RECOGNISING ACHIEVEMENT

GCSE

Design and Technology: Graphic Products

General Certificate of Secondary Education **J303**

General Certificate of Secondary Education (Short Course) **J043**

OCR Report to Centres

January 2012

J303/J043/R/12J

OCR (Oxford Cambridge and RSA) is a leading UK awarding body, providing a wide range of qualifications to meet the needs of candidates of all ages and abilities. OCR qualifications include AS/A Levels, Diplomas, GCSEs, OCR Nationals, Functional Skills, Key Skills, Entry Level qualifications, NVQs and vocational qualifications in areas such as IT, business, languages, teaching/training, administration and secretarial skills.

It is also responsible for developing new specifications to meet national requirements and the needs of students and teachers. OCR is a not-for-profit organisation; any surplus made is invested back into the establishment to help towards the development of qualifications and support, which keep pace with the changing needs of today's society.

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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OCR REPORT TO CENTRES

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. 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 a minimum of **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 hard copies of portfolios, (and/or 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 this unit is a prototype product, and most candidates were able to complete this task.

Most centres were successful in applying the marking criteria for this Unit. Centres are reminded to apply the mark scheme on a 'best fit' basis. For each of the assessment criteria, one of the descriptors provided in the marking grid, that most closely describes the quality of the work being marked, 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, or clearly evident through the modelling and construction of the final prototype product. Centres are advised to take a more objective approach and mark the portfolio of evidence and not simply the candidate.

The use of CAD/CAM was evident throughout all the candidates work submitted for moderation. 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 candidate's design portfolio. Screen shots provide evidence of the development of ideas using CAD/CAM and are evidence of modelling being undertaken by candidates.

Teachers need to take great care when making the distinction between guidance and prescription. Centres should avoid the over-reliance on writing frames for candidate's 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 coursework proposals to a full program of In-Service Training meetings.

Administration

Communication with Centres was satisfactory and all assessment material reached the moderators in plenty of time. Centres had provided individual Controlled Assessment Cover Sheets for each candidate. Centres are reminded that moderators still need to receive the Centre Authentication form CSS160 along with the 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 coursework mark sheets on individual candidates work was appreciated by moderators and aided the smooth running of the moderation process.

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

Content

Most folders were of between 12–15 pages of A3 or equivalent. There was little use of writing frames though in some centres the format of each candidate's folder was very similar. Unit A531 and Unit A533 are controlled assessments which 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 their content and avoid duplication or irrelevant material.

Performance of Candidates

The successful candidates showed evidence of having used the Controlled Assessment Mark Scheme for A531 and A533 respectively, as printed in the specification, to guide their content.

Centres are advised to plan the amount of time that they allow candidates to spend on each of the Creativity, Designing, Making and Evaluation strands.

Chief Examiner's Report

This report provides an overview of the work seen in the written examination Units 2 and 4 and the Controlled Assessment Units 1 and 3, for candidates who took the examination during this series. It precedes a more detailed report to centres from each subject area within the Innovator Suite and highlights general issues that have occurred across the suite of specifications.

This report has been prepared by the Chief Examiner, Assistant Chief Examiners, Principal Examiners and Principal Moderators and covers all specifications within the Innovator Suite. It should be read in conjunction with the examination papers, the mark schemes, and the marking criteria for assessment given in the specification booklets.

This is the first examination series in the third year for the new Innovator Suite.

A reminder: An important point for teachers to note about the Terminal Rule in relation to this suite of specifications and re-sits: The terminal rule is an Ofqual requirement. Candidates must be entered for at least two units out of the four (full course) at the time that they certificate. ie the end of the course.

Please be aware that the Ofqual rule states that marks scored for terminal units will be the marks used in the calculation of candidate grades. Therefore, if one of the candidate's terminal units is a re-sit and the mark is poorer than the original mark, the poorer mark will be used to calculate the final grade for that candidate.

Obviously, the terminal unit marks are then added to the highest marks scored in the other units making up the certificate.

Centres are reminded that it is also a requirement of Ofqual that candidates are now credited for their accurate use of spelling, punctuation and grammar across all four units.

It is pleasing to see that centres and candidates have continued to respond well to the new style of examination approach. Centres are to be commended for this.

It is obvious that Centres have benefitted from previous reports and training sessions available for the qualifications.

Written Examination – Units 2 and 4

Unit 2 – For this examination series of the GCSE Innovator suite entries were seen from all six subject specialisms:

The overall performance and range of results for Unit 2 was better than the last examination session – June 2011. It was pleasing to see that many candidates had been well prepared for the examination by Centres and clearly had a sufficient knowledge base to answer the questions. It has been encouraging to see that candidates have been able to access the higher marks.

Many of the candidates demonstrated a general awareness of the main points and issues linked to sustainable design and the 6Rs.

In **Unit 2 – Section A** of the papers most candidates across the suite attempted to answer all questions, with few candidates giving no response (NR) answers. It was noticeable that, at times, candidates had not read the instructions correctly and centres would benefit from

explaining the correct examination requirements to the candidates. Candidates need to be encouraged to give an answer for the multiple choice style questions even if they are uncertain that they are correct. Centres are reminded that questions 1-15 cover the grade range from A* to U.

There was less duplication of circling answers seen during this examination session.
Important: Centres need to be aware that where a candidate has provided multiple answers to a single response question, no marks will be awarded.

Unit 2 – Section B of the papers showed a greater mixture of responses and teachers need to ensure they read the subject specific reports for further detailed feedback on specific issues and individual question performance.

Important: Candidates need to be careful that they do not repeat the question in their answer or write the same answer for several questions. Similarly candidates must not use certain terms as 'stock' answers. Such answers included:

- 'Environmentally friendly' and 'better for the environment' or 'damages the environment'.
- To 'recycle' and 'recycling is good for the environment'.
- 'Cheaper', 'better' and 'stronger'.

The questions marked with an asterisk * provided candidates with an opportunity to give a detailed written answer combining good subject knowledge with an ability to produce a structured response. The response to the banded marked question this session was pleasing, with several candidates obtaining full marks, Candidates have benefited from centres preparing them for this type of question.

It was noticeable this session, that where extra paper was required to continue a question response, many candidates failed to reference the question number. It is important therefore, that centres teach candidates how to highlight where they are continuing an answer on a different page in the examination document.

Centres are reminded that candidates are assessed on spelling, punctuation and grammar on the banded mark scheme question.

It is also important to note that candidates need to ensure that they write legibly and within the areas set out on the papers.

Unit 4 – For this examination series of the Innovator suite entries were seen from all six subject specialisms:

Candidates responded reasonably well to the Unit 4 examination papers across the Innovator Suite. The papers were accessible to the majority of candidates, although there was still a small minority of candidates who did not attempt any of the questions at all.

Important: It was noticeable this session that candidates were relying upon knowledge from Unit 2 based around sustainable design, rather than technical understanding. This led to confused answers often compromising the higher mark.

The overall performance of candidates varied considerably across the suite. It was encouraging to see however, that most candidates demonstrated a good understanding of the technical aspects of designing and making across the specifications.

Important Note: Candidates need to:

Read through the complete question before attempting to answer. The examination includes sufficient reading time for candidates to focus on the key points to address in their answers. It was pleasing to see that some candidates produced a 'plan of action' before giving their answer to the questions with a high mark allocation.

Look carefully at the mark allocation and available space for their answers. Candidates need to be aware that there is a relationship between the space available and the length and quality of the expected answer, and thus the mark allocated.

Have a better understanding of the different command words used throughout the exam paper in order to respond appropriately to the questions. Across the suite there were many answers that lacked detail and clarity. Terms such as 'cheaper', 'quicker' and 'easier' were often used and meant very little without qualification or justification.

Become familiar with the quality of written communication questions marked with an asterisk*. These questions provide candidates with the opportunity to give detailed written answers combining good subject knowledge with an ability to produce structured, **coherent** responses and accurate spelling. Simply repeating the same point several times will not lead to the award of marks. A list of bullet points does not represent an adequate answer and will compromise the higher marks. Practice of this type of question which carries [6] marks is strongly recommended.

Respond to specification and/or bullet points accurately. In design response questions this is important if the candidate is to achieve the maximum marks available.

Make their answers clear and technically accurate. In questions that require candidates to produce sketches and notes, it is essential that answers are made as clear and technically accurate as possible. Marks may be compromised through illegible handwriting and poor quality sketches.

Controlled Assessment – Units 1 and 3

This examination series has seen portfolios for all six subject specialisms being submitted for Unit 1 both through postal and repository pathways. Unit 3 entries have been seen in A521, A531, A541 and A561 this session only. Most centres have been prompt in the dispatch of documentation to OCR and moderators, which is to be commended. It is important that centres forward form CCS160 in particular to moderators. It is helpful if centres also include a record of the marks allocated to each candidate, for each of the marking criteria sections.

Important Note: Candidates producing paper portfolios should be entered for postal (02) moderation. Candidates producing their portfolio on a CD or memory stick should be entered for postal (02) moderation.

Centres must ensure that if candidates are entered through the repository (01), the portfolios must be uploaded via Interchange and **NOT** sent through to the moderator on a disc.

In general, centres have been successful in applying the marking criteria for both Units 1 and 3. However, it is still noticeable that some candidates were being awarded full marks for work that lacked rigour and depth of analysis. Words highlighted on the marking criteria grids such as 'appropriate', 'fully evaluated', 'detailed' and 'critical', which appear in the top mark band, were not always adhered to.

Centres are reminded to apply the mark scheme on a 'best fit' basis which may mean allocating marks across the assessment grid. For each of the marking strands, one of the descriptors provided in the assessment grid that most closely describes the quality of the work being marked, should be selected. Marks should be positive, rewarding achievement rather than penalising failure or omissions.

It was still evident that a significant number of portfolios, particularly for Unit 1, resembled the legacy format, especially in terms of the excessive research and inappropriate critical evaluation.

It is important that centres encourage candidates to organise the portfolio according to the different marking criteria strands as it enables the candidates to produce work that clearly shows an understanding of the controlled assessment requirements. Portfolios should be clearly labelled with the Candidate and Centre name and number, with the unit code and title also evident. (*Specification – 5.3.5 Presentation of work)* This is particularly important when the Centre submits work via the OCR Repository, where individual files are used to store portfolio work. Centres need to ensure that candidates clearly label each file using the marking criteria section headings; this facilitates a more effective completion of the moderation process.

Important: Centres are also reminded to ensure that the OCR cover sheet is included with each portfolio of work, **outlining the theme and the starting point chosen by the candidate.**

Many candidates included a bibliography or referenced their research sources, which was pleasing to see. **It is good practice to ensure that candidates acknowledge sources of information used for the development of their portfolio work.** *5.3.2 Definitions of the Controls* section in the specification states: *"The teacher must be able to authenticate the work and insist on acknowledgement and referencing of any sources used".*

Centres are to be reminded that the *'controlled assessment task must NOT be used as practice material and then as the actual live assessment material. Centres should devise their own practice material using the OCR specimen controlled assessment task as guidance.' Specification - Section 5.2.2 Using Controlled Assessment Tasks*.

Resits – Centres must remember that the theme, starting point and research aspects of the portfolio can be maintained. However, the remaining portfolio and final prototype should be redeveloped for submission.

Centres are to be commended on the amount of work produced for the portfolios in Units 1 and 3, which has been realistic in terms of the amount produced and the time allocated to each unit – 20 hours.

It is a requirement in the Making criteria that candidates *"demonstrate an understanding and ability in solving technical problems".* Centres must therefore ensure that problems encountered are written into the record of making, for the higher marks.

4.1 'Schemes of Assessment' clearly states that *"A Minimum of two digital images/photographs of the final product showing front and back views"* should be evident in the candidate portfolio. For Food Technology one digital image/ photograph is required. **It is the centre's responsibility to ensure that photographs are evident, are of a good quality and are of the candidate's own work**.

A531 Introduction to Designing & Making – Controlled Assessment

Candidates clearly need guidance to complete the Creativity strand. From the Theme and starting point candidates should identify a maximum of 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 they should demonstrate that they have an understanding of the needs of the users. With all this information to hand they should then produce a clear, concise and precise design brief.

Successful Candidates provided examples of users and the user's needs. They carried out a thorough analysis of two existing products identifying what made them good designs and explained the significance of any trends in these existing products. They 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. 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 which were fully explained with notes. Others provided simple sketches with little detail or explanation. Most candidates identified a chosen idea and fully explained their choice of idea.

To illustrate their chosen prototype design, most candidates produced an orthographic drawing and provided further details of the prototype, its sizes, 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 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 have seen them gain greater credit.

Successful Candidates briefly analysed their design brief and drew conclusions from this work. This was then incorporated into a structured, detailed, bullet pointed design specification. Successful candidates presented their design ideas using pencil sketches to generate a range of free-flowing ideas which were then fully explained with annotation. They then explained, with reasons, their choice of prototype product. Candidates then produced a detailed scale drawing of the prototype product giving full details of possible materials, likely construction methods and processes, and of surface graphics. Candidates should communicate 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 their folders 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 using ICT.

Surface graphics were successfully applied to most prototype products seen using both traditional rending 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

Where candidates choose to produce 2 dimensional prototype outcomes there must be sufficient rigour and depth to their work in the development of the prototype to satisfy the making quality element of the assessment criteria. If there is insufficient rigour and depth to work produced then the prototype can only attain the basic ability strand for the quality of making.

It is essential that candidates include in their portfolio annotation and sketches that provide evidence that they have effectively solved technical problems as they had arisen.

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.

Successful Candidates use modelling to identify problems and make appropriate modifications. They clearly assess the suitability of the prototype considering, in detail, the needs of the user. Candidates make appropriate choices of materials, tools and equipment. Successful candidates work skilfully and safely to produce a high quality prototype product suitable for the intended user which had surface graphics applied that demonstrate a high level of competency. Throughout their portfolio they assess and apply knowledge appropriate for Graphics. Successful candidates clearly demonstrate their ability to solve problems effectively and efficiently as they arise. Successful candidates record the key stages in the creation of the prototype product providing comprehensive notes and visual evidence.

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 A531 clearly states that the evaluation should be of the designing and making process**. Furthermore that 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.

Moderators felt that some centres may well have run short of time and this could have further contributed to very limited evaluations in many folders.

Successful Candidates produce a critical evaluation that evaluates the processes involved in designing and making their prototype product. Through reference to their planning and recording of the stages in making their prototype product they are able to reflect and suggest modifications to improve the modelling and prototyping processes.

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.

A532 Sustainable Design

General Comments

This paper proved to be accessible to all candidates and a good range of differentiated responses were seen throughout the paper. There were plenty of opportunities for all levels of candidate to access the questions and gain marks.

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

The quality of candidate responses was very similar to the last examination series, candidates continued to show that they are becoming better prepared with this examination.

Candidates demonstrated a good understanding of the terminology involved but were occasionally let down by poor exam techniques. There has been some clear improvement on the previous year's examination series, particularly on questions where candidates are expected to explain or describe. Misunderstanding or misinterpreting the question, or not reading the question carefully enough was evident in some candidate responses. Occasionally candidates' answers were merely taken from the question itself and where two reasons or an explanation were required the same point was made twice with slight word variations, or candidates only gave simple one word or very limited answers. Candidates often gained only 1 mark from a 2 mark question because they failed to explain or reason their response. Candidates must be encouraged to take notice of the key word in the stem of the question to identify whether the question requires them to state, give, explain, describe or discuss.

Some candidates' handwriting and sketches were very difficult to decipher: candidates should be prepared to make an effort with their writing, and sketch in as clearer manner as possible in an examination situation.

A lot of candidates lost marks by not reading the question carefully enough: giving interesting and accurate information about sustainability issues, but not the answer to the set question.

There were no questions that were avoided by the whole entry (NR response) and there were no questions that did not attract a full mark score on at least a few scripts.

The paper provided plenty of opportunities for all levels of candidate to access the questions and gain marks.

Comments on Individual Questions

1 A good proportion of candidates were able to identify that Reforestation meant the restocking of forests and woodlands, although repairing was an answer often seen.

2 Well answered, with the majority of candidates correctly identifying that excess waste should be reduced.

3 A mixture of responses seen with a proportion of candidates correctly identifying 'The Earth' as the correct answer. The most common incorrect answer was 'The Sun.'

4 The majority of candidates were correctly able to identify that Tertiary recycling means to chemically break down a product. Where a candidate answered incorrectly the most common response was 'to recycle a product three times'. This is very pleasing to see and confirms that candidates understand the key terms of this unit.

5 The majority of candidates were able to correctly answer 'How much gas is produced by manufacture and transport.'

6 A high percentage of students correctly identified that the symbol shown was the Fairtrade symbol.

7 Some interesting and varied responses were given to the meaning of the term 'sweatshop.' A very good proportion of correct answers were seen with candidates stating that it was where workers worked in poor conditions or variations on this answer.

8 The vast majority of candidates were able to correctly identify 'Rethink.'

9 Most candidates correctly explained that disassembly meant to 'take apart' a product.

10 A wide range of responses were given with 'Toxic' being the most common correct answer.

11 A very large proportion of candidates were able to identify that the statement is false; oil is not a sustainable energy source.

12 The vast majority of candidates selected that newspapers can be recycled.

13 Almost all candidates correctly identified the answer as false; single use disposable plastic products are not good for the environment.

14 Almost all candidates correctly identified the answer as false; the tidyman symbol is not shown to encourage consumers to throw rubbish on the ground

15 Well answered, with almost all candidates selecting true; recycling is beneficial to the environment.

16 **(a)** This question asked candidates to give four Eco-design requirements to be considered when designing the card. Successful candidates identified and explained such issues as using water-based inks, recyclable card or using materials that come from managed & sustainable sources. A few candidates failed to identify Eco-design requirements and simply wrote a list of specification points such as 'easy to open' and 'must be a pop-up.' Candidates should take time to carefully read the stem of the question thoroughly before preparing their answer. Many candidates also gave only very brief one or two word answers. Candidates should be encouraged to justify their answers by using explanatory terms such as 'because', 'therefore', 'so that' etc.

(b) A large proportion of candidates were able to identify that the meaning of the symbol was that the material could/can be recycled. A smaller proportion were also able to correctly identify 'Mobius Loop' as the correct term. Some candidates simply named the symbol 'recycle logo'. As Graphics students, candidates should be encouraged to be aware of the correct names and meanings of common symbols used in recycling.

(c) This question was generally well attempted with most candidates explaining that mixed material products require separating before the different materials can be recycled, that this takes time and or specialist equipment adding to the cost of the operation, and that if not separated, the mixed material product will be destined for landfill. The majority of candidates were able to achieve at least 1 or 2 marks.

(d) In the extended writing question, candidates were required to discuss the environmental benefits of using renewable energy sources in the production of graphic products. Many candidates answers related to the disadvantages of the use of fossil fuels, or the cost implications, rather than the environmental benefits of

using renewable energy. Candidate answers often related to the use of renewable sources of materials rather than energy. Many answers related to the transportation of graphic products but very few answers related to the production of graphic products. It was noted that one or two candidates are using bullet points or lists in this question; this must be avoided at all costs. Evidence of bullet points or lists can only be credited a maximum of 2 marks. Words like 'because', 'so that', 'as well as' and 'furthermore' should be used to link statements and develop a theme or argument. For the higher level marks, candidates must use specialist terms, accurate grammar, correct punctuation and precise spelling. It was pleasing to see a slight improvement on the quality of candidate responses since the last examination series. Centres should continue to provide opportunities for preparing and practicing the extended writing question.

17 **(a)** The vast majority of candidates were able to correctly identify a performance characteristic of Corriflute, usually relating to strength.

(b) Most candidates were able to answer this question well stating contact number or contact details and name or logo of the company. Some candidates incorrectly gave answers relating to the asking price of the property, a small proportion of candidates gave answers relating to the environmental impact of the sign or the use of the recycling symbol for the plastic.

(c) This question was quite poorly answered. Within each explanation of the three 6Rs in the question, it was necessary for candidates to firstly show an understanding of the meaning of the 6R by using words other than the 6R. For example, for Repair, it was appropriate to use words such as fix or mend. It was then necessary to give an example related to the sign. For example, if the post became split, it could be fixed back together with glue or duct tape and not just thrown away. A wide variety of answers were seen but it was very common for candidates to just reuse the 6R term given. Candidates should be encouraged to try and use other words to explain the meaning of the 6Rs.

(d) Carbon offsetting and carbon neutral were very common answers, although a few candidates incorrectly gave environmentally friendly or eco-friendly.

(e) Most candidates were able to give reasons related to offence, racism or cultural differences. However, many candidates also correctly identified the need for different cultures to be able to understand the product and also the need of the manufacturer to appeal to a wide cultural audience in order to sell their products.

(f) Most candidates produced a symbol like drawing with simplified images and minimal text for the first mark. Many included scales, or a line, or the word 'balanced' to show the balancing of the footprint with the CO2 output. And a large number managed to integrate their images and text for the third mark. There were few responses that showed offsetting rather than balancing: these tended to be too fussy and illustrative to score the first mark and/or the third one.

18 **(a)** Some candidates gave very simple one word answers that did not go far enough to explain why the card had been used for the display stand. To attract credit, answers such as 'strong' and 'lightweight' would have to be accompanied buy statements such as, strong so that it can hold a lot of items, and lightweight so that it can be easily moved when assembled. Candidates should avoid giving one word answers where possible.

(b) Many candidates gave very vague and non-specific reasons why water based inks would be of benefit to the environment. For the first mark, candidates needed to state that water based inks are non-toxic, but then go on, for the second mark, to relate this to either the manufacture of the inks, their disposal or recycling issues.

(c) Many candidates gave similar answers to this question as they did for 18b, and some candidates gave very confused answers related to the dangers of UV light to humans or the use of UV in the dark. To attract any credit, it was necessary to refer to the harmful effects of the solvents used in the UV varnish, particularly on the atmosphere. However, it would have been equally acceptable to refer to the issues associated with the recycling of the card that has a UV Varnish finish.

(d) Most candidates were able to state that self assembly products take up less space when flat packed, so more can fit in the delivery truck, and more can be stored in the warehouse. Fewer candidates were then able to explain the environmental benefits of less use of fossil fuels for delivery, less congestion on the roads, and smaller warehouse facilities needed so less use of power for heating and lighting.

(e) A good proportion of candidates were able to identify the correct term of planned obsolescence or built-in-obsolescence.

(f) Knowledge of Anthropometrics and Ergonomics was not well known. Some responses referred to the look and attractiveness of a product (Aesthetics), how the product works (Function) or cost, ease of production and value of a product (Economics). Candidates need to understand that Anthropometrics is concerned with measurements of the human body and that Ergonomics is the way in which a product fits and interacts with the user. Candidates then needed to relate these design influences to the display stand. Anthropometrics could be used to determine suitable heights for easy reach of the customer, and Ergonomics could be used to ensure edges were smooth and comfortable to touch, and that shelf spaces were of suitable size for the human hand to fit in and select an item.

A533 Making Quality Products – Controlled Assessment

Centres are reminded that there is no assessment requirement to include research material in the portfolio for Unit A533.

Candidates should start this strand by stating and analysing their design brief. 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. Many were of mid ability band and contained vague statements such as 'must be the right size'. If students were to justify each specification point it would improve the quality of specifications. 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 poor quality. Enhancement techniques were rarely used. Some candidates generated and developed detailed ideas which were fully explained with annotation whilst others provided little explanation of their ideas. 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 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 seen them gain greater credit.

Successful Candidates briefly analysed their design brief and drew conclusions from this work. This was then incorporated into a structured, detailed, bullet pointed design specification. Successful candidates presented their design ideas using pencil sketches to generate a range of free-flowing ideas which were then fully explained with annotation. They then explained fully, with reasons, their choice of prototype product. Candidates then produced a detailed scale drawing of the prototype product giving full details of possible materials, likely construction methods and processes, and of surface graphics. Candidates should communicate their designs using appropriate skills and techniques including ICT.

MAKING

Most candidates successfully produced a 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.

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

Few candidates, however, 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 credit. Modelling

evidence might include cut and paste examples of models, photographic images, and screenshots showing how their design was modelled using ICT.

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

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.

It is essential that all candidates record in their portfolio that they had effectively solved technical problems as they had arisen.

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 use modelling to identify problems and make appropriate modifications. They provide a clear making plan. They clearly assess the suitability of the prototype, considering in detail the needs of the user. Candidates make appropriate choices of materials, tools and equipment. Successful candidates work skilfully and safely to produce a high quality prototype product suitable for the intended user which has surface graphics applied that demonstrate a high level of competency. Throughout their folder they assess and apply knowledge appropriate for Graphics. Successful candidates clearly demonstrate their ability to solve problems effectively and efficiently as they arise. Successful candidates record the key stages in the designing and making of the product providing comprehensive notes and visual evidence.

EVALUATION

All candidates based their evaluation on their product and specification. Few candidates carried out detailed testing and were able to draw conclusions and propose modifications to the product. Most testing was superficial and moderators felt that centres may well have run short of time and this could have further contributed to very limited evaluations in many folders.

Successful Candidates produce a critical evaluation that evaluates the product against the specification. They undertake detailed testing and draw conclusions that lead to modifications that will improve the product.

QUALITY OF WRITTEN COMMUNICATION

Most 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

A534 The Technical Aspects of Designing and Making

General Comments

Most candidates attempted all questions and there was no evidence to suggest that candidates did not have enough time to complete the questions.

Questions marked with an asterisk* provided candidates with the opportunity to give detailed written answers which demonstrated good subject knowledge and an ability to write structured, coherent answers with accurate spelling, punctuation and grammar.

The range of responses provided evidence of some understanding of the technical aspects of designing and making.

Comments on Specific Questions

1 **(a)** **(i)** This was generally answered well and the majority of candidates gained both marks for completing both letters correctly.

(ii) This was answered well by most candidates although some responses were drawn very poorly.

(b) **(i)** Many candidates answered this question incorrectly. Many answers related to prototypes being scale or full size models of the 'real thing'. Few candidates showed an understanding of what a prototype is.

(ii) This question was also poorly answered with few candidates gaining a mark. Many gave valid reasons for making a prototype but not 'economic' ones as stated in the question.

(iii) Very few candidates gave the correct answer. Most offered thicknesses in mm rather than gsm or microns.

(c) Most candidates answered this correctly and gained the maximum three marks. However, many gave 'glue' as the method of joining the net together without being specific and did not gain a mark.

(d) This question was generally answered poorly. Most candidates did not draw the glue flap correctly. Many tried to add the fold line on as an extra piece. Some candidates wasted valuable time drawing on the fish. etc.

2 **(a)** Very few candidates demonstrated an understanding of the principles of thick & thin line techniques. Some candidates were able to achieve at least one mark by thickening the outline, but few could correctly complete the cockpit area or axle holes. Many candidates thickened all of the lines or added 'hatching' and/or shading to the car.

(b) Most candidates managed to draw an elliptical shape. Few added the thickness or rear profile.

There were some very poorly drawn ellipses.

(c) There was a wide range of responses to this question. Many candidates gave incorrect answers such as 'use a laser cutter' or 'die cutting'. Very few candidates identified correctly, the use of a 'hot wire cutter'.

(d) Very few candidates achieved maximum marks. Most managed to complete the plan view but few were able to correctly complete the side or end views. There were many different interpretations of the front of the car. Candidates showed a very limited understanding of orthographic drawing.

(e) **(i)** This question received many very confused answers. The majority could not explain scale well enough to gain the one mark available.

(ii) Despite incorrect answers to the previous question, most candidates were able to 'tick' the correct size of the 500mm line drawn to scale.

3 **(a)** This answered much better than in previous papers. Most candidates gained some marks and many achieved full marks.

(b) Many candidates explained how to draw the original in reverse view using the line and curve tools instead of using the 'mirror' command. Many responses involved the use of 'copy and paste'. Some candidates used the 'flip' command instead of mirror. Most candidates achieved at least one mark for stating the 'mirror' or 'flip' command but few gave fully correct answers. Some candidates had a full understanding of this CAD technique whilst others choose to provide a hand drawing solution.

(c)* The majority of answers to this type of question were much improved on previous sessions. The topic also lent itself to good quality answers with more candidates producing Level 3 responses.

Most candidates achieved Level 2 and were able to identify some key design features of each box and compare how these met the needs of the user.

Some candidates showed some basic awareness of the differences between the two boxes, but were unable to relate these to the needs of the user. Many answers revolved solely around the size of the two boxes rather than the design features.

There was still evidence of some candidates using bullet points or lists which restricted their marks to Level 1.

4 **(a)** The vast majority of responses showed limited knowledge of the ® symbol or its meaning. Most candidates referred to issues about copyright in their reason. The Barcode symbol was clearly understood by most candidates, but few gave an adequate reason for having it on the packaging.

(b) Most candidates answered this correctly but a significant number of candidates were not able to name 'vacuum forming' as the manufacturing process.

(c) This question was generally answered poorly. Few candidates gave answers other than 'plastic', demonstrating a disappointing lack of knowledge of one of the compliant materials for graphics.

(d)* This was generally not answered as well as Question 3(c)*.

Most candidates were able to identify at least one factor to consider when considering manufacturing overseas, but many responses simply related to the disadvantages of it taking more time or costing more to transport, without discussing any possible advantages.

Some candidates showed some understanding of both the benefits and drawbacks. Cheap labour and availability of materials were the most common reasons given for manufacturing overseas.

Few candidates were able to plan and structure their answers as clearly as the previous written question and there was evidence of some candidates using bullet points or lists.

5 **(a)** **(i)** The vast majority of candidates knew what the letters C A M stood for.

(ii) Most candidates managed to achieve at least 1 mark for this question with benefits relating to the increased speed or accuracy of CAM. However, many responses were vague and repeated themselves. Many candidates gave answers relating to it being cheaper but did not explain why.

(b) Few candidates were able to name a method of printing surface graphics onto foamboard. 'Laser printing' was a common incorrect answer as well as 'lithography'.

(c) This was generally answered well. Most candidates correctly named two smart or modern inks or finishes which could be applied to the puzzle.

(d) A good range of design solutions was produced for this question. Almost all candidates produced one idea as required by the question and gained some marks. However, it is still evident that many candidates are not reading the question fully enough and are then failing to comply with the requirements clearly stated in the stem.

Many candidates did not read the question properly and designed jigsaw puzzles.

Most candidates managed to show a free standing solution which could hold several pens but few clearly showed how it would slot together or that it could be made from a single A5 sheet of foamboard.

Many candidates produced designs which were suitable to be made from card, but could not be made from foamboard.

The quality of sketches and notes was variable. In order to achieve maximum marks, each of the specification points had to be addressed.

Overall

The entry for this unit was smaller than the June entry but similar to the previous January entry. As a result, there was a narrower range or responses from the cohort which possibly did not span the full ability range. Responses from the candidates were generally encouraging and demonstrated a good understanding of the technical aspects of designing and making.

The quality of sketching on the designing questions was good on the whole, but the quality of drawing on the graphical questions using grids was still of a lower standard, despite the apparent need for 'less graphical skills' to answer this paper.

The quality of written communication was also extremely variable but on the whole showed an improvement on the previous session with the levels of response generally being higher, particularly in the first question. Quality of handwriting was also improved on last year with very few cases where it was extremely difficult or impossible to make sense of some candidate responses.

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