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General Certificate of Secondary Education
Design and Technology: Graphic Products

Specification 3543/3553

Examiners' Report

2005 examination - June series

- 3543 Full Course
- 3553 Short Course

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Introduction

Centres continue to appear to be comfortable with the current specification. The format and 'house style' presented little or no problems for candidates. All responses were made in the appropriate places on the correct question sheets. The sections, which focussed on the creation of a specification and on graphic product evaluation, were generally well responded to. As the focus this year was on specification and evaluation, it was inevitable that many written responses were required. This complements the coursework where drawing is predominant. There was evidence that the Preparation Sheet has been used as intended which benefited the candidates, however some topics appeared to have been only superficially studied. Centres are reminded that the written paper is required to draw its questions from the whole specification. Some centres appear to confine their candidates' knowledge of materials, equipment and processes to their experience of coursework. Inevitably this places many candidates at a disadvantage in the written examination. Centres prepared candidates well for the design questions and the quality of such work continues to improve year by year. There were many excellent examples of generation of ideas and presentation drawings on all papers. One-word responses are becoming rarer, but some candidates did not give appropriate justifications and some failed to connect their responses to the context in which the question was set.

Foundation Tier Full Course (3543/F)

General Comments

The paper was generally well answered. The suggested allocation of time appeared to have been satisfactory as there were hardly any uncompleted scripts. There was a good distribution of marks across the paper.

The majority of candidates showed a general strength in graphic application questions and a weakness in written responses.

Many candidates applied colour when requested in question 2 often up to presentational standard and thus of a higher quality than required for ideas generation. Question 4 the 'Presentation Drawing' was often of a lower standard suggesting that perhaps too much time and effort had been spent on the formative stage.

Candidates appear to be better prepared for the Written Paper than in previous years, with the majority of candidates possessing the correct and appropriate equipment. The use of 'felt tipped' pens diminished and the use of graphic liner pens increased

As in previous years the quality of written communication was often imaginative. Frequently, phonetic spellings, difficult handwriting or continuous multi-clause sentences made the interpretation of answers difficult. Where possible, credit was given if some understanding could be deduced.

Question 1

This question was well understood and provided the candidates with a good introduction to the paper. Most candidates were able to draw a pie chart to graphically communicate statistics.

(a) All candidates correctly divided the 'pie' into appropriate sectors, although a few lacked accuracy at the centre. Some omitted the vertical lines on the pie's thickness. The positioning of the sectors also varied but not to the detriment of the candidates.

(b) Most candidates gained full marks for the quality of colouring. A small number used hatching, frequently freehand, and marks were awarded according to quality. A few forgot to render the side of the pie.

(c) Almost all candidates correctly completed the key by matching it to the relevant sectors. A minority of candidates were content to use colour swatches rather than use the full space provided, and were rewarded accordingly.

Question 2

This was well answered by most candidates with many gaining maximum marks.

- Most additional specification points were legitimate and relevant to the brief.
- Weaker candidates often repeated some of the stated specification points.
- Some candidates strayed outside the given brief of *graphics* for a label and offered features connected to a new container design.

Question 3

Many candidates followed the hint given by folding Sheet 2 along its centre so that the specification was visible as an aid to its successful application.

(a) This question produced many excellent and high scoring designs. Innovations, humour, wit and skill were frequently demonstrated. However, centres are reminded that this question was intended to be formative. It should have enabled the candidates to quickly develop ideas which could be carried forward and reproduced to a high presentational level in the next question. Candidates should be encouraged to use the suggested time allocation. In this question, 20 minutes were suggested for three drawings, where as in question 4, 25 minutes are suggested for only one drawing. This should indicate where the candidate must demonstrate design ideas and presentational drawing skills.

(i) Sometimes it was difficult for candidates to clearly demonstrate effective use of their own specification points especially when they referred to boldness, attractiveness, logo, eye-catching or the ability to stand out.

(ii) Almost all candidates offered three designs. Some were discrete ideas and others showed elements of development. All were rewarded on merit.

(iii) There was some evidence of excellent graphics, constructional lines and label layout. Candidates had obviously studied the Preparation Sheet and undertaken some thorough research prior to the examination

(iv) The question asked for only an indication of the colours to be use in the designs but many candidates spent too much time applying colour to their three ideas instead of indicating colour either by annotation or by providing colour swatches.

(b) Explanations were generally satisfactory and usually reasoned although some were purely descriptive.

Question 4

(a) The question was intended to examine the candidate's skill at producing a quality, presentation drawing and most candidates scored well.

(i) The vast majority of candidates successfully brought forward a suitable design from question 3 to satisfy most of their specification points.

(ii) In many instances the quality of drawing and the level of presentation were below those demonstrated in Question 3. Perhaps this was due to much time being devoted to the earlier question.

(iii) Candidates did demonstrate an understanding of layout and a sense of composition in their label design. It was pleasing to see that many candidates used the position of the glue tab to orientate the front and rear of the label, placing any tabs and bar codes near the join.

(iv) The quality of rendering was generally good with most candidates using solid block colours but there was some evidence of good tonal control which enabled the full range of marks to be accessed.

(b) British Standards conventions continue to bewilder the majority of centres and their candidates. It would appear that British Standards are either not taught, or that teachers are unfamiliar with them. This part question was worth 4% of the total marks on the paper and these marks were frequently not accessed by otherwise able candidates

(i) Strong pointers were provided on this year's paper such as examples of dimension lines, arrow heads and leader lines, but most candidates ignored and disregarded them.

(ii) Likewise, very few candidates provided the correct full size scale convention. A popular but incorrect response was 200:50

Question 5

Overall, this question was attempted by most candidates and a wide variation in marks was recorded.

(a) Too many candidates either failed to justify their responses to each separate point, or missed out specification points 4 and 5. Some candidates brought forward new and different specification points to those chosen in question 2. The majority of answers were purely descriptions of that feature of their design.

(b) This part of the question was well attempted. Candidates had obviously researched the recommended websites on the Preparation Sheet or had experienced the product first hand.

Question 6

This question attempted to test the candidate's knowledge of materials, firstly in the making of a simple point of sale display and secondly to show a wider application of that knowledge. For maximum marks the candidates were expected to answer within the context of the question rather than in general terms.

(a) Most candidates were unaware that DTP was the abbreviation for Desk Top Publishing.

(b) Candidates had a reasonable understanding of the advantages of double-sided tape and hot-glue. A number of candidates answered out of context and compared their properties when joining other materials such as wood. These were rewarded as merit deserved.

The relative disadvantages were more problematic. Few candidates suggested the need for a clean surface, the effect of heat on the materials and the difficulty when preparing them.

(c) This was well attempted with most candidates scoring over half marks. As with part (b) many responses referred to applications other than the given example. This therefore proved to be a good discriminating question.

The hot-glue gun was sometimes confused with a 'nail-gun'.
Almost all candidates correctly identified the sketch of corrugated card/board.
The radius curve was rarely successfully named. Many thought it was a 'hole gauge'.
The craft/Stanley knife was usually correctly identified. Simply stating that it was a knife or even a cutting knife was insufficient to gain a mark.

(d) Generally a well answered question.

(i) Safety was a popular reason for plastic replacing glass for soft drinks bottles, closely followed by cost implications.

(ii) Polyethylene terephthalate (PET) was the desired answer but other suitable thermoplastics were viewed sympathetically, if appropriate.

(iii) Many candidates correctly identified an industrial process used to make plastic bottles. Injection blow moulding, blow or injection moulding were rewarded but vacuum forming was not.

Question 7

The majority of candidates attempted this question but with varying success. Full marks were rarely able to be awarded.

(a) (i) Many candidates achieved one mark by simply giving the generic term 'printer'. Few expanded the term to suggest a good quality outcome by stating laser, ink-jet or bubble jet printer.

(ii) This question was aimed testing knowledge of importing photographic images in Graphic Products. The most popular response was a scanner, but digital camera, camera mobile phone and Web Cam were all acceptable responses.

(b) Few candidates appeared knowledgeable about cutting axis. Weak candidates merely copied the given labels of blade and vinyl.

(c) The knowledge of the benefits of CAM in industrial processes was weak. Many candidates failed to distinguish between CAD and CAM. Responses which were credited included ease of storing data, speed of modifications and updates and continuous (24/7) working.

Question 8

A well attempted and generally correctly answered question although some candidates did not provide a detailed enough explanation to gain maximum marks. This question was aimed at understanding the graphic information on a drinks label and the disposal of a metal package.

(a) (i) This was almost universally correctly answered. The majority of responses linked *ml* to volume although a few candidates suggested that it was related to weight.

(ii) This part was poorly answered. Almost all candidates failed to recognise it as the mark of guaranteed quantity - the amount of product in the container within a strict tolerance. Many responses were guesses, with 'made in Europe' and 'environmentally friendly' often quoted. 'European standard' was an accepted response.

(iii) Many attempts of this question were successful. The recycling logo was almost universally recognised but some candidates suggested that it indicated that the package had been made from recycled materials rather than informing the consumer that it could be recycled. Marks were awarded as merit deserved. A number of candidates failed to comment on the 'alu' abbreviation and its function of identifying the material as aluminium.

(b) The TM symbol was well recognised and many candidates attempted to explain the meaning. Copyright and registered mark were frequently included in the explanations and some candidates attempted to define these phrases for the full three marks.

(c) The majority of candidates scored well on this graphic question. Some did not clearly show the can being crushed and were rewarded accordingly. The drawing was required to be in the same style as the given example, e.g. 2D, block coloured and without text. The common errors included 3D sketches and adding text to the drawing.

(d) (i) Many candidates appreciated that drink cans should be crushed to reduce volume, but then often failed to fully explain why e.g. advantages of collection, reduced transport costs and general practicalities of recycling.

(ii) This question produced mixed responses with many candidates struggling to find two different reasons why aluminium drink cans are not considered environmentally friendly. Preferred reasons included non-biodegradable, use of natural resources and high energy input during manufacture. Many candidates tended to concentrate on themes related to small animals, convenience of disposal and sharp edges.

Higher Tier Full Course (3543/H)

General Comments

Most candidates successfully completed the paper. There were very few blank sheets. The standard of drawing and graphic design continues to rise with numerous examples of outstanding quality. There was a good spread of marks across the paper.

As with the Foundation Tier, generation of ideas questions were well carried out and scored highly, but there was also a general lack of subject specific knowledge that prevented many candidates from attaining the highest marks.

Question 1

This was the first time a question on a pictograph had been asked and it proved to be a well answered question allowing the majority of candidates to gain maximum marks.

(a) Almost all candidates managed to ascertain the relative heights of the graph. A few candidates did not use the correct symbol and simply repeated the metal can for all types of container. Some also did not appreciate that one symbol represented 10 people and so 25 and 35 required half symbols in addition to full symbols.

(b) The quality of presentation was good. Sharp pencil and graphic line markers were correctly used. Sometimes the repeated drawing of the different container symbols presented some difficulties, at times the plastic bottle and the foil container became almost interchangeable. Marks were awarded as appropriate.

(c) Colour was effectively used in almost every instance.

Question 2

Although this was the first time the candidates had been asked to contribute to the creation of a design specification the majority rose to the challenge. It proved to be a well answered question with many candidates awarded maximum marks.

(i) (ii) (iii) Marks were lost mainly when the responses were either repeated or stated in a different form from the given specification points, or strayed into materials and anthropometrics. The question did clearly ask for the 'graphics for the *front face* of the foil container'.

Some candidates did not give a reasoned explanation for their choice of specification points and tended to make simple statements for example, brightly coloured, without explaining why they thought bright colours would benefit the product. The 'because' factor was frequently omitted.

Question 3

Generally a well answered question allowing candidates to demonstrate their designing and sketching skills. Some of the responses were of a very high standard and centres are to be congratulated on continuing to improve the quality of pictorial imagery. However, this is an ideas page and it is these ideas, their development and effective communication that are being rewarded. Presentational skills are asked for and rewarded in the next question.

(a) The majority of candidates faithfully addressed their six specification points. Many candidates folded sheet 2 to assist them. A small number either forgot their specification or decided to introduce new criteria, to the detriment of their score.

(b) Examiners reported there was a much better sense of development and this was rewarded accordingly. Some responses showed a number of discrete full front faces but with elements of development. Others presented separate developments of letter style, of sporting imagery and of colour combinations. All were equally valid and marked according to merit.

(c) The quality of sketching was in many cases excellent. Sharp pencils and graphic liner pens were much in evidence and correctly used.

(d) The candidates were asked to indicate colours suggesting notes or swatches on their designs. However many candidates produced excellent work on each of their ideas but unfortunately were indirectly penalised by committing too much time to these formative ideas. The next question is where presentational quality work is required and can be better rewarded.

(e) Evaluation was rarely well done with reasoned comments related to the relevant feature or design. Many candidates were content to either label self evident features or give superficial reasons for their work.

Question 4

The ideas generated in Question 3 were expected to be carried over to this presentation drawing. This was the one of the most successful questions on the paper and most candidates were able to score high marks. There were many imaginative responses, however over-elaboration marred many otherwise excellent solutions.

(i) The specification was well applied and the ideas from Question 3 brought forward. Unfortunately some candidates altered their designs from the preliminary sketches and treated this as a further stage in development which was not the intention of the question.

(ii) Drawing skills were generally good with candidates recognising the need for quality presentation. There was no over use of erasers this year and hardly any felt-tip pens. Many drawings were most impressive.

(iii) The layout of the design on the front face presented few problems to most candidates. Symmetry, balance and alignment were frequently displayed. However, some candidates did not plan their work, resulting in cramping or losing the ends of words, figures or symbols.

(iv) There was a lot of evidence of good work. Many candidates demonstrated advanced colouring techniques e.g. tonal control, 3-D effect, perspective. Where 'flat' block colouring was applied it was generally completed with skill and confidence. Examples of poor rendering and untidy work were very rare.

Question 5

Unfortunately the quality of written communication in this question may have prevented some candidates from being fully rewarded. Poor spelling, indecipherable handwriting, weak vocabulary and poor sentence construction made assessment quite difficult. Where the meanings could be understood credit was given.

Generally the evaluations were superficial with shallow statements that ranged from the self-congratulatory to the purely descriptive. For full marks more critical reasons were required. A minority of candidates approached their evaluations differently by commenting on what they had not done rather than what they had done e.g. I have not included a bar code because …. . These were rewarded as their merit deserved.

Question 6

All candidates attempted this question and all were successful in some part. It did allow for differentiation as few candidates were correct in all aspects of the question.

(a) There were many valid attempts at sketching the laminate and most were successful. These had obviously used the Preparation Sheet well. The layers were correctly identified and in the correct relative position. However, many candidates confused laminating with encapsulation and thus could not be rewarded.

(b) (i) The function of the outer coating of polyethylene film is to protect the paper and its printed imagery and not, as many thought, to keep the liquid inside the container. If candidates suggested that it prevented damage or dampness to the paper from external conditions, or to add gloss and aid presentation then they were rewarded accordingly.

(ii) The primary function of the paper core is to facilitate printing and to provide a structure for the container. This was readily recognised by most candidates.

(iii) The inner lining of aluminium foil provides a water proof layer which keeps the liquid in and bacteria out of the drink container. It has a secondary role as a thermal barrier, as suggested by a number of candidates.

(c) Most candidates appreciated that a *Tetra Brik* was unlikely to withstand the pressure exerted by the carbonated liquid. Some also identified the danger of puncturing a pressurised container.

(d) This was another well answered question. The expected reasons were well represented in the responses. Matters relating to security, hygiene or convenience were usually well explained and rewarded.

(e) (i) The expected answer of PET or Polyethylene Terephthalate was very popular and if the full spelling was attempted and recognisable, the mark was awarded. Other named thermoplastics were viewed sympathetically, if appropriate.

(ii) Many candidates correctly identified an industrial method of manufacturing plastic bottles. Injection blow moulding, blow or injection moulding were permitted but not vacuum forming.

Question 7

This question allowed the candidates to show their knowledge of CAD/CAM and was generally well answered.

(a) Most could correctly identify the distinctive feature of image manipulation. In the given illustration, examples of enlargement, magnification, cropped and colour change were provided. Sometimes candidates described these effects without giving the actual name. Where such descriptions were correct, marks were awarded.

(b) Responses were expected to relate the term to the given context of computer generated graphics. Unfortunately, many answers did not apply the term to the context.

(i) There was a general lack of understanding of the term DTP. Many candidates guessed, using the letters as inspiration. They were seldom correct but 'digital' and 'photograph', were popular attempts. Very few candidates illustrated their knowledge of DTP by stating that it was a combination of text and images used to create graphic products.

(ii) Many candidates recognised that images could be copied from a resource library, for example discs or the internet, and imported into the candidate's own work.

(iii) This was the best answered of the three terms used in this question. Obviously many candidates have first hand experience of visiting internet web-sites and extracting images and/or information for their own use.

(c) Many candidates correctly identified the x and y axis of a profile cutter. Weaker candidates tended to ignore this question or repeat 'blade' and 'vinyl' in the appropriate spaces.

Question 8

This question was intended to allow candidates to interpret signs and symbols on drink containers and recognise the problems associated with everyday packaging. To this end it was successful as most candidates offered valid explanations of everyday signs and symbols. Packaging problems provided discrimination, with many candidates scoring some marks and a few maximum marks.

(a) (i) The 288 ml piece of information presented no real problem to Higher Tier candidates and most correctly identified it as the volume of drink contained in the container.

(ii) As with the Foundation Tier paper this was rarely correctly answered despite the e-mark being printed on every package. It refers to the mean amount contained in the package and is a legal requirement of consumer protection.

(iii) This variation of the recycling symbol contained two elements both of which were usually correct. The abbreviation 'alu' refers to aluminium, the material used, and the moebius symbol shows that it can be recycled. A few candidates ignored the material part. Marks were allocated according to quality and completeness of the answer.

(b) The TM symbol recognised by almost all candidates. The quality of explanation varied but many associated it with a form of copyright or as a registered mark, which discouraged unofficial use of the name.

(c) A pictogram in the same style as the given example was popular with many responses gaining full, or nearly full marks. It was intended that the answer should focus on a symbol showing that the drink cans should be crushed, but many candidates included the crushed can being dropped into a litter basket. These candidates were not penalised, and if the meaning was clear full marks were available. There were two parts to this part of the question - communication of meaning and copying the given style. Thus a confused or incorrect meaning could still score if the style was identical, e.g. 2D, block black/grey colour and wordless. Common errors included use of 3D imagery and lack of clarity of meaning.

(d) Since packaging is a common application of graphic products, this question intended to extract knowledge of the problems associated with different types of inadequate packaging. The examiners were instructed to accept the term 'packaging' in its widest sense from the actual container to the printed imagery on its surface. Marks were awarded in proportion to the quality of understanding shown. Candidates who defined the layers of wrapping as under or over packaging were not penalised

(i) Under packaging refers to insufficient protection of the enclosed product. Additional marks were awarded for giving specific examples, e.g. damage in transit, security or hygienic considerations. Many candidates showed some understanding and gained some reward.

(ii) Over packaging is the opposite of under packaging. In this case unnecessary materials are used resulting in extra cost, waste of materials and problems of disposal. This was well attempted with most candidates showing some understanding and gaining some reward.

(iii) Deceptive packaging was the most difficult for candidates to explain but many were successful. Deceptive packaging is where there is an intention to deceive the purchaser by suggesting the enclosed product is not that which the package suggests. It may be different in size or in appearance; it could result in disappointment or legal action. A frequently quoted example was the packaging associated with Easter Eggs where the amount of actual chocolate is much less than the package implies.

Foundation Tier Short Course (3553/F)

General Comments

This paper was generally well answered and the work produced was of a similar standard to last year with no apparent misunderstanding of the questions. The majority of candidates completed the paper and achieved a degree of success in all questions. Examiners reported that there were still some candidates without access to coloured pencils. This inevitably had a detrimental effect on the final mark of those candidates.

Question 1

(a) All candidates gained full marks for accuracy by dividing the circle using the information given.

(b) The colour was, in nearly all cases, neatly applied with skill and control. There were a few examples of hatching mainly because of a lack of other colours. These cases tended to score fewer marks as line thickness, colour density and a lack of parallel lines detracted from the overall quality.

(c) The key was completed and matched the pie chart colours.

Question 2

The majority of candidates successfully gave three acceptable specification points. Some, however, repeated a given point with minor changes. For example they named a particular sport or activity, or suggested features outside of the given context e.g. 'easy to hold shape of bottle'.

Question 3

All but a very few candidates offered two different label designs.

(a) (i) In the majority of cases the specification points from question 2 were brought forward and used with the three given specification points to design the labels.

(ii) The two designs tended to be discrete but there were elements which showed development.

(iii) Candidates generally produced satisfactory drawings of their designs. There were a few examples of very good quality drawings, demonstrating controlled lines and differentiation of thickness.

(iv) The indication of colour was generally good with very few instances with no colour or poor application.

(v) There were very few examples of notes being added to designs and those candidates who did respond, simply labelled the design features giving no justification of their design thinking.

(b) Candidates did not always refer to their designs, and many responses were descriptive and superficial rather than explaining why the designs worked or did not work.

Question 4

Part (a) was generally well answered and enabled the candidates to use their specification and show off their drawing and rendering skills. There were many examples of very good work which scored well. Part (b) was worth 5% of the paper yet it appeared that the teaching in many centres appeared not to include this feature of graphic communication.

(a) (i) The majority of candidates successfully brought forward the specification points from questions 2 and 3, and most scored 4 or more marks.

(ii) Differentiation in line thickness and line density was evident in many cases. Evidence could be found in planning and positioning.

(iii) The majority of candidates produced labels, which had a satisfactory composition, and there were a number which had excellent visible impact and use of space.

(iv) Most candidates produced satisfactory colouring and some used good tonal control to gain the full marks available.

(b) (i) This was a poorly attempted question. Many candidates simply ignored it. Of those who did offer a response, a working knowledge of British Standard conventions was poorly applied. The vast majority of responses ignored hints given in the printed vertical dimension. Short dimension lines with or without a break, lack of leader lines, poor arrowheads, incorrect positioning of the number and inappropriate units were all amply demonstrated.

(ii) The correct symbol for a full size drawing was also very poorly done with few correct answers.

Question 5

(a) Most candidates attempted an evaluation of their design, but most statements were either superficial or simply a description without justification. The depth of evaluation necessary for full marks was rarely seen.

(b) This was well answered with many candidates achieving full marks. The majority of candidates understood why the straw was shaped as it is and mentioned piercing the foil membrane in the top of the carton, as well as describing how it is removed from the sealed air tight packet on the front of the carton. Interestingly, a few candidates explained how the straw's shape enabled the last drops of drink to be sucked up by reaching into the bottom corners of the container. All were rewarded as appropriate.

Question 6

This question attempted to extract a working knowledge of tools and equipment used to make a point of sale display in a school situation. Unfortunately, many candidates strayed outside this context and could not access the full range of marks.

(a) (i) Nearly all candidates correctly understood why double sided tape is used but did not always give a reasoned advantage, e.g. adheres to clean surface, economical, ease of application.

(ii) Most candidates were familiar with a hot-melt glue gun and demonstrated a knowledge of its use but as with part (i) often failed to give a reasoned advantage, e.g. speed of application, relative strength. Some candidates compared its ability to join other materials such as wood and so failed to relate their responses to the given context of a thin board stand.

(b) A varied response to this section was seen. Many correctly identified potential dangers associated with a hot glue gun but some responses were superficial (such as not pointing the gun at anyone), rather than relying on specific knowledge. Most answers scored maximum or near maximum marks.

(c) This question in part allowed most candidates to score, but no-one achieved full marks.

(i) Corrugated card was frequently correctly identified, although cardboard was sometimes incorrectly given. Its use in the given 'points of sale display' was usually correct.

(ii) The identification and use of scissors presented no problems to almost all candidates.

(iii) The radius template was almost never recognised. Most thought it was some sort of hole gauge. The radius-ed corners of the stand were never connected with this piece of equipment.

(d) This was a poorly answered question which aimed to test the basic graphic skill of representing textured and curved forms.

(i) Those candidates who attempted this part produced a drawing with some relief visible, usually vertical serrations, but very few produced work that indicated they understood how to represent texture on the bottle top.

(ii) This was very poorly answered. Many candidates did not attempt to represent the cylindrical surface and those who did either produced an incorrect representation or a response which showed little understanding of the correct graphical method.

Question 7

This question was aimed at interpreting signs and symbols found on drinks containers. It was usually answered well.

(a) Nearly all candidates showed a good understanding of the information shown on the label and gained full marks. Each symbol was usually well explained and maximum marks were frequently awarded.

(b) Almost all candidates attempted this part of the question. The exact meaning was not always clear, the crushed can was often difficult to identify but some understanding was evident. Many attempts at copying the same style failed because the drawing was not block coloured.

(c) There were many attempts at this question some showed a basic understanding of 'environmentally friendly' but did not always link it to aluminium drink cans. Correct responses were expected to include points such as biodegradable, use of a natural resource or energy usage. Incorrect answers frequently described trapped animals and young children cutting or hurting themselves.

Higher Tier Short Course (3553/H)

General Comments

The paper allowed the majority of candidate to attempt all questions, and skills and knowledge were applied effectively. There were very few blank sheets. Designing, rendering and general annotation continues to improve.

Question 1

This was particularly well done. Accuracy and quality of rendering was that expected from Higher Tier candidates.

(a) Overall, accuracy was good with the correct quantities represented.

(b) Representation of the information varied a little, with some candidates not using the scale of one symbol for every ten people in the sample. Also, some responses had sizeable gaps between the symbols in each column. In a few instances the same symbol, the can, was used throughout the pictograph.

(c) The quality of the rendering was usually good enough for the majority of candidates to gain full marks.

Question 2

As in the other papers, this section was well attempted. Some reasons were not sufficiently detailed for full marks to be awarded. Many reasons were superficial, e.g. 'to stand out', rather than giving reasons how and why it should stand out – e.g. the colours, the composition, aid sales etc. Some candidates repeated, with minor variations, what was already given, e.g. AQAPOP must be bold.

Only a few candidates failed to complete Points 4 and 5. Some referred to the properties of the container rather than the graphics on the front face, e.g. 'the top must come off easily'.

Question 3

Many good designs were offered with humour and wit. Some designs lacked simplicity because they were 'cluttered' up with excessive text and unnecessary detail. Many candidates appeared to spend too much time on these initial sketches especially on the quality of the rendering when a simple indication of colour was sufficient at this stage.

(a) It was obvious that many candidates used the folded sheet 2 to ensure that all the specification points were incorporated in their designs. Many candidates accessed the full marks. Often it was difficult to know if it really would appeal to young people.

(b) Development is improving and this was clearly evident. Candidates are starting to break aspects of the design down and address each in turn. Development usually involved letter styles and sporting figures.

(c) Many candidates spent a lot of time neatly reproducing the container several times. Most sketches were neat and tidy which aided communication of ideas. The space available was well used.

(d) Colour was usually used or indicated. There were many examples of high quality rendering which was more than required for these formative drawings. The time thus saved would be better spent on Question 4 – the presentation drawing question.

(e) Some candidates were content to label rather than annotate their designs. Annotation must include reasons and justifications to access the higher marks.

Question 4

There were many excellent drawings which demonstrated a high level of skill which allowed access to the highest marks. This was possibly the best answered question on the paper. The overall impression was one of near professional quality.

(i) The full specification was frequently applied.

(ii) As implied above, the quality of drawing was very good. Line work was good throughout, and neatly applied. Many candidates had access to graphic liner pens that frequently enhanced the final design.

(iii) The layout of the design was also well thought out with construction lines evident. The upper sloping surface of the front face of the container was well negotiated by candidates placing text and graphics at the appropriate angle. A few candidates penalised themselves by applying designs to the side panels. A feature was not required for this question, likewise rendering of the cap was not necessary.

(iv) The quality of colouring was good. Colour was applied within the required areas with little spilling out, block colouring was even and tonal control was well applied. Felt tip and metallic ink pens were rarely used and coloured pencils were the most popular media.

Question 5

This was generally poorly answered with the depth of answer rarely sufficient to qualify for full marks.

(a) Few candidates accessed the higher marks because they failed to give a detailed and reasoned comment about each point. As in the other papers, comments tended to be self congratulatory or superficial rather than giving a more critical review of the feature. 'How', 'why' and 'because' were seldom addressed.

(b) The advantages of a plastic label over a paper label were well stated and candidates showed a clear understanding of the materials, their properties and applications. If the depth of detail given here was presented in part (a), many candidates would have benefited.

Question 6

A poorly answered question. The general impression was that it was rushed through with few candidates attaining the highest marks. Despite an example of *Tetra Brik* being given on the Preparation Sheet and materials listed on its Ideas Web, candidates appeared to be unaware of the structure and uses of laminate materials.

(a) Very few candidates correctly identified the three layers used in drinks carton. Maybe candidates copied the order given in the question's rubric. Many confused the position of paper and polyethylene.

(b) (i) Most candidates realised that its primary use was to be printed on and many considered it a strong material but failed to explain why. Weaker candidates stated reasons such as to 'cheap' and 'can be recycled'.

(ii) Few realised that the purpose of polyethylene was to protect the exterior surface, protect the printing and enhance the appearance of the carton. A common answer was simply to 'waterproof' with little explanation. It was popularly assumed, incorrectly, that its job was to keep the drink inside the container.

(iii) Aluminium was reasonably well answered. Its waterproof qualities were appreciated.

(c) This question was usually well answered, but some candidates thought the *Tetra Brik's* inner aluminium foil would react with gas, often described as air, and contaminate the drink.

(d) Many responses lacked the depth of understanding but some candidates realised that convenience, security and hygiene were involved.

(e) (i) Many sensible answers were presented and each rewarded according to its merits. Few appeared to appreciate that glass too can be recycled and it is not the sole prerogative of plastics.

(ii) Well answered. Some candidates gave the full name of Polyethylene Terephtatate, others abbreviated it to PET but both answers were accepted as correct. Other thermoplastics, if appropriate, were also rewarded.

(iii) Again many candidates correctly identified the industrial process used to form plastic bottles. Injection blow moulding, injection and blow moulding were all rewarded but vacuum forming was incorrect.

Question 7

This question was aimed at understanding and interpreting signs and symbols found on drinks containers and recognising problems associated with packaging. It was usually answered well.

(a) (i) About half the candidates got this question correct, relating it to the amount of liquid inside the container.

(ii) This was poorly answered. Some guessed at environment, European made and even an e (additive) number instead of a standard amount of content.

(iii) The recycling moebius symbol was invariably correct, although some candidates thought it referred to the container being made from recycled material.

(b) This pictogram was generally well answered. Many candidates copied the original diagram but replaced the piece of paper with a crushed can. The representation of a crushed can was not always successful and was often hard to recognise. However, marks were picked up if the diagram was in 2D, solid colour and without text.

(c) This part of the question was generally well answered with many candidates picking up more than half marks. Sometimes the descriptions were a little hard to decipher.

(i) Under packing referred to insufficient protection of a product resulting in damage, contamination or loss of components.

(ii) Over packaging was recognised by many candidates as a waste of materials, resources and money. A minority of candidates identified difficulty in opening as a real problem. Generally a well answered part.

(iii) Deceptive packing was more difficult but many candidates deduced an answer which gained them some reward. Deceptive packaging is just that - packaging that intends to deceive the purchaser either by exaggerating the box and implying a larger product than it actually is, or by misleading imagery on the outer wrapping.

Coursework (3543/C and 3553/C)

Introduction

This is the third year that the AQA Specifications 3543 & 3553 have been used by centres entering candidates for the Design and Technology focus area of Graphic Products.

The work presented by candidates has continued to develop with new materials, resources and manufacturing techniques being applied to a growing selection of design scenarios. The range of work seen has been encouraging with the majority of centres undertaking a range of appropriate projects capable of challenging candidates of all abilities.

Centres should be reminded that the moderation procedure is completely confidential and the moderator is not permitted to offer verbal feedback during their visit. This is particularly so given that moderators are not in a position to determine whether or not any adjustment will be made to centre marks at a later date. Written feedback will be available when results are formally announced.

Architectural Models

Centres are still undertaking café/wine bar projects or the redevelopment of a community play area. These design situations do not always allow candidates to address the three assessment objectives that are a key tenet of this and all other Design and Technology GCSE Specifications. Candidates following the café/wine bar project, in many cases complete inappropriate research. This is often because candidates are focussing upon the construction of a scale model, rather than looking to create the actual redevelopment of a commercial/leisure site. The other key concern is that candidates following this type of project cannot address the assessment objective that stipulates candidates need to design products that can be manufactured in quantity. This type of project can be adapted to enable candidates to address the three assessment objectives by encouraging them to focus upon the creation of a range of promotional materials for their selected design situation. The 3-D model could form part of a candidate's submission for the redevelopment of a specific design situation. **Candidates submitting only a scale model will not be able to access the higher grades.**

Designing Skills

Research

Many centres are now encouraging candidates to record only appropriate research, rather than allowing candidates to reproduce areas of research that has no relevance to their selected design theme. However, there are still a small minority of centres that are allowing candidates to explore and record totally irrelevant research. This is time consuming and gains the candidate very little credit in this crucial design skill. Candidates should be encouraged to research key pieces of information throughout the design process. To achieve the higher grades in this skill area, candidates are expected to analyse their findings and apply this knowledge to their future ideas. Many candidates are now beginning to exhibit this design skill in their submitted design folders.

Specification

Many candidates have improved in this area. Candidates are now responding to the requirements laid down in their own design briefs.

Generation of ideas

Some candidates are failing to exhibit a range of potential ideas for this design skill. However, many candidates showed evidence of creating high quality solutions which were then illustrated to a third party using a wide variety of graphical techniques. These ideas should form the basis of future ideas. A candidate needs to develop their selected solution and provide sufficient information to enable a third party to manufacture the idea/s. Many centres are now encouraging candidates to test and prototype potential ideas at this early stage of the design process. Candidates will then decide which of their ideas fulfils the requirements of their specification.

Planning of making

It is now appreciated that this is a designing skill and should be completed by candidates prior to the construction of their selected idea/s. Many centres are linking this aspect into Quality Assurance/Quality Control, with system analysis elements being included in the candidate's submission. Flow Charts are being used to monitor the production runs, with many candidates now addressing Assessment Objectives A, B and C. Candidates have introduced feedback into their systems, highlighting when Quality Control checks would be carried out to ensure the production of quality products.

Candidate's design folders have also included Gantt Charts and Just in Time schedules. Some candidates have submitted planning sheets, showing how they will manage their own time during the final stage of their GCSE course. This is a useful Teaching Strategy, enabling candidates to manage their time effectively, but should not be used as a substitute for the Product Planning Element.

Evaluation, testing and modifications

Evaluations should relate to the product or products designed by the candidate rather than referring to the design process covered by the candidate. This final design skill does not just focus upon a final product evaluation. Many candidates are now including modifications which are incorporated into the selected idea, plus recording results of any testing that has been carried out on the actual products. This enables them to present their results using a wider range of communication techniques.

ICT

With the introduction of ICT, centres should be reminded that candidates being rewarded the highest grades need to exhibit a range of graphical and computer generated drawing techniques. Candidates must always provide evidence to show how their idea or image has evolved or been manipulated.

Making Skills

Many candidates created a range of appropriate and high quality solutions for the making element of their GCSE coursework. Moderators reported seeing continued development of candidate's prototyping their selected ideas before manufacturing a final product; this is seen as good practice. Candidates have started to create a range of products for their selected design solution. This has enabled them to exhibit a wider range of appropriate making skills. Products that are both hand manufactured and also computer manufactured have been seen, enabling candidates to access the higher grades for the Making Element.

In the main, candidates have manufactured their projects from appropriate materials. Problems encountered in previous years where projects have been manufactured from Resistant Materials have only been witnessed in a small number of centres this year.

The section where candidates record their amendments, the 'correction of working errors' section, was often leniently assessed. The candidate must recognise and then justify any changes, adaptations or modifications if they are to be rewarded grade C or higher for this making skill.

Use Of ICT

There has continued to be an increased use of ICT including CAD & CAM this year. The majority of candidates have produced evidence demonstrating use of ICT to create their professional outcomes. This has been achieved by either printing sequential full size illustrations showing the incremental stages or using screen dumps to illustrate the evolution of their final concept. It is essential that candidates provide this evidence, to enable the moderator to verify the work is that of the candidate's. Without this evidence it is difficult to distinguish between images generated by the candidate or those which are either clip art or scanned images. The teacher comment space on the Candidate Record Form can also substantiate the award that has been recorded for individual candidates.

A major area where candidates are now exhibiting a wider application of ICT has been witnessed in the manufacture of Graphic Products. Computer Aided Manufacture has resulted in professional outcomes being presented for a wide range of Graphic Outcomes.

Assessment Procedures

When making assessments, teachers should ensure candidates have not been rewarded when there is no evidence available. It should be ensured that the levels recorded in the centre of the Candidate Record Form are transferred accurately onto the back page of this form.

Centres should be reminded that when generating the holistic grade for either designing or making they must take into account the levels awarded for each sub section. If a candidate fails to present evidence for a section, then each of this section should be awarded a grade U. The grade for each section should be taken into account when generating the final designing and making grade. It is essential that these final designing and making grades are recorded on the back of the CRF as this generates a mark out of 90. The QWC mark should then be recorded before a total mark out of 95 is arrived at.

Annotation

In some centres there was no evidence of annotation needed to support the levels awarded to individual candidates. When prototypes have been created and then tested to destruction, photographic evidence or written evidence provided by the teacher would help the moderator to support the teacher's assessment.

There are also concerns relating to the candidate's input when using CADCAM. A note by the teacher on the Candidate Record Form should be made to support the level of award for this particular design or making skill.

Administration

The vast majority of centres completed all aspects of administration swiftly and effectively, this enabled the moderation procedure to be carried out within the allocated period of time. However the following areas did cause concern.

- Failure to complete all the relevant candidate details on the Candidate Record Form.
- Incorrect completion of the final matrix on the CRF. Centres are reminded that whole grade assessments (e.g. A, C, D etc) should be made for the sub section of the making/designing (e.g. research etc), but a refined grade (HA, MC, LD etc) should be recorded for the final making/designing section. A "low A" should be recorded as LA and not just A, or -A.
- Centre Declarations Sheets were often not completed or signed and dispatched to the moderator with the selected design folders.
- Centres should note that if they have fewer than 20 candidates submitting work for this specification, they should send the design folders of **all** their candidates to their moderator by May 5th.
- Centres with more than 20 candidates should send the design folders of the selected sample of candidates to the moderator within 5 working days of their request. Some centres took far longer this year. This caused major problems for moderators as they were not able to keep to the tight deadlines of the moderation period.
- Centres failed to send their folders to the moderator in a secure state. Some folders were simply held together with a paper clip. A treasury tag in the top left hand corner of the design folder is the preferred method of securing folders.
- Centres should send folders to their moderator using First Class post only. A Certificate of Posting should be obtained as proof that the folders were sent by the required date. Carriers such as Parcel Force are not recommended. Many moderators are not able to sign for these packages during the day as they are working. There have been instances when packages have been left in a depot for long periods of time without the moderator being notified.
- Folders should be sent to the moderator in rank order of total mark, rather than by candidate number.
- Candidates' making elements should be laid out in the same rank order if a moderator requests to visit a centre. All work should be clearly identified with candidate name and number.

Short Course

All of the points outlined above in the Full Course report are also applicable to candidates and centres with entries for the Short Course.

Moderators have been impressed with the exceptional levels of Graphics exhibited by some candidates taking this short course. It must be remembered that candidates entered for the short course, still need to address all of the assessment objectives outlined in the specification. If a candidate addresses all of the elements on the Candidate Record Form, they will have covered the three assessment objectives. There were similar problems to the full course with the system used for recording the grades achieved by individual candidates. Candidates need to be awarded a grade for each designing and making skill (e.g. research, analysis, specification etc). This is only refined to high, medium or low when the holistic grade is awarded for the designing and making sections. The specification does not use + or – to differentiate levels of achievement.

Summary

- Many high level projects were created by the cohort of candidates taking this GCSE during 2005.
- Centres are now becoming more confident with the interpretation of this GCSE specification.
- Design briefs undertaken by candidates must to allow them to address the three assessment objectives.
- Key elements of this GCSE specification include industrial practice and designing products that can be manufactured in quantity.
- Centres are still undertaking café/wine bar projects or the redevelopment of a community play area. These design situations do not always allow candidates to address the three assessment objectives that are a key tenet of this and all other Design and Technology GCSE Specifications.
- Candidates following the café/wine bar project, in many cases complete inappropriate research. This is often because candidates are focussing upon the construction of a scale model, rather than looking to create the actual redevelopment of a commercial/leisure site. The other key concern is that candidates following this type of project cannot address the assessment objective that stipulates candidates need to design products that can be manufactured in quantity.
- This type of project can be adapted to enable candidates to address the three assessment objectives by encouraging them to focus upon the creation of a range of promotional materials for their selected design situation.
- The 3-D model could form part of a candidate's submission for the redevelopment of a specific design situation. Candidates submitting only a scale model will not be able to access the higher grades.

AQA is grateful to those centres who allowed a selection of their candidates work to be used as exemplar material for awarding meetings.

Mark Range and Award of Grades

Full Course

Foundation tier

Component	Maximum Mark (Raw)	Maximum Mark (Scaled)	Mean Mark (Scaled)	Standard Deviation (Scaled)
Paper	125	140	70.9	18.1
Coursework	95	210	105.0	41.1
Foundation tier overall 3543/F	--	350	175.9	50.3

		Max. mark	C	D	E	F	G
Paper boundary mark	raw	125	85	73	61	49	37
	scaled	140	95	82	68	55	41
Coursework boundary mark	raw	95	60	48	36	24	12
	scaled	210	133	106	80	53	27
Foundation tier scaled boundary mark		350	220	182	145	108	71

Higher tier

Component	Maximum Mark (Raw)	Maximum Mark (Scaled)	Mean Mark (Scaled)	Standard Deviation (Scaled)
Paper	125	140	95.3	15.2
Coursework	95	210	163.2	33.5
Higher tier overall 3543/H	--	350	258.5	41.3

		Max. mark	A*	A	B	C	D	allowed E
Paper boundary mark	raw	125	104	98	92	86	72	--
	scaled	140	116	110	103	96	81	--
Coursework boundary mark	raw	95	95	84	72	60	48	--
	scaled	210	210	186	159	133	106	--
Higher tier scaled boundary mark		350	322	290	259	229	187	166

Provisional statistics for the award

Foundation tier (22 880 candidates)

	C	D	E	F	G
Cumulative %	19.2	47.9	70.5	84.5	93.4

Higher tier (32 455 candidates)

	A*	A	B	C	D	allowed E
Cumulative %	3.4	24.8	53.2	77.9	94.4	97.0

Overall (55 335 candidates)

	A*	A	B	C	D	E	F	G
Cumulative %	2.0	14.5	31.2	53.6	75.2	86.0	91.9	95.5

Short Course

Foundation tier

Component	Maximum Mark (Raw)	Maximum Mark (Scaled)	Mean Mark (Scaled)	Standard Deviation (Scaled)
Paper	100	120	63.4	16.9
Coursework	95	180	73.6	36.0
Foundation tier overall 3553/F	--	300	137.1	45.2

		Max. mark	C	D	E	F	G
Paper boundary mark	raw	100	67	56	46	36	26
	scaled	120	80	67	55	43	31
Coursework boundary mark	raw	95	60	48	36	24	12
	scaled	180	114	91	68	45	23
Foundation tier scaled boundary mark		300	186	153	121	89	57

Higher tier

Component	Maximum Mark (Raw)	Maximum Mark (Scaled)	Mean Mark (Scaled)	Standard Deviation (Scaled)
Paper	100	120	82.4	12.3
Coursework	95	180	135.9	32.5
Higher tier overall 3553/H	--	300	218.3	39.5

		Max. mark	A*	A	B	C	D	allowed E
Paper boundary mark	raw	100	91	82	73	65	53	--
	scaled	120	109	98	88	78	64	--
Coursework boundary mark	raw	95	95	84	72	60	48	--
	scaled	180	180	159	136	114	91	--
Higher tier scaled boundary mark		300	276	253	222	192	155	136

Provisional statistics for the award

Foundation tier (734 candidates)

	C	D	E	F	G
Cumulative %	13.9	38.1	60.4	79.3	92.5

Higher tier (921 candidates)

	A*	A	B	C	D	allowed E
Cumulative %	3.4	20.6	50.5	77.7	93.5	96.5

Overall (1655 candidates)

	A*	A	B	C	D	E	F	G
Cumulative %	1.9	11.5	28.1	49.4	68.9	80.5	88.9	94.7

Definitions

Boundary Mark: the minimum (scaled) mark required by a candidate to qualify for a given grade. Although component grade boundaries are provided, these are advisory. Candidates' final grades depend only on their total marks for the subject.

Mean Mark: is the sum of all candidates' marks divided by the number of candidates. In order to compare mean marks for different components, the mean mark (scaled) should be expressed as a percentage of the maximum mark (scaled).

Standard Deviation: a measure of the spread of candidates' marks. In most components, approximately two-thirds of all candidates lie in a range of plus or minus one standard deviation from the mean, and approximately 95% of all candidates lie in a range of plus or minus two standard deviations from the mean. In order to compare the standard deviations for different components, the standard deviation (scaled) should be expressed as a percentage of the maximum mark (scaled).