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RECOGNISING ACHIEVEMENT

GCSE

Design and Technology: Graphic Products

Examiners' Reports

June 2011

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

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

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

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EXAMINERS' REPORTS

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 second examination series in the second 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:

A512 Electronics and Control Systems
A522 Food Technology
A532 Graphics
A542 Industrial Technology
A562 Resistant Materials
A572 Textiles Technology

The overall performance and range of results for Unit 2 was similar to the last examination session - January 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. Performance however, across the subject specialisms is still varied.

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.

Candidates need to be made aware of the importance of the wording of each question and they need to understand the difference between terms like 'name', 'discuss' and 'explain'. Many candidates did not score full marks on the 6 mark extended response or discuss questions, because they gave a list of unrelated points instead of developing one of these.

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. Few candidates were able to do this really well, but most candidates did score two or more marks from the six available for this question.

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 the following subject specialisms:

A514 Electronics and Control Systems
A524 Food Technology
A534 Graphics
A544 Industrial Technology
A564 Resistant Materials
A574 Textiles Technology

Candidates responded 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.

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.

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. Practice of previous questions is extremely valuable to help candidates become more confident.

- **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 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

Unit 1 – For this examination series of the Innovator suite entries were seen from the following subject specialisms:

A511 Electronics and Control Systems
A521 Food Technology
A531 Graphics
A541 Industrial Technology
A561 Resistant Materials
A571 Textiles Technology

Unit 3 – For this examination series of the Innovator suite entries were seen from the following subject specialisms:

A513 Electronics and Control Systems
A524 Food Technology
A533 Graphics
A541 Industrial Technology
A563 Resistant Materials
A573 Textiles Technology

This examination series has seen portfolios for all subject specialisms being submitted 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 forward form CCS160 in particular to moderators.

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".*

There was still some evidence this series of strong teacher guidance influencing candidate portfolios. Where this was evident it greatly hampered the candidate's ability to show individuality, flair and creativity, and therefore achieve the higher marks. Centres should avoid over-reliance on writing frames for candidate's work which, while assisting struggling candidates, clearly will affect the ability of able candidates to show their skills and thus gain high marks.

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.*

It was noticeable that where candidates had scored the high marks, they had used specialist terms appropriately and correctly and had presented their portfolio using a structured format.

Centres need to ensure that all research work undertaken for units 1 and 3 is related to the chosen theme/starting point.

Centres need to be more vigilant when awarding marks for SPAG in the Critical Evaluation and allocate the available 8 marks accordingly.

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. 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.

Unit 1 – specific areas of importance

It is considered good practice for teachers to encourage candidates to consider Eco-design and sustainability when making decisions and combining skills with knowledge and understanding, in order to design and make a prototype product. This knowledge base also acts as a 'spring board' to active learning for Unit 2.

It was evident through the portfolio that candidates struggled with the critical evaluation section of the marking criteria. Unit 1 requires that the candidate evaluates the processes and subsequent modifications involved, in the designing and making of the final prototype ONLY. Too many references were made to the performance of the prototype against the specification, which meant that candidates' marks were compromised. (Not applicable to Food Technology)

Unit 3 – specific areas of importance

It was evident this session that candidates are producing either too little research or too much research as an appropriate response to a brief. Care needs to be taken here.

Centres are to be commended on the quality of the work seen in this unit and the balance candidates have been able to achieve between the designing and making criteria.

Centres need to ensure that candidates complete a quality product for Unit 3. The weighting of marks available for the Making section therefore, must be reflected in the time available for the candidates to complete a quality product.

A531 Introduction to Designing and Making – Controlled Assessment

Overview

The Standard of work presented for moderation this session has generally been very good, with the outcomes produced being suitable for the OCR D&T: Graphics Unit A531 Introduction to Designing & Making.

Most candidates had chosen one of the Themes and Starting Points from the specification. In a few cases candidates have 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.

Centres are reminded to ensure that the Theme and Starting Point are added to the 'Task Title' section of the individual Coursework Cover Sheet.

Most centres used compliant graphic materials as outlined in the specification for Unit A531. 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 copies of paper portfolios, portfolios saved to disc and portfolios uploaded to the OCR Repository for moderation. Centres are reminded that only one of these methods can be used at any one time by the centre. Where electronic portfolios are produced, centres are encouraged to submit work in a single folder rather than in numerous folders for each individual page. Centres should ensure that the 'pack and go' option is used when saving folders that contain audio and video files.

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 Centres 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 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 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 candidate 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 between 12-15 pages of A3 or equivalent. There was little use of writing frames. However, in some centres the format of each candidate's folder was very similar. Unit A531 is a controlled assessment which should 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, 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.

CREATIVITY

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 explaining the significance of design 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.

Some candidates using mainly downloaded or existing images for their design work with very little original creativity. Downloaded images are fine as a design tool. There is some skill in the manipulation of images, but this needs to be combined with original design work from the candidate.

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 evidence of the developmental work that they had clearly undertaken. 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 using both traditional rendering methods and 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.

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 has surface graphics applied that demonstrates 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, 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.

Centres are reminded that candidates should acknowledge and reference any sources used in a Bibliography.

A532 Sustainable Design

General Comments

This paper proved to be accessible to all candidates and a good range of responses were seen to all of the questions.

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

Candidates demonstrated a good understanding of the terminology's involved but were sometimes let down by poor exam techniques, there has been some 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.

There were a significant number of questions scattered throughout the paper which consistently scored full marks on almost all scripts.

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.

Comments on Individual Questions

Q1
Many candidates correctly identified that toxic materials should be refused.

Q2
Well answered, with most candidates correctly identifying that designers should consider different values and beliefs.

Q3
A proportion of candidates confused the correct answer of 'Carbon Offsetting' with 'Carbon Capping'

Q4
Most candidates were correctly able to identify energy from the sun as the correct answer.

Q5
Higher achieving candidates were able to successfully identify the correct meaning for the term 'Built in Obsolescence'.

Q6
Whilst many candidates correctly stated that secondary recycling is the turning of a product into a new product, typically by cutting up, or reusing the parts to make a new product, many candidates simply stated that the term meant that a product had been recycled twice or recycled again.

Q7
Most candidates correctly identified a sustainable energy source, solar or wind power were the most common answers seen. There were some examples were candidates simply stated 'trees', this would be worthy of zero marks unless accompanied by an explanation of how it would be sustainable, eg. trees cut from a replenishable/managed forest.

Q8
Poorly answered, very few candidates could correctly identify the term 'Life Cycle Analysis' or 'Life Cycle Assessment', the majority of candidates attempted the question.

Q9
A mixed response of candidate answers was seen on this question. Many candidates were able to correctly identify that the symbol shown would be seen on plastic products or were able to name a specific product such as a washing up bottle. There were examples of candidates not understanding that the term PET referred to identifying a specific material, and simply stated the product as a 'pet food can' or 'dog food.' Candidates should be aware of common signs and symbols used on recyclable products.

Q10
Most candidates were able to correctly identify a benefit to a worker of the Ethical trade initiative, common answers seen included fair pay and better working conditions.

Q11
The correct answer of True was given by virtually all candidates, manufacturers must protect the safety of users of products.

Q12
Most candidates were able to identify that Aluminium is 100% recyclable, therefore the answer was False.

Q13
The vast majority of candidates correctly identified the answer as True, recycled paper is sustainable.

Q14
Almost all candidates correctly identified the answer as True, designers must be aware of cultural differences.

Q15
Well answered, with the majority of candidates selecting False, Recycling is not suitable for all plastics.

Q16(a)
This question was asking for the benefits to the retailer of the shape of the carton. Answers referring to the customer (fitting it in their fridge door, or easy to pour) or the manufacturer (tessellated net, supplied flat-pack from the printer, flat surfaces for printing the graphics) attracted no marks. Candidates should take time to carefully read the stem of the question before preparing their answer. Many candidates gave only very brief one or two word answers, candidates should be encouraged to explain their answers by using terms such as because, therefore, so that etc.

Q16(b)
This question was asking for an advantage to the consumer of the carton, compared to a glass bottle. Generally well attempted. Clearly the carton is likely to be lighter in weight and less fragile than a glass bottle so it would be easier to pick up and carry, and less likely to smash or break if it was dropped. Cartons can also be squashed flat in preparation for recycling. Answers referring to ability to be recycled more easily, reusing or disposal, attracted no credit.

Q16(c)
This question required an explanation of the term Carbon Footprint. Most candidates were able to score 1 of the 2 marks available. Examiners were looking for references to the amount or impact of carbon/CO_2/emissions released into the atmosphere as a result of the manufacture, transport, use and disposal of a product. Credit was also given where answers related to a person's or human's carbon footprint providing there was reference to all of their activities over their whole life.

Q16(d)
This question was poorly attempted; many answers referring to the aluminium giving strength, a shiny look to the carton, or making the carton more easily recycled.

The aluminium, which is a micro thin layer on the inside of the laminate, provides a barrier between the contents of the carton and the outside world. As a barrier, the aluminium keeps the contents fresher for longer (shelf life), keeps the contents cool once chilled, reduces the need for preservatives and prevents odours, contaminants and light from reaching the contents.

It is the polythene that makes the laminate waterproof/leakproof, and the card that gives strength and stiffness to the carton.

Q16(e)
The vast majority of candidates were able to correctly identify the third symbol (Mobius Loop) as the symbol most likely to be seen on a cardboard drinks carton.

Q16(f)
The majority of candidates achieved 1 or 2 of the 2 marks available. This is an 'explain' question, so candidates must consider how to make two linked points in order to be awarded the two marks. A simple definition that, Reuse is when a product is used again for the same or a different purpose, is only one point and can score only 1 mark. This one point needs to be exemplified, qualified, expanded, or justified in order to attract the second mark. Most candidates did score the second mark by giving an example such as, when finished with a bottle of cola, instead of throwing it away, wash it out and refill it with tap water for further use.

16(g)(i)
Many candidates achieved 1 or 2 marks. Candidates should be aware that specification points need to be positive statements that define a feature of the required solution to ensure its success. 'Colourful', 'aesthetically pleasing' and 'gives the right message' are too vague and subjective to be clear specification points. Successful candidates stated points such as; be universally understood, be linked to washing and squashing the carton, not rely on writing to be understood, clear/stylised image.

16(g)(ii)
The majority of responses scored 2 marks by graphically showing 'wash and squash' in an integrated symbol. There were a small number of responses that were also presented as stylised wordless images and these attracted full marks. Many candidates lost a mark through designing their idea as a set of 'instructions' as opposed to the 'symbol' that was required. Candidates should be aware of the impact and simplicity of a symbol. A small number of candidates scored 0 or 1 mark for this question, these were usually where a candidate had failed to show both washing and squashing, or the design idea was of a very low quality. Candidates

should be encouraged to draw their ideas as clear and large as possible, using annotations to help highlight and explain their idea.

17(a)(i)
The vast majority of candidates were able to correctly identify a sustainable material. Paper, card or cardboard were the only creditable materials for making the party hats. Laminated card, corrugated card and any kind of plastic material would not have been either suitable of sustainable.

17(a)(ii)
Although only 1 mark value, this question required a well measured response relating to the origins of the material (from trees that can be replanted and re-grown, or from recycled material) or the ultimate fate of the hats (can be recycled or it will biodegrade). Responses relating to durability, long lasting, environmentally friendly, always available, attracted no marks.

17(b)
This question was poorly answered, some candidates were able to achieve 1 of the 2 marks available. Candidates were required to have knowledge of vegetable based inks and solvent inks. Vegetable based inks can be less expensive than solvent inks. They are safer to use for those involved with manufacture and printing because of the air borne drying agents, so they are less harmful to the environment, they can more easily be removed before recycling, and being from a vegetable source are sustainable. A variety of answers were seen and it was common for candidates not to explain their reasons or use vague and non-specific terms such as 'it's environmentally friendly'. Candidates need to be prepared to explain their answer using such terms as 'because', 'therefore' or 'such as' to maximise their chance of achieving more marks.

17(c)
Generally well answered. Re-use is the only creditable answer for this question. For questions like this involving a specific technical term, candidates must be very careful to use the exact term and not a derivative or variation. There were a number of candidates who provided two or three of the 6R's on the answer line. This contravenes the rubric of the examination paper and even if the correct answer was present, the candidate scored 0 marks.

17(d)(i)
Many candidates were not able to name the symbol shown, the European Eco-Label. Candidates need to be aware of the common signs and symbols used on packaging.

17(d)(ii)
Although many candidates were not able to name the specific symbol in 17di, many were able to go on and identify some aspects of the meaning of the symbol. Many candidates were able to identify that it was linked to a product or service not harming the environment, but few candidates were able to go on and explain its full meaning, that the product or service did not harm the environment throughout its life-cycle, from manufacture to disposal. A small number of candidates were able to obtain a mark for identifying that the purpose of the symbol was to 'show' or 'tell' the consumer about the product. Graphics candidates should clearly understand the purpose of a symbol, that is to 'show' or 'tell' people/consumers, information in graphic terms.

17(e)
In the extended writing question, candidates were required to discuss the difficulties faced by recycling centres of recycling products made of more than one material. References to the manufacture of multiple material products, the sorting of products by the consumer, and the refusal by consumers to buy multiple material products were not appropriate and attracted no credit.

A large number of the answers focussed on the same basic issue which was exemplified in two or three different ways, without argument or explanation. Many candidates only focused on explaining that separating multiple materials would be difficult and potentially costly. Candidates

failed to further discuss the implications to the recycling centre, such as employing more trained staff or purchasing specialised equipment which may then need specialised training. Very few candidates achieved level of response three.

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.

Ideally, for this 6 mark question, candidates should consider a number of discrete points (eg separation of the materials in the product, use of trained staff, purchase of special machinery, and the ultimate disposal of any non-recyclable materials). Then, using paragraphs, state the issue, exemplify, qualify, expand, justify, discuss or explain, and end with some form of simple conclusion. 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.

18(a)(i)
The vast majority of candidates were able to correctly identify an environmental benefit of using a brown paper bag. Common answers included 'it is biodegradeable' or 'can be recycled after use.'

18(a)(ii)
This question required candidates to identify a weakness of the brown paper bag and explain the effect of the weakness. This question was well answered with the majority of candidates clearly identifying a weakness such as ripping or tearing and then going on to explain the effect of the weakness, such as 'when filled with heavy shopping.' The question showed that candidates are able to successfully explain their answers well in order to achieve the second mark.

18(b)
This question required an understanding of the environmental implications of plastic carrier bags: these implications could relate to the manufacture, the use, or the disposal of the bags. As a 4 mark question, exam strategy requires candidates to analyse how to target the 4 marks, with two sets of linked points. A feature of the plastic bags must first be identified and stated, eg many plastic bags are not biodegradable or recyclable, production of plastic bags uses up fossil fuels and creates greenhouse gasses. Then the environmental consequence of the feature must be added, eg plastic bags are not biodegradable or recyclable so when disposed of in landfill, they remain in the earth for many years.

This question was attempted well by candidates but many candidates failed to achieve more than 2 or 3 marks as they failed to fully explain their answer. There were some examples of candidates using very simple one or two word answers. In preparation for the exam, candidates should practice using terms such as 'because', 'therefore' and 'so that', in order to maximise their chance of achieving higher marks.

18(c)
This question was well attempted. The question required the candidate to understand the effects of transport on the overall carbon footprint of the plastic carrier bags. Candidates had to express the link between an increase in the carbon footprint as a result of the fuel used to transport the bags over such long distances during the manufacturing and distribution.

18(d)
Well answered by the vast majority of candidates who managed to identify the correct meaning of non-biodegradable.

18(e)
Completion of the chart for mechanical recycling was generally well attempted, with most candidates achieving 2 or 3 of the 4 marks available.

A533 Making Quality Products – Controlled Assessment

Overview

The Standard of work presented for moderation this session has generally been good, with the outcomes produced being suitable for OCR D&T: Graphics Unit A533 Making Quality Products. Most candidates had chosen one of the Themes and Starting Points from the specification. In a few cases, candidates have 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 (see page 51 of the specification).

Please ensure that the Theme and Starting Point are added to the 'Task Title' section of the individual Controlled Assessment Cover Sheet.

Most centres used compliant graphic materials as outlined in the specification for Unit A533. The compliant materials are detailed on page 16 of the specification.

Not all centres provided the minimum **two photographs** of the completed product. Centres are requested to ensure they provide photographs that are of a sufficient size to provide full detail of the product. Centres provided both hard copies of folders; folders scanned to disc and uploaded folders on the OCR Repository for moderation.

The outcome of this unit is a quality product, and most candidates were able to complete this task.

Centres were fairly 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 A533 marking criteria 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 folder of evidence and not simply the candidate.

The use of CAD/CAM was evident throughout all 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 candidates design folder. Screen shots provide evidence of the development of ideas using CAD/CAM and are evidence of modelling being undertaken by candidates.

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

Centres are reminded that there are a number of subject specific support systems in place to aid teachers in the delivery of this specification, ranging from written advice on controlled assessment proposals to a full program of In-Service Training meetings.

Administration
Communication with Centres was satisfactory and all assessment material reached the moderators in plenty of time. All centres had provided individual Controlled Assessment Cover Sheets for each candidate. Centres are reminded that moderators will still need to receive the Centre Authentication Form CSS160 with the MS1 which is sent to the moderator.

In all the centres that were moderated there was 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 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 A533 is a controlled assessment which should 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 more successful candidates showed evidence of having used the Controlled Assessment Mark Scheme for A533, 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 Designing, Making and Evaluation strands.

DESIGNING

Centres are reminded that there is no requirement to present research material in the portfolio for A533 Making Quality Products.

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 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 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 evidence of developmental work that they had clearly undertaken. 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 and 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 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 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.

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 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.

Centres are reminded that candidates should acknowledge and reference any sources used in a Bibliography.

A534 The technical aspects of designing and making

General Comments

The entry for this unit was much larger than previous entries and as a result, there was a wider range of responses from the cohort spanning the majority of the 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 generally good, but the quality of drawing on the graphical questions using grids was 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 and in a number of cases the handwriting of candidates was such that it was extremely difficult or impossible to make sense of some responses.

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 which demonstrate good subject knowledge and show their ability to write structured, coherent answers.

Comments on specific questions

Question 1(a)
This was generally answered well. Most candidates scored one mark by identifying a suitable material. Most candidate answers were card or paper. Most incorrect answers included corrugated card or 'cardboard'.

Question 1(b)[i]
There were a variety of responses to this question with approximately half of the responses being the correct answer 'lithography'.

Question 1(b)[ii]
This question was poorly answered with few candidates getting full marks. Many obtained the first mark for 'what' was being checked but did not give a method of how it was to be done. Many answers focused on checking ink levels or printing checks relevant to laser or inkjet printers.

Question 1(c)[i]
Most candidates answered this correctly and gained one mark.

Question 1 (c)[ii]
Many candidates answered this correctly but there were a high proportion of incorrect answers relating to the varnish being applied in 'spots of varnish'.

Question 1(c)[iii]
Most candidates were able to achieve 1 of the 2 marks. Many candidates stated 'protection'/'durable' or 'shiny' as one of their answers. Few candidates achieved both marks.

Question 1(d)
Most candidates were able to correctly draw the outer shape and the fold line but the vast majority failed to use dotted lines to indicate a fold line and therefore only achieved one mark.

Question 1(e)
This was well answered by the majority of candidates. Most candidates clearly knew the answer and they achieved the full 2 marks. Many candidates achieved one mark for stating that the ink would change colour but described Thermochromic inks instead of Photochromic.

Question 2 (a)
There was a wide range of responses to this question. Most candidates were able to achieve at least one mark by shading the two front faces different tones but few could also show the top face as being lighter and fewer still correctly shaded the inside. The standard of shading was generally poor with lots of 'scribble'.

Question 2(b)
The majority of candidates were able to achieve 2 marks but few successfully included the hidden detail. The quality of some sketching was very poor. Many candidates added extra details to the plan view.

Question 2(c)
There were some very good responses seen to this question with some candidates producing excellent sketches and detailed responses gaining full marks. Many candidates simply stated that the foamboard should be scored or showed a net that could only be made from regular card and not foamboard.

Question 2(d)
Most candidates answered this well and were able to achieve full marks. Making the base wider or adding supporting structures were the most common answers.

Question 2(e)
Most candidates were able to identify that foamboard is difficult to recycle but very few were able to expand their answers and explain why. Few candidates achieved both marks for this question.

Question 3(a)
There was a wide range of responses to this question. Many candidates showed little understanding of what was meant by a sectional view. A significant proportion of candidates drew sectional views through the mould or former. Quality of sketching was generally poor.

Question 3(b)[i]
This question was generally answered well with many candidates naming the specific material, polystyrene.

Question 3(b)[ii]
Most candidates achieved one mark of the two available. Many candidates gave answers relating to embossing but gave no explanation of how this would be done. Very few responses referred to adding the symbol to the mould. Many candidates gave 'engraving' as an incorrect answer.

Question 3(c*)
There was a wide range of responses to this question but very few candidates achieved Level 3 responses. Most candidates achieved the middle and lower levels of response and showed some basic awareness of the symbols found on products but very few were able to explain in enough depth the significance of signs and symbols.

Many candidates tended to repeat their points for discussion rather than exploring them. Candidates who achieved higher marks named different symbols and the reasons why the symbols were important. There was evidence of some candidates using bullet points or lists which restricted their marks to a maximum of 2, Level 1.

Many candidates referred to the Mobius loop and tidyman symbols and showed some understanding of their meaning but did not explain how they encourage consumers to be environmentally friendly.

Question 4(a)
The majority of candidates answered this correctly.

Question 4(b)
Most candidates gave very vague answers usually relating to a benefit of using computers to create the image rather than how the image could be manipulated. Some candidates achieved one mark by stating a specific manipulation 'command' that could be done (cropping/resizing) and higher achieving candidates were able to correctly explain how this would be done. Few candidates achieved the full 2 marks.

Question 4(c)
The majority of candidates achieved both marks for this question. Safety mat and safety ruler were the most common answers seen although some candidates gave very generic/vague responses that were more suitable for general workshop health & safety (goggles, hair tied back) rather than using a specific piece of equipment such as the craft knife.

Question 4(d)
The vast majority of candidates were able to state a suitable adhesive and answered this correctly.

Question 4(e*)
This was generally answered much better by candidates than the other (*) question and with much less repetition. Most candidates were able to identify at least one advantage and disadvantage of using computer systems. Many of the lower level responses simply stated that it was quicker and easier to use CAD but failed to give examples or use specialist terms.
Many candidates showed a good understanding of the benefits and drawbacks. The majority of candidates were able to give several valid points relating to accuracy, speed, and electronic exchanging of data as being the main advantages. The risk of viruses, computer crashing, equipment expense were the main disadvantages.
Few candidates were able to plan and structure their answers clearly and there was still evidence of some candidates using bullet points or lists.

Question 5(a)
The vast majority of candidates achieved at least one mark with most achieving both by identifying two methods of gathering data. There was evidence of candidates not reading the question properly, resulting in a number of incorrect responses relating to data storage such as memory sticks or CD roms. Some candidates, having read the following question responded with bar chart or pie chart. Tally chart was also another common incorrect answer.

Question 5(b)
Most candidates correctly identified both types of chart and achieved both marks.

Question 5(c)
Very few candidates showed a clear understanding of the meaning of anthropometrics. Some candidates made reference to it affecting the 'size' of a product but very few were able to explain what it actually was. Many candidates gave answers relating to collecting people's opinions or views. Many candidates gave 'No Response'.

There was a general lack of understanding of the term 'anthropometrics'.

Question 5(d)
A good range of design solutions were produced for this question. Almost all candidates produced one idea as instructed by the question and scored some marks. A significant number of candidates did not read the question properly and designed miniature scale models of the eco garden or used materials other than card. The quality of sketches and notes was variable. In order to score the marks, each of the specification points had to be addressed.

Most candidates managed to show a free standing solution with reference to a garden and a fund raising amount, but many did not show progress towards the total or how the total could be updated. Most produced designs which were suitable for the users. Many clearly showed designs that were made from card but there was a variety of solutions using resistant materials and electrical systems.

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