seen (both male and female formers) that had all the key features correctly drawn.

A good range of responses were seen to this question but in many cases candidates missed out on marks because they failed to address the specific issues stated in the question.

## **1955/5 (1055/3) – Internal Assessment**

### **Overview**

The Standard of work presented for moderation this year has generally been good, with most outcomes produced being suitable. It is clear that there are many talented students who are well supported and guided by their subject teachers.

Moderators have reported that Centres are acting positively on the feedback given from previous moderation visits and the advice given at OCR training events. However, a number of moderators have reported that centres are using materials that would be more suited to the OCR D&T Resistant Materials Specification to manufacture products. Centres are reminded that products should be manufactured from the compliant graphic materials which are outlined within the subject specification.

A number of centres continue to manufacture two-dimensional outcomes. Items such as posters, leaflets, CD sleeves, DVD covers and inserts, booklets, calendars and greeting cards (unless containing some form of card mechanism) are not suitable for this specification. As Graphic Products carries the “D&T” prefix, coursework projects that are submitted for assessment must result in the manufacture of a three-dimensional outcome.

The outcome for this specification should be a ‘functioning prototype’ that is capable of quantity (batch) production. A few centres have failed to comply with this requirement this year, designing and manufacturing ‘shop fronts’ and ‘interior layouts’. Such projects do not meet the requirements for this specification. Teacher guidance at the outset of the coursework project relating to suitability of projects is paramount to the success of students.

There has again been evidence of unrealistic marks being awarded by centres which has resulted in adjustments to centre marks. Centres are reminded that the OCR GCSE Design and Technology mark scheme is based upon numerical values and not grades. Each value is related to a description of an activity undertaken by the candidate. Evidence to support the awarding of marks should be contained within the design folder, or clearly evident through the modelling and construction of the final prototype product. It is felt that some teachers need to take a more objective approach and mark the folder of evidence and not the candidate.

The use of CAD/CAM has increased considerably this year. It is important that candidates show evidence of their understanding and ownership of design work generated and manufactured using this method. Moderators have again reported that artefacts manufactured using CAM suddenly ‘appear’ with no supporting evidence within the candidates design folder. Laser cutters are excellent at scoring, cutting and engraving ‘compliant’ materials and as such offer students a valuable tool in the manufacture of their designs.

Evidence of excessive teacher guidance has been noted in some centres. Teachers need to take great care when making the distinction between guidance and prescription. In some centres there is an over-reliance on writing frames for candidate work. It is essential that candidates have the opportunity to show flair and creativity in the way they approach the various objectives.

## **Administration**

Communication with Centres through Examination Officers has improved this year. The co-operation of centres in ensuring that the moderation process proceeds smoothly is very much appreciated.

Problems associated with internal moderation and standardisation reduced this year. Very few centres were required to remark work to establish a reliable rank order. It is important that centres allow sufficient time to carry out effective internal standardisation prior to the submission of marks.

Inaccuracies in centre paperwork is still a problem. Moderators reported that a number of centres failed to submit the MS1, CCS 160 and CSF forms by the 15<sup>th</sup> May deadline. Failure to receive these forms often leads to delays in the Moderation process. Moderators also reported a large number of errors associated with addition of marks on the CSF form and the transfer of these marks to the MS1 form. Where used, spreadsheets were found to increase the accuracy of centre additions. Centres need to take greater care in the checking and transfer of marks prior to submission to OCR.

The provision of annotated coursework mark sheets on individual candidates work was appreciated by moderators and aided the smooth running of the moderation process.

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](http://www.ocr.org.uk).

## **Content**

There were very few instances of projects with an excessive number of pages this year. Centres are reminded that the specification clearly states that the coursework project should represent 40 hours of work (20 hours short course). Guidance to centres has been that this can be accomplished with 25-30 sheets of A3 paper (12 – 15 short course). Moderators report that the number of candidates producing elaborate borders often at the expense of content has decreased this year.

Guidance regarding editing, suitability of content and concise presentation is still required by some candidates.

## **Performance of Candidates**

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. Teacher guidance and support 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 work in Objective 2 and to extend work in Objective 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**

A small number of centres are allowing candidates to work to unrealistic briefs; teacher guidance and intervention at this point would help steer projects towards an achievable outcome that meets the requirements of the OCR GCSE Graphic Products Specification. It is particularly important that the brief selected by the candidate will result in the manufacture of a three-dimensional graphic product suitable for quantity (batch) production. The attention of Centres is drawn to the list of exemplar outline tasks given in the 1955/1055 subject specification.

Candidates clearly need guidance on the structure of Objective One. Design briefs should be clear, concise and precise. Many candidates still give little information regarding the user needs and requirements, market for their product, and the requirement for batch production.

**Successful candidates** gave examples of the range of users and the user's needs, the target market, evidence in the form of photographs, graphs/charts and diagrams to clearly describe the situation and need for the design. They also identified and described a target user group. They briefly analysed the information gathered before using this to generate a concise Design Brief that clearly identified the product, users 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 often producing considerably more, often irrelevant work than is required for the 12 marks available. Approximately four sides of edited, relevant, coherent and concise work should suffice.

Candidates need to plan their research if they are going to produce appropriate work. Candidates should include evidence of primary research 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 4.

Questionnaires are one of the most common activities within this objective, but many questions are still being used that have no relevance to the brief, frequently being general in nature. Support and guidance of candidates in the design and use of questionnaires is required in many centres. Analysis of results of questionnaires is often shallow and information found is often not used in the design specification. It should be impressed upon students that it is the analysis of information and conclusions drawn that gains credit. Candidates should be made aware that questionnaires are not the only method of establishing user needs and requirements. The results of interviews with 'experts', target users and possible retailers could also provide valuable research information.

Many candidates fail to establish relevant 'size' information. For instance, a candidate designing a perfume packaging will often fail to establish the size and shape of the bottle to be held within the packaging. This will obviously limit design activity and also the possibility of manufacturing a fully functioning product within Assessment Objective 5.

Evaluating and analysing existing products has improved in some centres but this activity often relies upon downloaded images rather than 'hands on' disassembly activity. It is important that candidates focus on how existing products meet the need of the user. There is much evidence of candidates merely labelling 'surface detail' rather than investigating and analysing aspects such as materials, construction, production techniques and target market for product. Candidates should be encouraged to use analytical and evaluative comments.

Candidates should be guided towards evaluating one or two products in depth rather than identifying a large amount of products and providing limited analysis. Many candidates continue to collect copious amounts of data and then fail to analyse it, draw conclusions or make reference to it within their Design Specification. Candidates are advised to make clear links 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 whilst most candidates make reference to the requirement to produce their product in quantity, some candidates still make no reference to batch production in their specification. Moderators also reported that many Specifications were vague and generic, being applicable to almost any product. A good Design Specification is essential to scoring highly in all the remaining objectives.

**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 sources, to help sort, analyse, edit and communicate their results, and to keep work concise. They explored the facilities available to them in their centre to manufacture in quantity. 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 these into a structured, detailed, bullet pointed Design Specification that included reference to a system to ensure control over the production of a product in quantity.

### **Assessment Objective Three**

The range of techniques and media used within Objective three varied widely but this objective was generally accurately assessed by the majority of centres. Centres are advised to encourage their students to initially use pencil sketches to generate a range of free-flowing ideas rather than resort to formal, instrument drawings. Centres are advised to ensure that candidates are equipped and fluent with a range of graphic skills and experience, and have access to a range of graphic media.

Some moderators felt that the actual quality and range of graphic work, graphic techniques and graphic ability has fallen when compared with previous years. It is felt that many candidates relied too much on text to describe their design rather than using drawing to communicate it.

Moderators report that many centres are still producing work with a formulaic approach of drawing a set number of ideas and then selecting one or two as the best solution with little design development. This can lead to unresolved design issues and poorly developed solutions. Annotation and critical evaluation of ideas/solutions continues to be an area where candidates would benefit from greater guidance. To score highly candidates must demonstrate that they have used their Design Specification in the generation and subsequent development of design solutions. Many candidates continue to fail to justify their final choice of design proposal and to evaluate it against their Design Specification.

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 continue to report 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 externally assessed components..

**Successful candidates** produced a range of rough, initial pencil sketch ideas, which were then explored and developed into a workable solution. They used a wide range of freehand and formal graphic 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. 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 assessment objective showed a very high number of centres over marking candidate's work, mainly due to incorrect interpretation and use of the Levels of Response as described in the mark scheme. Moderators continue to comment 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 material testing was seen in most folders, this tended to be of a general nature and on occasion unrelated to the product. In many centres, moderators felt that material testing was a teacher led activity rather than being specific to the candidates design needs.

Two and three-dimensional model making and testing was evident in the majority of candidates folios but the testing of models and subsequent drawing of conclusions remains lacking. Part and detail modelling was generally weak. Many candidates fail to relate what they learnt through modelling 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 essential part of a design and make activity, and record and analyse the results of their tests.

There was limited evidence generally of candidates considering and exploring the possibilities of school-based technologies being used to manufacture a batch of their prototype product, or of tackling the problem of quality control. Some candidates continue to rely on information copied, photocopied or scanned on the theory of industrial processes within this section of work. This is worthy of very limited credit if conclusions are not drawn from it. Moderators report that many centres are continuing to ignore the requirement for a control system to produce the product in quantity.

There was good evidence of the use of ICT in many centres to model and communicate ideas but moderators continue to report 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 CAD.

**Successful candidates** produced a range of full and part models to test their design proposal. They explored 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). 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 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.

### **Assessment Objective Five**

This assessment objective caused the greatest number of differences between the Centre's marking and OCR's agreed standard. The quality of outcomes and the range of skills evident in their manufacture, varied greatly. Centres are generally marking too leniently. 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 'good standard' 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. Candidates must be given clear guidance about constitutes a high quality graphic product.

Planning in this objective continues to be very variable and is commonly over rewarded by centres. Basic items such as cutting lists and material lists are still frequently absent. There was much evidence of planning being limited to one A3 sheet and being very general in nature. Moderators reported that in some centres a formulaic teacher-led approach to planning is common. Good careful planning is more likely to produce the high quality product that this Objective requires.

To score highly, it is expected that a candidate would produce three A3 sheets of detailed planning. 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 three 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 5 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 high quality Graphic Product:	16 Marks

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 evidenced this area successfully used facilities such as photography to record their progress and produced detailed production diaries.

Where candidates have used ICT in the manufacture of products they should use screen-shots to show how equipment has been set up and 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 practices (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**

As in previous years, responses to this Objective were very mixed with some candidates producing detailed examples of thorough testing and evaluating, followed by detailed proposals for modification and improvements to both their product and control system. 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 has again increased, although it still remains superficial in many centres. Testing generally involved a questionnaire or survey, which is often limited to peers or family, with limited conclusions being drawn from the results gathered. There were far too many descriptions of the product or personal opinions expressed by candidates, rather than structured and analytical questioning of the intended user(s) leading to reasoned proposals for modifications for further modifications and improvements.

Moderators report little evidence of candidates reviewing or evaluating their system to control manufacture. i.e. how well the templates, former or jig worked. Modifications tend to be limited to brief descriptions with little evidence of sketching or formal drawing of proposed design alterations.

Moderators feel that many centres are not allocating sufficient time to this objective for effective testing and evaluation 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. However, to be awarded more than three marks, centres should note that candidate's work must be concise. Candidates would benefit from greater guidance with the final content and structure of the design folder before it is submitted for assessment and moderation.

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