

GCSE

Design and Technology: Graphics

General Certificate of Secondary Education **J303**

OCR Report to Centres June 2014

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

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

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

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A531 Introduction to designing and making

General Comments:

Controlled Assessment

Overview

The standard of work presented for moderation this session has generally been very good, with the outcomes produced being suitable for the OCR D&T: Graphics Unit A531 Introduction to designing & making and A533 Making quality products.

Most candidates had chosen one of the themes and starting points from the specification. In a few cases candidates had chosen a theme but then adopted their own starting point. Candidates need to be advised that they must adopt one of the themes and its respective starting point outlined on pages 50-51 of the specification. Most Centres used compliant graphic materials as outlined in the specification for D & T: Graphics. The compliant materials are outlined on page 16 of the specification.

All Centres need to provide the minimum **two photographs** of the completed prototype product. Centres are asked to ensure that photographs are of a sufficient size and clarity to provide full detail of the prototype product. Centres provided both portfolios scanned to disc and uploaded portfolios on the OCR Repository for moderation. Centres are reminded that only one of these methods can be used at any one time by the centre.

The outcome of these units is a prototype/product, and most candidates were able to complete this task.

u. Centres are reminded to apply the mark scheme on a 'best fit' basis. For each of the assessment criteria, band descriptor provided in the marking grid that best describes the work of the candidate should be selected. Marks should be positive, rewarding achievement rather than penalising failure or omissions. When teachers select the most appropriate mark within the descriptor, they should use the following guidance:

- Where the candidate's work convincingly meets the statement, the highest mark should be awarded
- Where the candidate's work adequately meets the statement, the most appropriate mark in the middle range should be awarded
- Where the candidate's work just meets the statement, the lowest mark should be awarded.

Centres are reminded that the OCR GCSE D & T: Graphics assessment 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.

The use of CAD/CAM was evident throughout all the candidates' work submitted for moderation, though some Centres used it more extensively than others. It is pleasing to see that candidates showed evidence of their understanding and ownership of design work generated and manufactured using this method. There was some evidence of prototype products manufactured using CAM suddenly 'appearing' with no supporting evidence within the candidates' design portfolio. Screen shots provide evidence of the development of ideas using CAD/CAM and are evidence of modelling being undertaken by candidates.

Centres need to take great care when making the distinction between guidance and prescription. Centres should avoid the over-reliance on writing frames for candidates' work. It is essential that candidates have the opportunity to show flair and creativity in the way they approach the various aspects of this unit.

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 controlled assessment proposals to a full programme of In-Service Training meetings.

Administration

Communication was satisfactory and most assessment material reached the moderators in plenty of time. A few centres failed to meet the assessment deadlines and this greatly hindered the moderators' tasks. Centres provided individual controlled assessment cover sheets for each candidate. Centres are reminded that moderators still need to receive the Centre Authentication form CCS160 and MS1.

Most centres provided clear evidence that internal moderation and standardisation had taken place. Centres are reminded to allow sufficient time to carry out effective internal standardisation prior to the submission of marks.

There were few inaccuracies in centre paperwork. The provision of annotated controlled assessment cover sheets for 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

Most folders were 12-15 pages of A3 or equivalent. Unit A531 and Unit A533 are controlled assessments that should each be completed in 20 hours. It was apparent that most candidates had produced their folders within the allocated time. Guidance regarding editing, suitability of content and concise presentation is still required by some candidates. With such a tight time allowance it is essential that candidates are encouraged to edit content and avoid duplication or irrelevant material. Centres are advised to plan the amount of time that they allow candidates to spend on each of the assessment strands.

A531 Introduction to designing and making

Candidates clearly need guidance to complete the creativity strand. From the theme and starting point candidates should identify at least two appropriate existing products to analyse. From this analysis they need to establish an understanding of the principles of **good design** for the product and then identify **the trends** in the design of the existing products. From these findings candidates should demonstrate that they have an understanding of the needs of the users. With all this information to hand candidates should then produce a clear concise and precise design brief.

Successful candidates:

- Provided examples of users and the users' needs.
- Carried out a thorough analysis of at least two existing products identifying what made them good designs and explained the significance of any trends in these existing products.
- Used sketches and photographs to illustrate their findings. They briefly analysed the information gathered before using this to generate a concise design brief that clearly identified the product and users.

Designing

Candidates should start this strand by analysing their design brief. They then need to produce a suitable specification for their prototype product. Candidates are advised to make clear links between their analysis of the design brief and the design specification.

The design specifications produced by candidates varied in content and detail this session. Some candidates produced simple lists that were vague and generic and which could well have applied to most prototype products. Other candidates provided unique, detailed specifications that clearly applied to the prototype product they intended to make. A good design specification forms an essential checklist that will guide the candidate through this controlled assessment.

Most candidates used freehand sketching to illustrate their initial design ideas. Some candidates generated and developed detailed ideas showing a range of various styles, shapes and surface graphics solutions. These ideas were fully explained with notes. Most candidates were able to identify and fully explain their choice of final idea. It is essential that candidates do develop the initial ideas with regard to surface graphic layouts and shapes or style to fully reflect the specifications.

To illustrate their chosen prototype design many candidates produced an orthographic drawing and provided further details of prototype, its sizes, its construction and materials to be used. However, a growing number of candidates failed to provide details of their proposed prototype. An orthographic drawing should form an essential part of the designing strand. If the candidate has created a net solution then a final detail would be the net layout with sizes and surface graphic details.

Many candidates used ICT to present their detailed drawings and surface graphics. At this stage some candidates clearly used ICT to produce a final design for their prototype, but failed to include in their portfolios the developmental work that they had clearly undertaken using ICT. A series of screenshots of the work they had undertaken would allow them to gain greater credit. These screenshots should not just be of the final design created, but also reflect and show any development work of surface details for the design.

For candidates to achieve high levels of competency marks for surface graphics, they need to show that they have used sufficient rigour in creating the graphics and that they have adapted or developed the graphical images from the original ideas and concepts. If a candidate only takes the images without adapting them, i.e. 'cut and paste' using just original images from the internet, then candidates are not demonstrating high levels of competency in producing the surface graphics.

It was a concern to see that this section was the least well-executed area of the portfolio this session. The quality and variety of sketching and range of methods used were not particularly polished nor very creative. It is not sufficient to include three or four design ideas of a similar style/design in this section for the higher marks. Care must be taken to ensure the ideas presented by the candidate show differences in style, shape and surface graphic layouts.

Successful candidates:

- Briefly analysed their design brief and drew conclusions from this work.
- Incorporated a structured and detailed design specification.
- Presented their design ideas using pencil sketches to generate a range of free-flowing ideas that were then fully explained with annotation.
- Used a range of media to develop their ideas for style, shape and surface graphics
- Explained, with reasons, their choice of prototype product.
- Produced a detailed scale drawing of the prototype product giving full details of possible materials, likely construction methods and processes, and of surface graphics.
- Communicated their designs using appropriate skills and techniques including ICT.

Making

Most candidates successfully produced a prototype product. Overall, this was the most successful aspect of the work seen. Most candidates appeared to have worked skilfully and safely to produce prototype products of reasonable to high quality.

Most candidates provided some evidence of modelling in their portfolios. It is essential that all candidates include evidence of modelling in order to gain credit. Modelling evidence might include cut and paste examples of models, photographic images, and screenshots showing how their design was modelled and developed using ICT.

Surface graphics were successfully applied to most prototype products seen using both traditional rendering methods and the extensive use of ICT.

Most candidates had chosen compliant materials for graphics for their prototype products and had made sound choices of tools and equipment. Furthermore, all candidates had chosen and used facilities appropriate to graphics.

Two dimensional solutions

Centres need to understand that the making assessment strand requires candidates to both make a prototype/product from compliant materials and apply graphics to that product/prototype. There is a danger that a 2-dimensional outcome may require only limited making and this will make it difficult to apply the full range of marks when little making has taken place. For example, for a paper/card insert for a plastic CD/DVD case there is little making to assess, just the graphics that have been applied. If, however, a candidate produces a card CD/DVD case (box set type or a more complex card structure) and then applies graphics, both making elements can be assessed and the full range of marks applied.

If there is insufficient rigour and depth to work produced in the surface graphics of these 2D solutions then the prototype can only attain the basic ability strand for the making. To achieve higher marks for the surface graphics candidates are required to manipulate and develop these graphics, rather than a simple cut and paste solution.

Important: It is essential that candidates include in their portfolio, written evidence that they have effectively solved technical problems as they had arisen. This aspect of the assessment was often over marked by Centres, with high marks awarded where little evidence was present in the portfolios.

Almost all candidates had planned the making of their prototype product. Most candidates had then included a record of the key stages in making the prototype product using notes, sketches and photographic images. Many had highlighted difficulties and problems they had encountered and how they had overcome them. This is to be commended.

Successful candidates:

- Used modelling to identify problems and made appropriate modifications.
- Clearly assessed the suitability of the prototype considering in detail the needs of the user.
- Made appropriate choices of materials, tools and equipment.
- Worked skilfully and safely to produce a high quality prototype product suitable for the intended user, which had surface graphics applied that demonstrated a high level of competency.
- Assessed and applied knowledge appropriate for graphics.
- Demonstrated their ability, in writing, to solve problems effectively and efficiently as they arise.
- Recorded the key stages in the creation of the prototype product providing comprehensive notes and visual evidence.

Critical evaluation

Many candidates based their evaluation on their prototype product and specification. In many cases the modifications candidates outlined were improvements to the prototype product.

The specification for unit 531 clearly states that the evaluation should be of the designing and making process only. Furthermore, any modifications proposed by the candidate should be of ways to improve the designing and making process. The record that candidates will have kept of the designing and making of the prototype (in the making strand) together with the recording of any technical problems the candidate had overcome (also in the making strand) should form the basis of their evaluation.

Successful candidates:

- Produced a critical evaluation that evaluated the processes involved in designing and making their prototype product.
- Were able to reflect and suggest modifications to improve the modelling and prototyping processes, through reference to their planning and recording of the stages in making their prototype product.

Quality of written communication

Centres applied this mark fairly and accurately. Candidates should be encouraged to use appropriate specialist terms throughout their folder.

References

Centres must ensure that candidates reference or acknowledge their sources within the portfolio. Quotations must also be clearly marked and a reference provided wherever possible.

A533 Making quality products

Designing

Candidates should start this strand by stating and analysing their design brief. **Candidates do not need to include product analysis or extensive research in this unit.** It is sufficient to add a brief personal analysis of aspects of the theme that has inspired the candidate. They then need to produce a suitable specification for their product. Candidates are advised to make clear links between their analysis of the design brief and the design specification.

The design specifications produced by candidates varied in content and detail. Candidates need to justify each specification. Some candidates did provide uniquely detailed specifications that clearly applied to the product they intended to make. A good specification forms an essential checklist that will guide the candidate through this controlled assessment.

Most candidates used freehand sketching to illustrate their initial design ideas though these were often of very poor quality. Enhancement techniques were rarely used. Some candidates generated and developed detailed ideas showing a range of various styles, shapes and surface graphics solutions, which were fully explained with annotation. Most candidates identified a chosen idea, but a few failed to explain their choice of design solution.

To illustrate their chosen prototype design most candidates produced an orthographic drawing and provided further detail of the product, its construction and materials to be used. Many candidates used ICT to present their detailed drawings and surface graphics. At this stage some candidates clearly used ICT to produce a final design for their prototype using ICT but failed to include in their folders the developmental work that they had clearly undertaken using ICT. A series of screenshots of the work they had undertaken would have allowed them to gain greater credit.

Successful candidates:

- Briefly analysed their design brief and drew conclusions from this work.
- Incorporated a structured and detailed design specification.
- Presented their design ideas and developed them using a variety of media to generate a wide range of ideas which were then fully explained with annotation against the specification points.
- Explained, with reasons, their choice of quality product.
- Produced a detailed scale drawing of the product giving full details of possible materials, likely construction methods and processes, and of surface graphics.
- Communicated their designs using appropriate skills and techniques including ICT.

Making

Most candidates successfully produced a quality product. Overall, this was the most successful aspect of the work seen. Most candidates appeared to have worked skilfully and safely to produce products of a high quality.

Planning consisted of a flow chart for most candidates. A plan in a table format that shows each stage, tools, quality points, equipment and processes would be of benefit to candidates.

Few candidates provided any real evidence of modelling in their folders. Clearly modelling must have taken place as products had developed from earlier designs. It is essential that candidates include evidence of modelling in their folders in order to gain the higher marks.

Surface graphics were successfully applied to most products seen using both traditional rendering methods and the extensive use of ICT. If there is insufficient rigour and depth to work produced for the surface graphics then the product can only attain the basic ability strand for the making. In order to achieve higher marks candidates needed to show that they had manipulated and developed their surface graphics rather than using simple cut and paste solutions in their application of these images for their final product.

Most candidates had chosen compliant materials for graphics for their products and had made sound choices of tools and equipment. Furthermore, all candidates had chosen and used facilities appropriate to graphics.

Important: It is essential that candidates evidence, in writing, that they have effectively solved technical problems as they had arisen. This aspect of the assessment was often over marked by centres, with high marks awarded where little evidence was present in the portfolios.

Most candidates had included a record of the key stages in making the prototype product using notes, sketches and photographic images. A photographic record with annotation or even a scrapbook diary that is completed in each lesson would be useful in completing this section. Centres are reminded that for all aspects of the making process evidence must be provided in the portfolio.

Successful candidates:

- Used modelling to identify problems and made appropriate modifications. They provided a clear making plan.
- Clearly assessed the suitability of the product considering in detail the needs of the user.
- Made appropriate choices of materials, tools and equipment.
- Worked skilfully and safely to produce a high quality product suitable for the intended user with surface graphics applied that demonstrated a high level of competency.
- Assessed and applied knowledge appropriate for graphics. Successful candidates clearly demonstrated in writing, their ability to solve problems effectively and efficiently as they arose.
- Recorded the key stages in the designing and making of the product providing comprehensive notes and visual evidence.

Critical Evaluation

All candidates based their evaluation on their product and specification. Few candidates carried out detailed testing that would enable them to draw conclusions and propose modifications to the product. Care needs to be taken to ensure that testing is rigorous, meaningful and well reasoned.

Successful candidates:

- Produced a critical evaluation that evaluated the product against the specification.
- Undertook detailed testing and drew conclusions that led to modifications that will improve the product.
- Used appropriate specialist terms throughout their folder.
- Referenced or acknowledged their sources within the portfolio. Clearly marked quotations.

A535 Sustainability and technical aspects of designing and making

General Comments:

The paper performed well and was appropriate to all levels of ability. Most candidates attempted the majority of the questions. There was no evidence to suggest that candidates did not have enough time to complete the questions.

There was a wide range of responses from the cohort which spanned the full ability range. Responses from the candidates were generally encouraging and demonstrated a good understanding of the technical aspects of designing, making and sustainability.

The quality of sketching on the designing questions was good on the whole. The quality of drawing on the graphical questions using grids was better than previous years. Many candidates, however, could improve their performance by using a ruler for these questions.

The quality of written communication was extremely variable. Quality of handwriting was also an issue. In some cases it was extremely difficult or impossible to make sense of some candidate responses. Candidates need to be reminded of the importance of the quality and legibility of their written response.

Comments on individual questions:

Question No. 1

This was generally well answered with the majority of candidates giving the correct response.

Question No. 2

This was generally well answered with the majority of candidates giving the correct response.

Question No. 3

This was generally well answered with the majority of candidates giving the correct response.

Question No. 4

This was generally well answered with the majority of candidates giving the correct response.

Question No. 5

This was generally well answered with the majority of candidates giving the correct response.

Question No. 6

This question was answered incorrectly by most students. Whilst many candidates knew it was referring to recycling many thought it was how much could be recycled or was recyclable rather than how much of it was made from recycled materials.

Question No. 7

There was a wide range of responses to this question with approximately half of candidates answering this correctly. Many incorrect responses related to stages of a product's lifecycle.

Question No. 8

This was generally well answered with the majority of candidates giving a correct response.

Question No. 9

There was a wide range of responses to this question with approximately half of candidates answering this correctly. 'Biodegradable' was a common incorrect response.

Question No. 10

This was generally poorly answered, with only around 30% of candidates able to gain the mark. A wide range of incorrect responses were given.

Question No. 11

This was generally well answered with the majority of candidates giving the correct response.

Question No. 12

This was generally well answered with the majority of candidates giving the correct response.

Question No. 13

This was generally well answered with the majority of candidates giving the correct response.

Question No. 14

This was generally well answered with the majority of candidates giving the correct response.

Question No. 15

This was generally well answered with the majority of candidates giving the correct response.

Question No. 16a

The vast majority of candidates managed to achieve at least one mark on this question. Most were able to give a valid reason for the inner packaging. Only around half of candidates were able to give 2 reasons and achieve both marks.

Question No. 16b

There was a wide range of responses to this question, but few responses scored the full four marks. Many candidates' responses were not clear regarding using recycled card and vegetable inks. Most candidates came up with a number of core answers 'card is bio-degradable', 'vegetable inks are sustainable/non-toxic' but many failed to clarify/explain their answers fully.

Question No. 16c

This was generally well answered with the majority of candidates giving two correct responses and achieving both marks.

Question No. 16d

Most candidates managed to achieve one or two marks on this question. Most common correct responses identified that the design must not be offensive and/or must be understood by people who speak different languages. Many students failed to gain the third mark due to a lack of clear explanation.

Question No. 16e

Many candidates produced some well drawn sketches and produced some good packaging designs to reduce material used. Some very detailed sketching was seen but many candidates failed to state their changes. Many candidates gave responses which substituted materials for more environmentally friendly ones eg. used recycled card or vegetable inks, but did not actually reduce the amount of packaging. The most common response was to remove the cardboard box altogether.

Question No. 16f*

This was generally not answered well. Many candidates went into detail about disposal issues without linking them to the requirements of manufacturers of graphic products. There were some 'core' answers – landfill, cost of separating/transport of waste and global issues of deforestation but the lack of reference to the specific needs of graphic products manufacturers was notable. Many answers went off the subject of graphic products altogether. There was also a considerable amount of repetition by candidates which gained no credit.

There was little use of specialist terms in all but the higher achieving candidate responses.

There was less evidence of candidates using bullet points or lists than in previous sessions but some candidates' handwriting was still very difficult to decipher.

Question 17a

Few candidates were able to answer this completely correctly. Most candidates achieved 3 or 4 marks but often failed to include: the top rectangle 'D', either flap 'E' or the required dotted fold lines. The quality of drawing varied, with the best responses being when candidates had used a straight edge to draw accurate lines. Many candidates drew parts incorrectly because of errors when counting the number of dots.

Question 17b

The vast majority of candidates acknowledged that the hole was to allow the logo to be seen, but few explained that it would allow this when the wallet was closed.

Question 17c

This was generally well answered with the majority of candidates giving the correct response.

Question 17d

This was generally well answered with the majority of candidates giving the correct response.

Question 17e

Only a small proportion of candidates achieved full marks on this question. Many candidates did not show any knowledge of the embossing process and scored no marks. The majority of candidates demonstrated the use of 'pressure' in the process and the result being 'raised' in some way but failed to gain full credit because they did not describe the use of 'male and female dies'.

Question 17f

This question was generally well answered with the majority of candidates scoring one or two marks, but only a small proportion scoring all three. Most candidates came up with designs that held the card in some way but allowed it to fall out either vertically or horizontally. A significant number of candidates did not read the question carefully and came up with designs that used additional materials such as Velcro, plastic wallets etc.

Question 18a

This question was generally well answered. The vast majority of candidates scored at least 3 marks for correctly completing side 'A', window 'B' and window 'D'. The height of the end elevation was drawn incorrectly by many candidates. The most common error was starting the rear of the roof 'F' from the wrong point.

Question 18bi

Approximately half of candidates answered this correctly. Many candidates gave incorrect responses relating to 'checking measurements' or to 'testing' of the bungalow.

Question 18bii

Many candidates gave incorrect one word responses to this question such as 'strong' or 'cheap'. Only approximately half of candidates gave responses worthy of the mark.

Question 18c

This was generally well answered with the majority of candidates giving the correct response.

Question 18d*

Almost all candidates were able to identify at least one advantage of CAD. The most common being its accuracy compared to drawing by hand. Many candidates gave answers relating to 3D modelling ability of CAD and the ability to save and send drawings electronically. Many candidates gave little in the way of disadvantages.

Few candidates were able to broaden or consolidate their discussion and their answers read more like a list than a structured discussion.

There was little use of specialist terms in all but the higher achieving candidate responses.

There was less evidence of candidates using bullet points or lists than in previous sessions but some candidates' handwriting was still very difficult to decipher.

Question 19a

There were a wide range of responses to this question, but the majority of candidate answers were incorrect. It was clear that this area of the specification is not familiar to many candidates.

Question 19b

This question was generally well answered. The vast majority of candidates scored at least one mark for stating a modification to the leaflet holder, but only approximately half the candidates were able to explain how this would improve the leaflet holder. The most common correct response was to put a 'front' on or raise the height of the sides to stop the leaflets falling out.

Question 19c

The majority of candidates answered this correctly and scored 3 marks but the quality of the drawing on many responses was very poor. Some candidates used a ruler for straight lines but many candidates lost marks for inaccuracy of their lines particularly when sketching the circular or curved parts.

Question 19d

Very few candidates scored all 3 marks for this question. The vast majority of candidates correctly named a tool for marking out the net. Most candidates were also able to name a suitable tool for cutting out the net although 'scissors' was a common incorrect response. Few candidates appear to have knowledge of bending plastic and around 20% of candidates gained all 3 marks for this question. Vacuum former was a common incorrect response given for the bending tool.

Question 19e

This question was generally well answered with the majority of candidates scoring three or four marks, although few scored the full six. Generally most candidates were able to score marks on this question but many failed to draw designs that met the points given in the specification. The weaker answers failed to support the phone or show how the design slotted together. Many responses relied on a net that was folded rather than parts that slotted together. There were many answers with insufficient detail of how the parts of the holder were put together. The quality of graphical communication varied but most candidates produced 3D sketches and appropriate notes to communicate their designs reasonably clearly.

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