

# **Design and Technology: Graphic Products**

General Certificate of Secondary Education **J303**

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

## **OCR Report to Centres**

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**June 2012**

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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## 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 has 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 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 both hard copies of portfolios; 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 successfully.

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. Centres are advised to take a more objective approach and mark the portfolio on evidence and not simply the candidate.

The use of CAD/CAM was evident throughout all the candidates work submitted for moderation. Though CAD/CAM was more extensively used in some centres, 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.

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

## **ADMINISTRATION**

Communication with Centres 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 moderator's tasks. 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](http://www.ocr.org.uk).

## **CONTENT**

Most folders were between 12–15 pages of A3 or equivalent, which is to be commended. 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 assessment strands.

## Overview (continued)

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 second 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. i.e. 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 generally the same as seen in the last examination session – January 2012. 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.

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. There has been a significant improvement in the written response style question this session, with candidates giving detailed answers combining good subject knowledge with a clear, structured response.

It was noticeable this session, that where extra paper was required to continue a question response, many candidates failed to reference the question number thus compromising marks. 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.

It was encouraging to see improvements in candidate performance across the Innovator suite this session. The following improvements were noted:

- Candidates appeared to be better prepared to ‘tackle’ the questions than in previous sessions.
- Candidates managed their time effectively, most attempted all of the questions and there were fewer No Response (NR) answers recorded.
- A better standard of response to the Quality of Written Communication questions was seen.
- More candidates demonstrated high levels of knowledge and understanding and were able to access the higher marks.

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 type questions this is important if the candidate is to achieve the maximum marks available.
- **Make sketches large and clear enough to convey meaning.** It is equally important that notes should be clearly written and reinforce what appears in the sketches.
- **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 subject specialisms being submitted for Unit 1 and Unit 3 both through postal and repository pathways. Most centres have been prompt in the dispatch of documentation to OCR and moderators, which is to be commended. **It is important that Centres return the request for portfolios within three days.**

Centres are reminded to 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 also 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. The preferred format of files presented for this type of moderation needs to be PowerPoint, PDF or Word, with work saved in ONE file only and numbered, not as individual sheets saved in different files.



In general, Centres have been successful in applying the marking criteria for both Units 1 and 3. Centres are reminded to apply the mark scheme on a ‘best fit’ basis which may mean allocating marks across the assessment grid. 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.**

**JCQ documentation on Controlled Assessment** (September 2011 – August 2012) clearly states that any guidance given to candidates must be clearly recorded.

4.5.2 *When marking the work, teachers/assessors **must not** give credit in regard to any additional assistance given to candidates beyond that which is described in the specification and **must** give details of any additional assistance on the appropriate record form(s). **This includes providing writing frames specific to the task.** (e.g. outlines, paragraph headings or section headings).*

In light of the information given above, Centres need to take care when using writing frames in the controlled assessment portfolios.

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.

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. **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 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 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 at least 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 user(s).

### 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 many candidates produced an orthographic drawing and provided further details of the 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 formed an essential part of the designing strand. 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 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

Where candidates choose to produce a two-dimensional prototype there must be sufficient rigour and depth to their work in the development of the prototype to satisfy both the **making** and graphics elements of the assessment criteria. If there is insufficient rigour and depth to the work produced then the prototype can only attain the basic ability strand for the 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. 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.

**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 only.** 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

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's involved but were occasionally let down by poor examination techniques; there has been some improvement on the previous 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 continue to be 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 number 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.

### Section A

- 1 The vast majority of candidates were able to identify that one type of recycling is to break down and reuse materials.
- 2 Most candidates correctly identified the sea as the source of tidal power.
- 3 The majority of candidates correctly identified bubble wrap as the most difficult material to recycle although some candidates suggested corrugated cardboard or shredded paper.
- 4 Almost all candidates could correctly identify that to reuse a product means to use it again.
- 5 The majority of candidates were able to correctly answer that the symbol shown meant that aluminium could be recycled.

- 6 Many candidates could identify that the Green dot symbol meant that a company had made a financial contribution towards recycling although many candidates simply thought that it meant 'recycling.' Graphics students should be aware of and understand the meaning of signs and symbols common to recycling and sustainability.
- 7 Candidates responded to this question extremely well, identifying the correct 6R as repair. Candidates should be aware that where they list more than one 6R and do not identify their chosen response, no marks will be awarded.
- 8 It was very pleasing to see that more than half of the candidates correctly identified 'Globalisation' as the correct term.
- 9 Many candidates failed to explain the meaning of the term biodegradable sufficiently, many candidates wrote 'something that breaks down/apart' but failed to explain that it breaks down 'into the earth/ground' in order to gain the mark.
- 10 A wide range of responses were given and it was very pleasing to see that many candidates clearly had an understanding of nanotechnology and could identify that it was the study of small/microscopic technology.
- 11 A very large proportion of candidates were able to identify that the statement is false; not all plastics are recyclable.
- 12 Almost all candidates could correctly identify that vegetable based inks are less harmful to the environment than solvent based inks.
- 13 Almost all candidates correctly identified that ethical trade initiatives support workers.
- 14 Almost all candidates correctly identified that refilling a water bottle does not have a negative impact on the environment.
- 15 Well answered, with almost all candidates selecting true, built in obsolescence means the product is designed to last a certain period of time.

## Section B

- 16 (a) (i) This question asked candidates to give four reasons why it would be beneficial for the environment to reduce the amount of material used for the pencil crayon box. A full range of answers were seen with the majority of candidates achieving 2 or 3 marks. Common answers were related to the reduction of waste materials after use, the lessening of natural resources and less energy used in the manufacture of the product. Some candidates repeated their answer(s) and could not therefore be credited twice; candidates should try to explain discretely different responses if they are to achieve high marks.
- 16 (a) (ii) A large proportion of candidates were able to achieve full marks in identifying and explaining a benefit to the manufacturer. The most common answer seen was the reduction in cost to the manufacturer as less material would need to be purchased. A few candidates repeated a point that they had made in Q16ai, these responses were not worthy of a mark and candidates should be reminded to ensure they read the stem of the question so that they can target their answer correctly, in this case a benefit to the manufacturer and not the environment was required.

- 16 (b)** This question was generally well attempted; there were some excellent examples of well drawn ideas to show how the pencil crayon box could be altered to reduce the amount of material used. The majority of candidates suggested the removal of the plastic window and the inner tray, although there were some candidates who showed lots of creativity and developed completely different designs which were pleasing and interesting to see. Most candidates used notes well to explain their design. Where candidates lost marks it was usually due to poor drawing or designs for a package that would not actually hold the pencil crayons, candidates should try to pay attention to small details such as these if they are to achieve full marks.
- 16 (c)** A large proportion of candidates were unable to identify the compostable plastic symbol, this is a symbol that is frequently used on food packaging. Graphics students should try to become as familiar as possible with recycling signs and symbols, particularly those used on packaging.
- 16 (d)** It was very pleasing to see that a large number of candidates were familiar with the terms Primary and Tertiary recycling and were able to explain their meanings. Fewer candidates were able to give an example of these terms directly related to the pencil crayon box, in particular for tertiary recycling, with many candidates giving examples related to plastic bottle being turned into polartec or tyres being reproduced into mouse mats, although these examples are suitable examples for tertiary recycling, candidates were asked to give an example for the pencil crayon box such as the pencil crayon box being broken and down and turned into compost or being broken down into pulp and reformulated to make new cardboard.
- 17 (a) (i)** This question proved to be difficult and a small percentage of students were able to correctly identify the term Volatile Organic Compound.
- 17 (a) (ii)** It was pleasing to see most candidates attempt this question even if they had incorrectly answered 17ai or had little knowledge of Low VOC inks. A wide range of responses were seen, candidates commonly identified that Low VOC inks were less harmful to the environment than solvent based inks and could be removed from paper and recycled more easily than solvent based inks. Common misconceptions were that Low VOC inks were brighter in colour, quick to use or cheaper to use, candidates should try to remember that sustainability is the common theme for all the questions throughout this examination paper.
- 17 (b)** This question was quite poorly answered. Many candidates did not have an understanding of the term CoSHH. Some candidates tried to explain the term with relation to the health & safety of the product or the consumer rather than the control of hazardous substances harmful to health to the worker. Where candidates did understand the term they were usually able to explain the meaning of the letters and its meaning but few were able to give examples such as adequate ventilation or storing away of chemicals.
- 17 (c)** A well attempted question, many candidates were able to give clear hazards and suitable corresponding solutions. It was evident that many candidates related the hazards to their own experience within a workshop, such as 'falling over bags and injuring self' rather than relating the hazards and solutions to a manufacturing environment. It was disappointing to see that some candidates simply copied the exemplar answer, sometimes wording it in two or three different ways and repeated for each box. Responses that simply copy from the example cannot be credited and are worthy of no marks. Candidates again should ensure that they identify and explain discretely separate issues/points if they are to be awarded high marks.

- 18 (a)** A good percentage of candidates were able to identify that the CD is made from mixed materials which makes it difficult to recycle.
- 18 (b)** Well answered with most candidates achieving 2 of the 3 marks available. This question enabled candidates to show their understanding of digital media and new technology.
- 18 (c)** A wide range of responses were seen here with many varied and interesting ideas for a suitable reuse for an unplayable CD, some candidates didn't achieve marks as they stated that the CD should be reused or re-recorded onto, these answers were not worthy of credit as the question stated the CD was unplayable.
- 18 (d)** A mixed response was seen here. Where candidates understood the term they usually did so well and were able to achieve at least 2 of the 3 marks available, identifying social benefits such as more jobs could improve living standards and improve the economic standing of the country. A common misconception was that manufacturing would be cheaper as workers could be paid less.
- 18 (e)** In the extended writing question, candidates were required to discuss the benefits to the consumer and manufacturer in using recycling signs and symbols. Many candidate answers related to the benefits to consumers in using signs and symbols so that they can identify what can be recycled and what cannot, candidates were less able to give benefits to manufacturers but many attempted to reason benefits such as improving the company's reputation by doing so. The large majority of candidates failed to name or to give any examples of such recycling signs and symbols, such as the 'Mobius Loop' symbol or the 'Keep Britain Tidy' logo. In order to achieve high marks candidates need to give examples and use specialist terms. It was noted that one or two candidates are still 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.



# A533 Making Quality Products – Controlled Assessment

## DESIGNING

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

Candidates should start this strand by stating and analysing their theme and starting point . They then need to produce a suitable design brief and 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 very 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 product 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 product 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 seen them gain greater credit.

**Successful Candidates** briefly analysed their starting point and 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 product. Candidates then produced a detailed scale drawing of the 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 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, processes and quality checks 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 rendering 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.

## TWO DIMENSIONAL SOLUTIONS

Where candidates choose to produce a two-dimensional product there must be sufficient rigour and depth to their work in the development of the product to satisfy both the **making** and graphics elements of the assessment criteria. If there is insufficient rigour and depth to the work produced then the product can only attain the basic ability strand for the **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. 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 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 product 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 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

The paper performed as anticipated and most candidates attempted all questions. There was no evidence to suggest that candidates did not have enough time to complete the questions.

Questions marked with an asterisk\* provide candidates with the opportunity to give detailed written answers that demonstrate good subject knowledge and show their ability to write structured, coherent answers.

The range of responses provided good evidence of the understanding of the technical aspects of designing and making. It was clear that candidates had been well prepared for the examination.

## Comments on Specific Questions

- 1 (a) This was generally answered well and the majority of candidates scored 3 or 4 marks out of the 4 available. The most common error was to draw the right side of the box over the base. The window and tabs were usually drawn correctly.
- 1 (b) Approximately 50% of candidates drew this correctly. Many candidates drew end views of the fruit box. Many responses showed the inside as zig-zag or vertical lines rather than curved.
- 1 (c) The vast majority of candidates could give a correct physical property; usually strength or lightweight, but many candidates did not understand the term 'aesthetic' giving instead another physical property, in many cases the same as the physical property.
- 1 (d) (i) Many candidates answered correctly, Cyan, Magenta, and Yellow, although there were some varied spellings of these words. Few candidates were able to correctly label Key, most stated Black.
- 1 (d) (ii) This was generally poorly answered, with few candidates able to gain both marks. Some candidates gained one mark by explaining that the CMYK process involved inks being printed in layers, but few responses referred to the order of application or black being applied last. Many incorrect responses suggested that the colours were mixed together, and then applied. A number of No Responses were seen.
- 2 (a) There was a wide range of responses to this question. There were some very clearly drawn answers that achieved full marks, but very few candidates managed this. Most candidates incorrectly drew the left hand profile and forgot the return angles from the back of the base and upright. Many candidates did not show that the upright stopped half a grid point from the base. Many candidates used a ruler which helped during marking.
- 2 (b) (i) Most candidates were able to state correctly a suitable thermoplastic sheet. However a variety of incorrect answers were also seen such as 'plastic', 'vinyl' and 'corriflute'.
- 2 (b) (ii) This question was generally well answered. The vacuum former was the most common incorrect response.

- 2 (c)\* This question was generally poorly answered. Most responses were Level 1 or 2 with very few Level 3 responses seen. Few responses referred to the actual subject of 'planning in quantity' or mentioned batch production, mass production etc. Many candidates talked about recycling or the environmental impacts of manufacturing rather than the production of the product.

Many candidates considered aspects of designing and not production planning by the manufacturer, showing little understanding of the issues need to be considered when manufacturing a product.

Few candidates were able to plan and structure their answers clearly. Many candidates repeated the same answer over and over or produced lengthy paragraphs restating the question. The standard of language was generally poor and some candidates' handwriting was very difficult to decipher.

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

- 3 (a) Many poor answers were given to what should have been a relatively straightforward question. It was obvious that very few candidates understood the diameter symbol. Many incorrect responses were given, the most common being hands which would overlap the clock face or be too small to see. Approximately half of the candidates gained just one mark for knowing that the hour hand had to be smaller than the minute hand.
- 3 (b) Most candidates managed to achieve at least one mark for this question. There were some interesting and well drawn sketches. The best answers showed a sectional view of the clock showing the attachment. Approximately half the responses employed the paper fastener method, while many used pins, bolts or screws. Most candidates used notes effectively.
- 3 (c) Very few responses to this question scored the full four marks. Most candidates attempted and correctly identified that the numbers could be drawn on a computer and could be re-sized. Very few candidates were able to add that the vinyl would be loaded into the vinyl cutter. Some candidates could identify a correct piece of CAM equipment but the vast majority stated Laser Cutter.
- 3 (d) The vast majority of candidates could give an advantage of using corriflute but very few were able to identify a disadvantage. Most responses simply stated that it could break easily without justifying their response and did not gain the mark. A significant number of candidates gave identical or similar answers to question 1c, referring to corrugated card rather than corriflute.
- 3 (e) (i) The vast majority of candidates answered this correctly.
- 3 (e) (ii) There was a wide range of responses to this question with approximately half of the responses correctly stating an application of Nanotechnology. 'Small', was a common incorrect response along with one word answers such as 'phones' and 'computers'.
- 4 (a) This question was generally well answered with the majority of candidates scoring at least 3 marks, although few scored the full six. Many candidates had drawn detailed designs that formed a 'pop-out' star when opened although a viable way of closing the package 'securely' was not in evidence. Many candidates used Velcro or normal tabs. Many drew the star on the package rather than making the package star shaped.

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

There were some excellent answers to this question with many candidates gaining high marks.

- 4 (b) The response to this question was variable. Many correct responses were given but hot foil printing is clearly not understood by many candidates.
- 4 (c) Many candidates gave a suitable finishing process with embossing being the most correctly referred to example. Some candidates gave varnishing as an answer but did not state that this should be done by spot coating (spot varnishing) and did not gain the mark. A few candidates incorrectly gave 'foil application' as an answer.
- 4 (d) (i) The vast majority of candidates answered this correctly.
- 4 (d) (ii) The vast majority of candidates answered this correctly.
- 4 (e) Most candidates could identify the need for it to be copyrighted in some way and gained one mark. Far fewer went on to explain some kind of penalty for using the logo or that permission would be needed to reproduce the logo to gain the second mark. Many candidates repeated the stem of the question as part of their answer.
- 5 (a) The majority of candidates achieved at least one mark for this question with many scoring full marks.
- 5 (b) Many candidates answered this correctly although approximately 50% of candidates gave answers simply stating that the window was there to provide a view of the contents before purchasing rather than allowing the consumer to check how much was left in the box.
- 5 (c) Few candidates answered this correctly. The majority of responses referred to PVA glue or adhesive tape. Some candidates gave a material for the plastic window such as vinyl or acetate. A few candidates gave two or three answers, a 'scattergun' approach, and therefore could not be awarded the mark even though one of the answers given may have been correct.
- 5 (d) This was generally well answered and explained. Most candidates were able to achieve one mark for identifying that the materials needed separating. Many candidates also gained the second mark for stating how this affected the recycling process.
- 5 (e) This was generally answered well and much better than the other (\*) question.

Almost all candidates were able to identify at least one issue facing designers and discuss this in some way. Most were able to give two or three issues and show understanding of why these must be considered by the designer although many answers read more like a list than a structured discussion.

Few candidates could give examples to help broaden and consolidate their discussion. The use of specialist terms such as anthropometrics/aesthetics and ergonomics were seen in the higher achieving candidate responses.

The standard of language was generally better than Question 2c but some candidates' handwriting was still very difficult to decipher.

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

The entry for this unit was similar in size to last year's June entry. 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 and making.

The examination paper was generally appropriate to all levels of ability and most candidates attempted the majority of the questions. The quality of sketching on the designing questions was generally good, 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. Many candidates could improve their performance by using a ruler for these questions.

The Quality of Written Communication was also extremely variable but generally 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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