

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 2007

1955/1055/MS/R/07

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The mark schemes are published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by Examiners. It does not indicate the details of the discussions which took place at an Examiners' meeting before marking commenced.

All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

The reports on the Examinations provide 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 syllabus content, of the operation of the scheme of assessment and of the application of assessment criteria.

Mark schemes and Reports should be read in conjunction with the published question papers.

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

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Chief Examiners 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 explaining processes and in producing accurate drawings. Centres are encouraged to address these issues by using past papers and mark schemes to focus candidates on the key aspects of a question. Increasingly, candidates need to have a knowledge and understanding of appropriate commercial production methods, including print finishing processes employed in the manufacture of commercial graphic products. Responses to questions of this nature were often disappointing.

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 design and make 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.

Evidence of the use of CAD/CAM continues to be variable in that there are pockets of excellence but far too many centres where the understanding and use of CAD/CAM is superficial. Centres should continue to plan for the use of CAD/CAM and address resource and training needs at a centre level.

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. The small number of centres that encountered difficulties are encouraged to attend the 2007/8 round of training provided by OCR.

1955/01 (1055/01) 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.

The drawn parts of questions often gained reasonable marks while answers which required written responses were sometimes confusing, difficult to read and understand. Occasionally candidates' answers were merely taken from the question itself and where two reasons or an explanation were required the same point was made twice with slight word variations.

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

In a 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. Some candidates responded to questions, which included these aspects, using general knowledge rather than by applying an understanding of subject specific knowledge.

Comments on Individual Questions

1 (a) The vast majority of candidates completed the two shapes with at least some degree of accuracy and a good number of totally correct solutions were seen. Common errors related to the sloping sides of the octagon being drawn at the wrong angle and/or length.

(b) Most candidates correctly identified one of the shapes as a rectangle (or oblong) but a good number stated that the second shape was a hexagon rather than an octagon.

(c) A number of advantages such as a wide range to choose from, easy and quicker to change sizes/images/designs, do not have to draw design each time and drawings are accurate were acceptable. Many candidates gave at least one appropriate advantage and a good number identified two. A limited number of repeat answers were seen. No marks were available for one word answers such as 'quick' or 'easy'.

(d) Correct answers needed to say that laminating the bookmark would improve its quality by making it more durable/stronger, easier to clean, waterproof and give it a gloss (glossy) finish. The majority of candidates gave at least one appropriate improvement. As with part (c) a number of repeat answers were seen. General answers such as 'makes it look better' did not gain any credit.

2 (a) Five marks were available for an accurate drawing of the lion's head. The first mark was given if a candidate had drawn (not sketched) a complete head. The remaining four marks were awarded depending on how accurate the drawing was. For example if two lines were correct one additional mark was given and so on. Nearly all candidates gained the first mark but a good number of answers lacked accuracy with incorrect measurements and poorly drawn curves being much in evidence.

(b) A good number of correct answers which gave die cutting as the commercial production method that would be used to cut out the leaflets. However some candidates are still suggesting that hand tools such as scissors and craft knives would be appropriate for this level of production.

(c) Increased production costs needed to relate processes, materials and equipment being required. Acceptable reasons included the fact that the leaflet needed to be folded, it was printed on both sides, it was a more complex shape to cut out and produced waste material that had to be disposed of. Good answers were seen with many candidates giving at least one appropriate reason for the increased cost.

(d) This part of the question was well answered with many candidates giving two appropriate ways in which the leaflet could be distributed. Acceptable methods of distribution included by hand, by post, from a leaflet holder or picked up from a shop counter.

3 (a) This part of the question was based on a very common pop up mechanism but only a limited number of candidates were able to demonstrate any real level of understanding about how the parts would need to be assembled so that the lion's mouth would open and close. Many candidates drew the tabs horizontally across the card rather than at an angle. Some workable solutions were seen but even here measurements were frequently incorrect.

(b) Many good answers were seen to this part of the question. A range of answers were acceptable such as the use of thermo chromic inks that would change colour as the eyes were touched (change in temperature) or photo chromic inks that would change colour as the card was opened (change in light intensity). The use of a rotating or sliding piece of card on the back of the card could make a different design appear if holes were made in the card where the eyes were. Centre part of 'wobbly eyes' could move when the card was shaken.

(c) Despite the ever increasing use of ICT many candidates continue to answer questions of this type poorly. A number of answers related to a reflective mirror rather than the mirror facility on a computer system. Answers needed to explain that because the shape was symmetrical only one half had to be drawn (one mark). By then selecting the mirror facility the computer would automatically draw (flip) the other half (one mark).

(d) A high number of candidates correctly identified the copyright symbol and many went on to explain that it meant that material could not be copied without permission.

4 This was the least well answered question on the paper.

(a) Most candidates were able to give at least one appropriate reason why self adhesive vinyl was a suitable material for the given situation. Acceptable reasons included the fact that it was easy to stick on, already coloured, gave a good finish, easy to cut, waterproof, and was flexible so that it would follow the shape of the van. A number of repeat answers were seen.

(b) This was generally well answered with many candidates identifying the advantages of having a design stored on a computer system. Acceptable advantages included not having to redraw the design each time it was required, changes such as size and colour could be made, design could be sent electronically and the design was not so easily lost or damaged. As with part (a) a number of repeat answers were seen.

(c) (i) This part of the question was clearly about the use of CAM to produce the logo but a good number of inappropriate processes and pieces of equipment were suggested. These ranged from the use of hand tools such as scissors, printing on the vinyl and using a die cutter. Correct answers were those that identified equipment such as a Roland Camm machine, a Lynx or Ultra cutter or simply a vinyl cutter and went on to briefly describe the cutting process.

(ii) There were four clear stages that had to be identified in the application of the logo to the van. The design had to be 'weeded' (excess vinyl is removed). Tacky backing material (application tape/film) is smoothed over the surface of the vinyl. Sticky backing is removed from vinyl. Design is applied to van and tacky backing sheet is removed. The only stage identified by the vast majority of candidates was removing the sticky backing from the vinyl.

5 (a) This part of the question was generally well answered with most candidates correctly relating their reasons for distributing the product in a flat pack form to aspects such as it being easier/cheaper to post/transport, it taking up less space and not being so easily damaged as if it were assembled. A number of repeat answers were seen.

Poor quality sketching was much in evidence in the responses of candidates to parts (b) and (c) of the question.

(b) To gain both marks a candidate had to make use of both sketches and notes. They needed to have a sketch that showed the holder sloping back (1 mark) and notes to explain that this improved stability and/or stopped the leaflets falling forward.

(c) In this part of the question the sketch needed to show how the tab went into the slot (1 mark) and the notes to explain that this kept the base in place (1 mark).

(d) Reasonably well answered by many candidates. Most were able to give at least one appropriate reason. These included reasons such as it being quicker/easier because you don't have to wait for glue to dry, not as messy as using glue, holder more likely to be assembled and used as no extra materials are required to make it, holder can be disassembled and used again.

(e) Many candidates stated that the card would be too thick rather than too thin. One mark was awarded if candidates correctly identified the card as being too thin. If they went on to explain that as a result of being too thin the parts would bend and not be able to support the weight of the leaflets the second mark was gained.

1955/02 (1055/02) Higher 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. However, some candidates who did this paper may well have been better advised to have entered for the Foundation Tier.

The drawn parts of questions often gained reasonable marks while answers which required written responses were sometimes confusing, difficult to read and understand. Occasionally candidates' answers were merely taken from the question itself and where two reasons or an explanation were required the same point was made twice with slight word variations.

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

In a 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. Some candidates responded to questions, which included these aspects, using general knowledge rather than by applying an understanding of subject specific knowledge.

1 This question was answered a little better than on Paper 1 but was still the least well answered question on the paper.

(a) Most candidates were able to give at least one appropriate reason why self adhesive vinyl was a suitable material for the given situation. Acceptable reasons included the fact that it was easy to stick on, already coloured, gave a good finish, easy to cut, waterproof, and was flexible so that it would follow the shape of the van. A number of repeat answers were seen.

(b) This was generally well answered with many candidates identifying the advantages of having a design stored on a computer system. Acceptable advantages included not having to redraw the design each time it was required, changes such as size and colour could be made, design could be sent electronically and the design was not so easily lost or damaged. As with part (a) a number of repeat answers were seen.

(c) (i) This part of the question was clearly about the use of CAM to produce the logo but a good number of inappropriate processes and pieces of equipment were suggested. These ranged from the use of hand tools such as scissors, printing on the vinyl and using a die cutter. Correct answers were those that identified equipment such as a Roland Camm machine, a Lynx or Ultra cutter or simply a vinyl cutter and went on to briefly describe the cutting process.

(ii) There were four clear stages that had to be identified in the application of the logo to the van. The design had to be 'weeded' (excess vinyl is removed). Tacky backing material (application tape/film) is smoothed over the surface of the vinyl. Sticky backing is removed from vinyl. Design is applied to van and tacky backing sheet is removed. The only stage identified by the vast majority of candidates was removing the sticky backing from the vinyl.

2 (a) This part of the question was generally well answered with most candidates correctly relating their reasons for distributing the product in a flat pack form to aspects such as it being easier/cheaper to post/transport, it taking up less space and not being so easily damaged as if it were assembled. A number of repeat answers were seen.

Report on the Components taken in June 2007

While the standard of sketching was a little better than on Paper 1 poor quality sketching was still in evidence in the responses of candidates to parts (b) and (c) of the question.

(b) To gain both marks a candidate had to make use of both sketches and notes. They needed to have a sketch that showed the holder sloping back (1 mark) and notes to explain that this improved stability and/or stopped the leaflets falling forward.

(c) In this part of the question the sketch needed to show how the tab went into the slot (1 mark) and the notes to explain that this kept the base in place (1 mark).

(d) Reasonably well answered by many candidates. Most were able to give at least one appropriate reason. These included reasons such as it being quicker/easier because you don't have to wait for glue to dry, not as messy as using glue, holder more likely to be assembled and used as no extra materials are required to make it, holder can be disassembled and used again.

(e) Many candidates stated that the card would be too thick rather than too thin. One mark was awarded if candidates correctly identified the card as being too thin. If they went on to explain that as a result of being too thin the parts would bend and not be able to support the weight of the leaflets the second mark was gained.

3 (a) It is pleasing to report that a higher proportion of candidates were able to construct an accurate ellipse than in some previous examinations. Although the sizes were clearly given some candidates incorrectly took the extent of the centre lines to be the sizes for the axes. The drawing of the headband to the ellipse was mostly accurate but some candidates failed to draw this part of the design.

(b) This part of the question was generally well answered with the majority of candidates identifying either varnish, lacquer or laminating as a suitable finish for the Panda Ears.

(c) More candidates than in previous examinations were able to display an understanding of thermo chromic inks. The question required candidates to sketch an appropriate design linked with Pandas or Animal Aid (just lettering was acceptable) and use notes to explain that the design would change with a rise in temperature as a result of heat from the head or sun.

(d) Candidates frequently gave answers which were not appropriate to the given scale of production. Methods such as photocopying or a computer printer were acceptable for the small production run but producing 10,000 copies would require offset lithography to be used.

4 (a) This part of the question required candidates to state that the outline of the whale (the solid lines) needed to be perforated and the fold lines (broken lines) needed to be creased. While many good answers were seen a number of candidates just copied the instructions on the given drawing.

(b)(i) Many candidates gained one mark for drawing an assembled box which had the correct shaped top and front. Fewer correctly drew the side curving round with the tail in its correct vertical position in the centre at the back of the whale. The quality of sketching was frequently poor.

(ii) This part of the question was often answered incorrectly with candidates sketching a 2D solution that was essentially a copy of the development given in the question. Answers of this type could gain one mark if candidates had used arrows to indicate folding. There were a limited number of good quality 3D solutions which clearly showed how the collection box folded and joined together.

5 (a) Some excellent answers were seen to this part of the question. The question required candidates to carefully read and interpret the given information with the aim of producing a one piece development of the desk tidy. However, a good number of candidates drew separate pieces, tails in the wrong place and glue tabs that would not work. There were several alternative ways of drawing the development all of which gain full credit. Solutions were awarded marks depending on the number of sides that were correctly joined together. Sizes were generally within tolerance but drawings often lacked accuracy in terms of right angled corners and consistently sized glue tabs.

(b) While many good answers were seen surprisingly some candidates were unable to produce a suitable key that clearly communicated where the development needed to be folded and glued.

1955/03 (1055/03) – Foundation Tier

General comments

Centres are to be congratulated on their preparation of candidates for this examination. From the responses it was evident that the majority of candidates had been taught the topics from the specification and were able to apply this knowledge to the examination questions. There was no evidence to suggest that candidates had insufficient time to complete the paper or that any questions discriminated unfairly against specific groups of candidates. The paper achieved a good degree of differentiation. The ability of candidates to draw accurately and clearly explain processes remains a general weakness.

Comments on individual questions

Question 1

Question 1 provided the majority of candidates with a good start to the paper and many achieved scores of between 6 and 10 marks. Part (a), completion of the drawing of the face with instruments, was well answered by the majority of candidates although it was evident that a small number either did not have access to drawing equipment or chose not to use it. In part (b) the understanding of anthropometric data was limited although many made reference to sizes. Die and laser cutter were common responses to part (c). In part (d) few candidates were able to demonstrate a clear understanding of why recycled material might be considered a health risk.

Question 2

This question was generally answered well, with a large number of candidates scoring high marks. In part (a) most candidates completed the bar chart accurately and gained maximum marks. The majority of candidates were also then able to name the type of chart in part (b). In part (c) it was evident that many candidates either had little knowledge of computer generated graphs or were unable to clearly express two stages in the process of producing a chart on a computer. In part (d) the symbol was generally drawn to a good standard, showing a clear understanding of the requirements and with the solution based upon the given illustration.

Question 3

Few candidates were able to score full marks in part (a) although most managed an upper case 'A'. In part (b) the majority of candidates successfully identified the correct thickness of card and indicated their choice with a tick. Many candidates failed to give a good explanation/reason in part (c). In part (d) the development (net) was generally completed to a good standard with all six surfaces drawn to the correct size. Candidates were less successful in adding the glue tabs and the fold in flap or showing the fold lines to an agreed convention.

Question 4

Part (a) was well answered by a majority of candidates. A small number failed to use sketches and notes. The requirement to draw the parts accurately and glue the parts onto a backing sheet was often not fully addressed in the answers. In part (b) most candidates were successful in shading the candle although a significant number failed to make the shapes appear cylindrical and conical. Part (c) (i) & (ii) were well answered and demonstrated a sound understanding of ICT. Few candidates were able to provide a good answer to part (d) because their explanation was weak.

Question 5

Responses to this question were generally disappointing. Very few candidates were able to give an acceptable reason for part (a). In part (b) there appeared to be a limited knowledge of embossing – many were able to explain the process raised the surface of the card but very few were able to explain in sufficient detail to achieve full marks. Part (c) was misunderstood by a significant number of candidates - they could see that something was wrong with the mechanism but often referred to folding the mechanism in a different way. Part (d) was not answered well - few candidates were able to provide valid reasons or explanations. The term 'boring' was a common response. In part (e) most candidates were able to score 1 mark but few provided sufficient detail or added their design to the given card, allowing them to gain both marks.

1955/04 (1055/04) – Higher Tier

General comments

Centres are to be congratulated on their preparation of candidates for the examination. It was evident that the majority of candidates had been taught the topics from the Specification and were able to apply this knowledge to the examination questions. The paper achieved a good degree of differentiation. There was no evidence to suggest that candidates had insufficient time to complete the paper or that any questions discriminated unfairly against specific groups of candidates. A small but significant number of candidates appear to have been unwisely entered for the higher paper and scored very low marks. In the light of this some centres may wish to review their entry policy. The ability of candidates to draw accurately and clearly explain a process remains a general concern.

Comments on individual questions

Question 1

This question proved to be a good opening question for the higher ability students. The majority of students answered part (a) to a good standard although a small number failed to use sketches and notes in their answers. The requirement to draw the parts accurately and glue the parts onto a backing sheet was often not fully addressed in the answers. Most candidates were successful in shading the candle but a significant number failed to make the shapes appear cylindrical and conical. Part (c) (i) & (ii) were well answered and demonstrate a good knowledge of ICT. Most candidates were able to name a relevant enhancement technique in part (d) but few actually explained how the software could be used to apply the technique.

Question 2

Few candidates were able to give an acceptable reason for part (a). In part (b) there appeared to be a sound knowledge of embossing - many were able to explain the process raised the surface of the card but very few were able to explain in sufficient detail to achieve full marks. Part (c) was misunderstood by a significant number of candidates - they could see that something was wrong with the mechanism but often referred to folding the mechanism in a different way. Part (d) was not answered well - few candidates were able to provide valid reasons or explanations. The term 'boring' was a common response. In part (e) most candidates were able to score 1 mark but few provided sufficient detail or added their design to the given card, allowing them to gain both marks.

Question 3

Part (a) (i) was answered well by most candidates who successfully completed the plan view in the appropriate position. Whilst the majority of candidates were able to dimension the height of 55mm very few were able to do this to the correct convention. Most candidates were able to score full marks in parts (b) & (c). The planometric drawing exercise was attempted by most candidates but a significant number clearly did not have the knowledge to complete the task. In many cases this resulted in them drawing only the circles.

Question 4

In part (a) (i) the majority of candidates identified the scale correctly. In part (a) (ii) it was clear that very candidates had any knowledge of sectional views or hatching techniques. Very few were able to draw one hatch line in the correct place and an even smaller number drew hatch lines correctly in opposite directions. In part (b) there were some good answers but very few candidates were able to provide an appropriate economic reason and explanation. In part (c) the majority of candidates drew a base of the correct size and thickness but failed to construct an ellipse of the correct size. The mark scheme reflects the degree of ambiguity in this question and gave candidates credit for a range of solutions.

Question 5

Part (a) was well attempted by most candidates with a full range of ideas expressed through notes and sketches. The candidates had clearly been taught to address the key points in the specification and this was reflected in their design proposals. Many candidates scored maximum marks in this section. In part (b) many candidates drew out their chosen design solution to the correct scale. Candidates who chose to draw a box with a triangular base often did not produce an end of the correct size or with glue tabs that would work. It was common to see solutions with insufficient glue tabs or lids that would not open and close efficiently.

1955/05 (1055/03) – Internal Assessment

Overview

The standard of work presented for moderation this year has generally been good, with outcomes produced being suitable for the OCR D&T: Graphic Products Specification in the majority of centres. 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 small number of 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.

Disappointingly, 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 simply the candidate.

The use of CAD/CAM has again increased 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. Where used, laser cutters have been felt to be a contributing factor in the selection and use of non-compliant materials such as acrylic and mdf in some centres. 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 a number of centres. Teachers need to take great care when making the distinction between guidance and prescription. A number of moderators have expressed concern regarding the excessive use of writing frames within candidates work. It is important that candidates have the opportunity to show flair and creativity in approaching the various objectives.

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 a full program of In-Service Training meetings.

Administration

Communication with Centres through Examination Officers has improved this year. However, in a small number of centres messages regarding moderation were not passed on to departments and the moderator arrived to find the Centre unprepared for the moderation visit.

Centres are again reminded that the moderator should be given a quiet area to carry out their task, where they will be uninterrupted by both staff and students. The co-operation of the majority of centres in ensuring that the moderation process proceeds smoothly is very much appreciated.

Problems associated with internal moderation and standardisation reduced this year although a small number of centres were required to remark work to establish a reliable rank order of candidates' marks. 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 15th 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.

Content

Very few instances of projects with excessive number of pages have been reported 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 fallen 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. Often candidates 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 users needs, and the target market, using evidence in the form of photographs, graphs/charts and diagrams to clearly describe the situation and need for the design. They 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. Interviews with 'experts', target users and possible retailers could also be used to gain 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 should 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, target market for product, etc. Candidates should be encouraged to use high scoring 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 most candidates make reference to the requirement to produce their product in quantity. However, moderators continue to report that many Specifications are 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.

Many 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 written examinations.

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 candidates' 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 candidates' 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), etc. Small-batch systems of manufacture, ie 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 evidenced 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

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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.

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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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Design and Technology: Graphic Products (Full course) 1955

June 2007 Assessment Series

Component Threshold Marks

Component	Max Mark	A	B	C	D	E	F	G
1	50	-	-	30	25	21	17	13
2	50	32	27	22	17	-	-	-
3	50	-	-	30	26	22	18	14
4	50	30	26	22	16	-	-	-
5	105	84	71	59	47	36	25	14

Specification Options

Foundation Tier

	Max Mark	A*	A	B	C	D	E	F	G
Overall Threshold Marks	175	-	-	-	98	82	66	50	34
Percentage in Grade		-	-	-	26.5	26.6	21.2	14.6	7.9
Cumulative Percentage in Grade		-	-	-	26.5	53.1	74.3	88.9	96.8

The total entry for the examination was 7891

Higher Tier

	Max Mark	A*	A	B	C	D	E	F	G
Overall Threshold Marks	175	140	123	106	90	70	60	-	-
Percentage in Grade		8.9	22.5	29.5	23	12.4	1.9	-	-
Cumulative Percentage in Grade		8.9	31.4	60.9	83.9	96.3	98.2	-	-

The total entry for the examination was 10327.

Overall

	A*	A	B	C	D	E	F	G
Percentage in Grade	5.2	13.1	17.2	24.5	18.3	9.9	6.1	3.3
Cumulative Percentage in Grade	5.2	18.3	35.5	60.0	78.3	88.2	94.3	97.6

Statistics are correct at the time of publication.

General Certificate of Secondary Education

Design and Technology: Graphic Products (Short course) 1055

June 2007 Assessment Series

Component Threshold Marks

Component	Max Mark	A	B	C	D	E	F	G
1	50	-	-	30	25	21	17	13
2	50	32	27	22	17	-	-	-
3	105	84	71	59	47	36	25	14

Specification Options

Foundation Tier

	Max Mark	A*	A	B	C	D	E	F	G
Overall Threshold Marks	175	-	-	-	101	83	66	49	32
Percentage in Grade		-	-	-	25.9	29.3	20.7	15.5	5.2
Cumulative Percentage in Grade		-	-	-	25.9	55.2	75.9	91.4	96.6

The total entry for the examination was 66.

Higher Tier

	Max Mark	A*	A	B	C	D	E	F	G
Overall Threshold Marks	175	140	123	106	90	71	61	-	-
Percentage in Grade		8.6	30.1	30.1	20.4	6.5	3.2	-	-
Cumulative Percentage in Grade		8.6	38.7	68.8	89.2	95.7	98.9	-	-

The total entry for the examination was 94

Overall

	A*	A	B	C	D	E	F	G
Percentage in Grade	5.3	18.5	18.6	22.5	15.2	10	5.9	2
Cumulative Percentage in Grade	5.3	23.8	42.4	64.9	80.1	90.1	96.0	98.0

Statistics are correct at the time of publication.

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