

Design and Technology: Graphic Products

General Certificate of Secondary Education **J303**

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

Examiners' Reports

January 2011

J303/J043/R/11J

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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.

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Chief Examiner's Report

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

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

This is the first examination series in the 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 a QCDA 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 QCDA 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 QCDA 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.

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 Systems Control
A522 Food Technology
A532 Graphics
A542 Industrial Technology
A562 Resistant Materials
A572 Textile Technology

Entries were significantly increased this session giving a more realistic idea of candidate performance. The overall performance and range of results for Unit 2 has improved. Performance however, within 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.

Unit 2 – Section A: 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. There was less duplication of circling answers seen during this examination session.

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

In general, candidates lacked the specific knowledge and understanding required to answer some questions in depth. Many candidates did manage to use subject specific 'terms' in their answers, but at times these lacked sufficient depth and tended to be generally weak.

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 marks on the explain 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. Such answers included:

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

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.

Hand writing at times was difficult to decipher and candidates need to be prepared to make an effort with their hand writing, particularly on the banded mark question * and questions requiring a detailed explanation or discussion of points.

Centres are reminded that candidates are marked 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 Systems Control
A524 Food Technology
A534 Graphics
A544 Industrial Technology
A564 Resistant Materials
A574 Textile Technology

The overall performance of candidates varied considerably across the suite of subjects for Unit 4. However, it was encouraging to find that many candidates did demonstrate a good understanding of the technical aspects of designing and making in most of the specification areas this series compared to last year.

Areas of Unit 4 which Principal Examiners highlighted as being of particular concern are:

- **reading questions carefully** – the majority of candidates attempted all the questions this series. It is important that candidates do read the questions carefully to determine exactly what is required. It can be helpful for candidates to highlight what they consider to be the 'key' words or instructions before completing their answer.

- **clear and accurate answers** – 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.

It is apparent this series that candidates need to be practiced in examination technique; reading the questions carefully, responding to the instructions given in the questions and having an awareness of the full range of question formats.

Centres are to be reminded that questions marked with an asterisk * 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. A list of bullet points does not represent an adequate answer. Practice of this type of question which carries [6] marks is strongly recommended. There are two of these type of questions within Unit 4.

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 Systems Control
A521 Food Technology
A531 Graphics
A541 Industrial Technology
A561 Resistant Materials
A571 Textile Technology

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

A524 Food Technology
A533 Graphics
A563 Resistant Materials
A573 Textile 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: Centres must ensure that if candidates are entered through the repository (01), the marks must be downloaded onto the OCR site and **NOT** sent through to the moderator on a disc. This is classed as being a postal (02) moderation.

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. For each of the marking 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.

It was still evident that a significant number of portfolios, particularly for Unit 1, resembled the legacy format. Care must be taken here to ensure that the marking criteria and format of the Innovator suite is not confused with the legacy approach.

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.

Centres are also reminded to ensure that the OCR cover sheet is evident on 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.

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 flair and creativity, and therefore achieve the higher marks. Centres should avoid over-reliance on writing frames for candidates work.

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 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.

Unit 1 – specific areas of importance

Centres are to be reminded that Themes for Unit 1 are based around environmental awareness and sustainable resources/processes. Therefore, 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

Due to the low number of entries for this unit specific guidance is limited. However, 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 & Making – Controlled Assessment

This report provides an overview of the work seen in the Controlled Assessment Units A531 – Introduction to designing and making and A533 – Making Quality Products, for candidates who took the examination during this session.

General Overview of Units 1 and 3

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. This is the second year of this examination.

Almost all candidates had chosen one of the Themes and Starting Points from the specification. In a few cases candidates had chosen a theme and then stylised it to create their own starting point. Candidates need to be encouraged to adopt one of the themes and its' respective starting point. Most centres used compliant graphic materials as outlined in the specification for D & T: Graphics. The compliant materials are outlined on page 16 of the specification.

Not all centres provided the minimum two photographs of the completed product within the critical evaluation section. Centres are requested to ensure they provide photographs that are of a sufficient size and clarity to provide full detail of the final product.

Centres submitted hard copy portfolios, electronic files to disc and downloaded portfolios onto the OCR Repository, for moderation this session. Centres are reminded that only one of these methods can be used at any one time by the centre.

Most centres were 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. 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 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 product.

The use of CAD/CAM was evident throughout all the portfolios submitted for moderation. It was 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 products being 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, which is to be encouraged.

Few candidates provided any real evidence of modelling in their portfolios for Units 1 or 3. Clearly modelling must have taken place as products had developed from earlier designs. It is essential that candidates include evidence of modelling in their portfolios in order to gain the higher marks. Modelling evidence might include; cut and paste examples of models, photographic images, and screenshots showing how their design was created 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 prototype products and had made sound choices of tools and equipment. Furthermore, all candidates had chosen and used facilities appropriate to Graphics.

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

Centres are reminded that there are a number of subject specific support systems in place to aid teachers in the delivery of this specification, ranging from written advice on controlled assessment proposals to a full 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 are both sent to the moderator.

In nearly 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 seen this session. 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 a reduced use of writing frames seen this session, although in some centres the format of each candidate's folder was very similar. Units 1 and 3 are controlled assessments which should be completed in 20 hours. It was apparent that most candidates had produced their portfolios 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.

A532 Sustainable Design

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

Performance of Candidates

The more successful candidates showed evidence of having used the Controlled Assessment Marking Criteria 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 need to identify an appropriate range of existing products to analyse. From this analysis the candidates need to establish an understanding of what the principles of **good design** for the product are and then identify **the trends**. From these findings they should then demonstrate that they have an understanding of the needs of the user. With all this information to hand the candidate should produce a clear and concise design brief.

Successful Candidates gave examples of users and the user's needs. They carried out a thorough analysis of two existing products identifying what made them good designs and explained the significance of any trends that have influenced these existing products. They used sketches and photographs to illustrate their findings. They analysed the information gathered before using this to generate a concise design brief that clearly identified the product and users and is different to the theme and starting point.

DESIGNING

Candidates need to be able to support their ideas through their research in the first section. 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 their specification.

The 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. Successful 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, but few fully explained their choice of idea.

To illustrate their chosen prototype design proposal most candidates produced an orthographic drawing and provided further details of the prototype; sizes and relevant dimensions, construction details and materials to be used. Many candidates used ICT to present their drawings and surface graphics. It was evident that some candidates had clearly used ICT to produce a final design for their prototype, but failed to include this evidence in their portfolios. A series of screenshots of the work the candidates had undertaken would have seen them gain greater credit.

Successful Candidates analysed their design brief and made relevant and reasoned conclusions from this work. This was then incorporated into a structured, detailed, bullet-pointed specification. Successful candidates presented their designs using pencil sketches to generate a range of free-flowing ideas which were then fully explained with annotation. They then included

an in-depth analysis, with clear reasoning, their choice of prototype product. Candidates were able to produce a detailed scale drawing of their prototype product giving full details of possible materials, likely construction methods and processes and of surface graphics. Candidates could successfully 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 their final idea to a reasonable or high standard.

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

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 working prototype product suitable for the intended user which has surface graphics applied that demonstrate a high level of competency. Throughout their portfolio the candidates assess and apply knowledge appropriate for Graphics. Successful candidates clearly demonstrate their ability to solve problems effectively and efficiently as they arise and record the key stages in the creation of the prototype product, providing comprehensive notes and visual evidence.

CRITICAL EVALUATION

Many candidates based their evaluation on their prototype product and specification. In many cases the modifications candidates outlined were improvements to the prototype product. The Specification for Unit A531 clearly states that the evaluation should be of the designing and making process only. Furthermore, any modifications proposed by the candidate should include ways to improve the designing and making process. The record that candidates will have kept of the designing and making of the prototype (in the Making strand) together with the recording of any technical problems the candidate had overcome (also in the Making strand) should form the basis of their evaluation.

Successful Candidates 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

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

General comments

The overall performance and range of results showed candidates had been well prepared for the examination and had sufficient knowledge to attempt answering the questions. Candidates demonstrated a good understanding of the terminology involved but were sometimes let down by poor examination techniques.

In Section A of the paper candidates' generally answered all of the questions with a high percentage of correct answers seen. Most of the true or false statements were correctly identified.

In Section B some candidates failed to achieve marks by not reading the question carefully enough. Answers need to be in sufficient depth to merit marks. 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 answers. 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 candidate's handwriting and sketches were very difficult to decipher. It is essential that handwriting and sketching are as clear as possible.

There were a fewer number of 'no response' answers seen throughout the paper this session indicating that candidates had sufficient time and knowledge to answer the majority of the questions. There were a significant number of questions scattered throughout the paper which consistently scored full marks on the majority of scripts.

Comments on individual questions

Section A

Question 1

Nearly all candidates answered correctly with 'reduces the consumption of natural resources' being the correct answer.

Question 2

The majority of candidates gave the correct answer 'the materials and manufacturing processes used have little impact on the environment.'

Question 3

Many candidates answered correctly with 'compact discs.'

Question 4

Nearly all candidates gave the correct response of 'fix or mend it so that it can be used again'.

Question 5

The majority of candidates answered this correctly stating 'Protect and prolong the shelf life of a product.'

Question 6

This was almost always correctly answered with the word 'landfill' although a range of acceptable answers were seen.

Question 7

This question was poorly answered with a range of incorrect answers. Correct answers referred to a redundant product being 'no longer useful' or 'no longer of use.' Many candidates stated that the term meant that the product 'no longer worked' or 'is broken.' Candidates should understand that a redundant product may still work even if it is no longer useful.

Question 8

The majority of the answers gave the correct response of 'refuse'. 'Rethink' was the most common incorrect answer.

Question 9

Compost was the most common correct answer. Many candidates incorrectly stated 'Biodegrade' which is in the question stem; candidates should try to look for alternative wording for answers other than terms listed in the question.

Question 10

This question was generally poorly answered, the majority of candidates incorrectly stated that the symbol meant the product was recycled or could be recycled. Many candidates simply named the symbol rather than stating the meaning of the symbol. Candidates should be aware of the different signs and symbols that appear on graphic products.

Question 11

The majority of candidates answered this correctly although this question attracted the most number of incorrect answers in the true or false section.

Question 12

The majority of candidates answered this correctly.

Question 13

The majority of candidates answered this correctly.

Question 14

The majority of candidates answered this correctly.

Question 15

The majority of candidates answered this correctly.

Question 16

(a) Candidates were required to give two reasons why glass containers are environmentally friendly and a large proportion of candidates were able to achieve at least 1 of the 2 marks available. One word answers were often seen even though the question stated 'give two reasons', candidates must be encouraged to look at the number of lines provided for their answer and make sure that they give as full an answer as possible in the space available. Answers may involve the use of a key word, but that key word must be woven into a statement or a sentence in order for it to have meaning and enable candidates to achieve full marks. Successful candidates identified an aspect of glass containers and then explained what the environmental benefit was e.g. Glass containers can be washed out after use and reused for another purpose such as a vase for flowers.

(b) This question required candidates to identify and give four reasons why a laminate of cardboard and polyethylene is used for the cardboard carton. A good proportion of candidates were able to achieve up to 3 of the marks available. The majority of candidates were able to correctly identify a characteristic such as 'stops the contents leaking', 'can be printed onto' or

'can be folded/cut into shape' and many also correctly identified that the material can be recycled after use. One word answers were sometimes given; candidates must be encouraged to think about the answers that they intend to give and try to write in sufficient depth to obtain maximum marks.

(c) A mixture of responses was seen to this question. This question required candidates to explain why aluminium cans are suitable for recycling. Whenever a question starts with the word 'explain', candidates should be prepared to think more widely. To obtain marks here candidates needed to identify a feature of aluminium cans and then explain how that feature makes for easy recycling.

Eight lines were provided for the answer and four marks were allocated. For the award of high marks, this question needs a substantial answer.

The cans are easily melted down, requiring far less energy than originally used to extract the aluminium from its ore, so this makes the process cost effective. There is no need for sorting, separating, or removing labels, because the aluminium is a 100% recyclable single material. Aluminium can be processed and re-processed over and over without losing any original properties, and it can be used in a wide range of products so there is a ready market to make the whole operation economically viable.

Candidates commonly scored two or three of the marks available.

(d) A mixed response was seen to this question with the majority of candidates only achieving one mark. This question required the candidate to think about the different types of packaging that they are faced with in their own life, and how they can make that packaging easier to recycle. Successful answers to this question stated 'wash out or clean packaging before recycling', 'squash or flatten packaging' or 'remove or separate different materials from the package before recycling.'

Many candidates explained processes that a manufacturer could take to reduce the amount of packaging rather than focusing on the actions of the 'consumer.'

(e) This question was not well answered by a high percentage of candidates. Primary recycling involves re-use of a product, without modification, by another person: for example, giving magazines and books to a charity shop or for a dentist waiting room. The correct answer to this question required some kind of explanation of the idea of primary recycling, and then an example of a product that could be re-used and a person or organisation where it might be re-used. Many candidates were able to score the first mark, but few candidates went on to score both of the second two marks.

Question 17

(a) This question required candidates to explain the term 'Solar Power.' Many candidates generally answered this well, correctly identifying and linking the term solar to the sun with many candidates scoring the full two marks. However some candidates lost marks by failing to explain or link the 'conversion' of the sunlight into energy.

(b) This was very well answered with the most common response being 'wind', although a wide variety of other forms of suitable sustainable energy were suggested.

(c) This question caused some confusion amongst candidates, often candidate answers for part c were more appropriate for part d and vice versa. This part of the question required candidates to explain why a road sign would be suitable for solar power, not explain 'how' it would work. A good proportion of candidates were able to achieve 1 mark by correctly identifying that road signs are located outside, and some candidates were able to expand upon this by explaining

that because of the location alternative power would be required or that the sign being outside would enable it to be powered by the sun.

(d) As in part c, some candidates were confused about the lighting up of the road sign suggesting that it was the moonlight or car headlights that would power the sign, candidates who correctly explained either a 'timed' or 'light activated sensor' in the road sign or a battery that would 'store' or 'capture' the sun's rays achieved the marks available.

(e) This question required candidates to explain why the road sign may not be suitable for some parts of the country. Many candidates were able to correctly identify that some parts of the country do not receive enough sunlight but many did not go on to explain that this lack of sunlight would mean the sign would not have enough power to last throughout the night. Candidates should try to look for key words in the question stem such as 'explain', 'give' or 'describe' to enable them to construct a full answer.

(f) Many candidates were able to give the names of 'refuse' and 'rethink', but most then went on to describe the 6R Reduce with statements that included the actual word Reduce rather than use terms such as less than, minimise, less, or smaller. There were many very valid and thoughtful responses on how to reduce environmental impact in some aspect; it was very pleasing to see the variety of responses that suggested different ways of reducing environmental impact.

(g) This question required candidates to design a symbol to represent solar power. There were some examples of very fluid, thoughtful and creative ideas that were explained using notes, these candidates used the space well to design and present their answer. Their drawings/sketches were clear and carefully drawn. Most candidates were able to draw some kind of sun symbol to represent solar, and many of these were stylised symbols that would be appropriate for a logo. Few candidates were able to achieve the full three marks, candidates generally struggled to show how their sun logo/symbol was linked to power or the energy created by solar power. Candidates should be reminded that in order to secure marks they should ensure that any designs, sketches and notes are clear and that they utilise the space available.

Question 18

(a) This question was answered well by the majority of candidates with most candidates highlighting protection for the DVDs.

(b) This question had a mixed response, candidates either knew the exact correct answer of 'corrugated cardboard' or they incorrectly guessed, a wide variety of incorrect answers were seen. Candidates need to be aware of and name common materials used in graphic products.

(c) The advantages to the manufacturer of using recycled material for the outer box was not always well known and many vague and unspecific answers referred to 'good for the environment', 'can be recycled' or 'environmentally friendly'. Candidates need to be discouraged from giving these types of answers unless qualified.

(d) Few candidates scored both marks for this question, but most were able to score one mark by correctly identifying that the original material used to make the box was trees. Candidates should familiarise themselves with common symbols/logos that appear on graphic products and their meaning.

(e*) In this extended writing question, candidates were required to discuss the benefits of a packaging system used to both transport and display the DVDs.

It was pleasing to see that the majority of candidates attempted this question but candidates did struggle with the majority of candidates only achieving 2 or 3 of the 6 marks available.

A large number of candidate answers focussed on one issue which was exemplified in two or three different ways, without argument or explanation.

Many candidates focused on explaining that the package could be recycled and that this in turn benefited the environment, it was disappointing that candidates did not consider the wider issues and very few candidates achieved level of response three.

Higher achieving candidates were able to structure a detailed and thoughtful answer that used correct spelling, grammar and punctuation. Specialist terms were woven throughout their response. Candidates identified that the dual usage of the outer box as both a transporter and a display reduced the amount of packaging/material needed to be produced. This in turn reduced the amount of waste created by the packaging and also helped to reduce the carbon footprint of the manufacturer. The retailer could also benefit, the dual purpose package would be less time consuming as the product would not need to be unwrapped/unpackaged and then stacked onto a shelf, it could simply be opened and then placed on the shelf ready for consumers.

Consumers could benefit from this type of packaging as they could 'bulk' buy products easily. Candidates would benefit from practice and guidance on extended writing, candidates need to be encouraged to write about three paragraphs for their answer; within each paragraph to identify one specific issue, and using specialist terms, accurate spelling, punctuation and grammar, to analyse and exemplify the issue as a balanced argument with some form of simple conclusion.

It was noted that some candidates used bullet points or lists in this question, this must be avoided. Evidence of bullet points or lists can only be credited a maximum of 2 marks- level 1.

(f) This question was generally well answered. Most candidates were able to score two or three of the four marks available with correct wording in the correct spaces.

A533 Making Quality Products – Controlled Assessment

DESIGNING

Candidates should start this strand by stating their chosen theme/starting point before producing research to support the development of a 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 specification.

The specifications produced by candidates varied in content and detail. Many contained vague statements such as; must be the right size. If candidates were to justify each specification point it would improve the quality. 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 unit.

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 designs which were fully explained with annotation whilst others provided little explanation of their ideas. Most candidates identified a final design proposal.

To illustrate their chosen final design proposal most candidates produced an orthographic drawing and included further details of the product, its construction and materials to be used. Many candidates used ICT to present their detailed drawings and surface graphics. It is important that any use of ICT is evidenced in the candidate portfolios. A series of screenshots of the work they have undertaken would have seen them gain greater credit.

Successful Candidates analysed their design brief and made relevant and reasoned conclusions from this work. This was then incorporated into a detailed specification. Successful candidates presented a range of design ideas based around their chosen product, which were fully explained against their specification points. Candidates were able to identify their chosen final design idea through reasoned analysis and produce a detailed scale drawing of the product with possible materials, construction methods, processes and surface graphics identified. Candidates could communicate their designs using appropriate skills and techniques including ICT.

MAKING

Most candidates successfully produced a quality product. Overall, this was the most successful aspect of the portfolio. Planning consisted of a flow chart for most candidates. A plan, in a table format, that shows each stage, health & safety, tools, equipment, quality points and processes would be of benefit to candidates in this section.

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 portfolios in order to gain the higher marks. Modelling evidence might include cut and paste examples, photographic images and screenshots showing how their design was formed using ICT.

Most candidates had included a record of the key stages in making the final product using notes, sketches and photographic images. A photographic record with annotation or even a scrapbook diary that is completed for 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 record the key stages in the designing and making of the product alongside how they have adapted to technical problems, providing comprehensive notes and visual evidence.

CRITICAL EVALUATION

All candidates based their evaluation on their product and specification. Few candidates carried out detailed testing and therefore were not able to draw purposeful conclusions and propose appropriate modifications for the product.

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

A534 The technical aspects of designing and making

General Comments

The paper performed as anticipated and almost all 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.

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

Comments on specific questions

Question 1(a)

This was generally answered well. Most candidates scored one mark by identifying a suitable material. Most answers named card or cardboard.

Question 1(b)

Almost all candidates correctly identified the reason for the window in the box.

Question 1(c)

Few candidates appeared to have an understanding of die cutting, embossing or laminating as many answered this incorrectly. Laminating was the most common incorrect answer.

Question 1(d)

Very few candidates were able to fully answer this question. Responses from most candidates identified the use of pressure and/or heat in the process and gained two of the three marks available but very few described the whole process correctly. Common incorrect answers were based upon the cutting out and gluing down of foil shapes with scissors and glue.

Question 1 (e)

Most candidates had an understanding of the equilateral triangle but many did not allow for the isometric orientation. Likewise, many drew triangles in isometric that were not equilateral.

Question 1(f)

Most candidates were able to add the window and the base correctly. Many added too many bases. A significant number of candidates added the back but missed off the second side. Many candidates missed off the tabs or drew too many.

Question 2(a)

There was a good range of responses to this question with most candidates scoring at least one mark by adding some tone to the given drawing. Only a small number of responses were seen that scored the maximum marks. A small number of candidates incorrectly added shadows to the drawing.

Question 2(b)[i]

Most candidates were able to correctly identify one property of Styrofoam which made it suitable for the display stand. The most common incorrect answers were vague answers such as strong, soft or sturdy.

Question 2 (b)[ii]

Most candidates correctly identified a suitable adhesive to join the styrofoam blocks, but many stated solvent based adhesives or other substances unsuitable for styrofoam.

Question 2(b)[iii]

The majority of candidates offered answers that related to the testing of the display stand once it was completed and in use, rather than checks which would be carried out during its manufacture. The most common incorrect answers were related to testing the stand to take the weight of the jewellery.

Question 2(c)

There was a wide range of responses to this question. Most candidates provided a sketch of a circle on the plan view. Many drew it to the correct size and position. Most candidates drew the base correctly, but only a few completed the end elevation of the two cylinders correctly. Many candidates drew the end view of the cylinders the wrong way round or the shorter cylinder in front of the taller one.

Question 3(a)

There were many good responses to this question with the majority of students scoring maximum marks. Most candidates gave answers relating to font and size. Most common incorrect answers included different colours (red, blue etc.) as the answer.

Question 3(b)

Most candidates were able to correctly identify two types of contact detail and scored maximum marks. Most common incorrect answers related to the name of the business or the client.

Question 3(c)

The majority of candidates showed some understanding of the term copyright, in terms of it being illegal to use a copyrighted image, but few provided a clear explanation of the issues relating to the gaining of permission to use it or why these would need to be considered.

Question 3(d*)

There was a wide range of responses to this question. Few candidates showed a thorough understanding of the purpose of a business card or the term 'life cycle'. Many candidates' answers focused upon the production cycle and methods of producing a business card in large quantities but did not relate this to the life cycle of the card.

Many candidates described the environmental issues surrounding the production of business cards and the processes involved in the recycling of paper and card, but did not relate these to the life cycle of the card or explain how it would impact upon the selection of materials or manufacturing methods.

Candidates showed some understanding of the different materials used for business cards but few related them to the life span of the card. A significant number of candidates made some relationship between the cost of materials and the fact that cards are given away but these were often unrelated to the life cycle of the card.

Question 4(a)

There was a wide range of responses to this question. The majority of candidates incorrectly drew a corrugated card section instead of corriflute.

Question 4(b)

The majority of candidates identified the fact that polypropylene offered some protection to the CD but few explained why. Many answers focused on the fact that it can be transparent allowing you to see the CD sleeve or artwork. Most common incorrect answers included strong or waterproof.

Question 4(c)

This question was generally answered well with many candidates scoring maximum marks. Many candidates correctly identified a suitable printing method. Most correctly identified a suitable material for the sticker label. The majority of candidates correctly identified thermochromic ink as the correct smart material.

Question 4(d*)

There was a wide range of responses to this question with some very detailed answers. Most candidates showed some understanding of the term aesthetics and identified that the colours would need to attract the target audience.

Many candidates showed a good understanding of the colour wheel and focused on describing the principles of contrasting and harmonious colours.

Many candidate answers focused on the use of colours to represent different genres of music but the ways these would be selected for their aesthetic properties were inferred rather than discussed. Nevertheless, numerous very good answers were seen.

Question 5(a)

Few candidates correctly identified the v-fold system. Even fewer candidates correctly identified the multiple layer pop up system.

Question 5(b)

Most candidates correctly identified the fixed and moving pivots on the mechanism. Many did not identify the correct output direction. It was evident that some candidates had a detailed knowledge of levers and linkages, whilst others had no knowledge at all.

Question 5(c)

Most candidates correctly identified the reason for the guides on the mechanism, but many incorrectly selected strengthen the mechanism.

Question 5(d)

There was a good range of design solutions produced for this question. Almost all candidates produced one idea and scored some marks. 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 solution with days of the week and weather displayed, but many were not interchangeable. Most produced designs which were suitable for the users. Many clearly showed designs that were made from A3 card but there was a variety of solutions using resistant materials and electrical systems.

There were many excellent answers to this question. There were some relatively simple working mechanisms that scored full marks; equally there were very complicated mechanisms that did not function. A significant number of candidates showed non mechanical solutions which used Velcro, blue tack or 'wipe board'.

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