

Design and Technology: Product Design

General Certificate of Secondary Education **J305**

General Certificate of Secondary Education (Short Course) **J045**

OCR Report to Centres

June 2012

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

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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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Overview

General comments

Candidate responses in the examinations for Units A552 and A554 indicated that the specification content for these units had been generally well covered by centres. Candidates' knowledge and understanding ranged from limited to fully informed across the units, details of which are given in this report.

Work presented in the controlled assessment units A551 and A553 followed the requirements of the specification closely and good practice was seen in a number of portfolios presented for moderation. The Assessment Criteria for these units were applied appropriately in the majority of cases when assessing candidates' work.

Most candidates attempted all of the questions on examined unit A554 but, in a few cases, questions with no response indicated gaps in candidates' knowledge of the specification content. There was some evidence of candidates not having read questions carefully before answering, resulting in an unnecessary loss of marks.

Entries were made for both of the Controlled Assessment units this session, with a number of good examples of portfolios being seen by moderators. In all cases, candidates had based their projects specifically on the themes presented in the OCR GCSE Product Design Specification. Centres with more than one staff teaching candidates must carry out internal standardisation to ensure that standards are maintained and the correct rank order is applied. All work should be carried out in the presence of a teacher at the Centre. To save delays in the moderation process, form CCS160 (which needs to be signed by all staff teaching the specification), should be enclosed with the selected sample of work sent to the moderator (paper or electronic format).

A551 Developing and Applying Design Skills

Administration

In general, Centre administration was effective and moderators received the required documentation and sample candidate materials on time. However, moderators have reported a rise in the number of centres who provide incomplete paperwork resulting in delays in the moderation process. Centres are reminded that forms CCS160, CCS/A551 and form MS1 (or electronic equivalent) must be fully completed and submitted to the moderator. Form A551/CSF is an optional form for use by centres. If submitted to the moderator this form can aid the moderation process.

A rise in centre arithmetic and transcription errors has also been seen during this examination series. It is important that centres check the addition of candidate marks carefully and ensure the transcription of the candidate mark to the MS1 is checked.

Centres must take care to use the correct entry codes for this unit. The entry codes are A551/01 for entries using the OCR Repository and A551/02 for either paper or electronic folios submitted by postal moderation.

When using electronic folios centres should ensure that the work of candidates is presented in one cohesive format. Producing individual documents for each page of a candidate folio is not an acceptable format. Centres using the OCR Repository should be aware of the file size limit of 20MB. If file sizes exceed this limit it is possible to load separate files for an individual candidate but these should be clearly labelled. Each individual file should not exceed 20MB. Electronic portfolios may be submitted to the moderator on a single CD or USB Memory Stick. These devices must be clearly labelled with a 'permanent marker' to show the Centre name and Centre number.

The majority of entries were A551/02 postal with many centres using the option of producing e-folios in a PowerPoint format. This enabled candidates to use sound and video within their folios. Centres are reminded that they must submit candidate work using one of the formats detailed in the OCR Specification for this subject.

Where work is submitted on paper it should be presented in a logical sequence and suitably bound to enable the moderator to complete the moderation process effectively. Folders should not include teaching materials and classroom project work.

Where centres have 12 or fewer candidates entered sending all the folios to the moderator without waiting for notification of the selected sample will aid the speed of the moderation process.

Internal Assessment Objective 1

In general, candidates undertook design activities which were manageable and appropriate. Occasionally centres allowed candidates to undertake problems which were too challenging within the 20 hour controlled assessment limit.

It is vitally important that all candidates identify a clear problem to solve with a specific user or user group and summarise the direction of their design activity at the start of their folio. This enables them to identify and access appropriate research opportunities and also allows the creation of designs which reflect the needs of their identified user group.

Work such as planning and “what I will do and where I will look for evidence” should not be submitted in the folios as this does not attract marks against the assessment criteria. Moderators reported that candidate’s performance was higher when they were presented with a variety of ‘situations’ which they were able to explore in order to identify their own ‘design problems’ as opposed to simply being presented with a ‘stock’ problem that the whole teaching group followed.

Internal Assessment Objective 2

There should be two aspects to the research activity undertaken by candidates these are: product analysis of similar or associated products (strand 1) and “other research” such as user requirements, ergonomic considerations and location (strand 2).

Primary research was clearly seen to provide greater depth of information than the use of ‘secondary’ research methods when undertaking existing product analysis. Undertaking primary product analysis should be one of the underpinning activities of the GCSE Product Design Course. The research of two or three products ‘in depth’ should be sufficient to inform the future design activity and satisfy the assessment criteria for the award of full marks. Some centres used a writing frame approach for the product analysis activity. It should be noted that this approach or the use of pre-determined headings can be restrictive for higher achieving candidates. Each product has its own intrinsic set of features that may not neatly fit into a predetermined list or set of headings.

Candidates should ideally start their analysis of a product by identifying and possibly sketching the key features of the product. An explanation of the purpose of these features will provide the candidate with the information required to both inform the writing of their design specification and aid the formulation of design ideas.

Many candidates used either questionnaires or interviews when researching the user requirements for the product to be designed. The design of these methods of obtaining ‘User’ data requires careful consideration. Often, the questions asked are either irrelevant or gain very little information that will aid the design of the product. Moderators report that some centres are awarding high marks to questionnaires that often do little more than present evidence of the existence of the design problem. In order to achieve high marks the questionnaire or interview should illicit key information about the features or functions of the product to be designed and be fully analysed. Specific ergonomic data and other size information should also be researched and presented by candidates.

Candidate specifications were often found to contain vague or generic points which could apply to almost any product. Candidates who produced a summary of the research findings were able to identify the key features of the product to be designed and were able to produce a series of justified specification points.

Internal Assessment Objective 3

There were examples of some excellent design activity with some very creative thinking evidenced. Centres need to be aware that there is not an expectation for “creative thinking and risk taking” to gain marks in the third box of stand one in IAO3 (marks 14 – 19).

Development was limited in some of the work seen and candidates need to understand that development means improving and moving forwards rather than just redrawing what has already been generated. Modelling should be used to test the feasibility of aspects of the design work. This modelling activity will then contribute to design development. Centres should note that a model of the final proposal is not required as modelling is seen as a design tool rather than a presentation tool.

The evaluation of design ideas against the design specification is an area where candidate performance could be improved. Moderators have again reported that very often candidates produce little more than a tick box grid with limited meaningful analysis. To be awarded high marks in strand 3 of IOA3 candidates need to show an analytical evaluation of their design ideas.

Communication skills varied widely between candidates. More successful candidates presented their ideas in a 'free flowing' format using sketching to show different views or parts of their product. They used annotation to communicate their design thinking and used modelling and enhancement techniques such as rendering to fully communicate their ideas.

When producing electronic portfolios candidate's performance is seen to be higher when all the design work is completed on paper including annotation. The whole design page is then scanned into the folio.

Moderators have reported that a number of centres are awarding marks for the use of CAD or Other Computer Applications (OCA) where no evidence exists within the folio. The mark for the 'use of CAD or Other Computer Applications (OCA)' is rewarded for work in **IAO3 only**. To be rewarded with higher marks CAD should be used as a design tool rather than just to produce an image of the final design.

A552 Design and Making Innovation Challenge

General Comments

The 2012 theme 'Summer Holiday Entertainment' is accessible to all candidates and work has been seen for each of the four set challenges.

Candidates clearly enjoy the work they have carried out during the 'challenge' with many reflecting positively on their experience.

Administration

Examiners have reported increased problems due to centre administration errors in this session. It is important that teachers make examination officers aware that the examination takes place in three separate stages and that examination workbooks should not be sent to examiners until all of the three stages are complete (workbooks must be kept securely by the examination officer between sessions). A number of centres have posted examination scripts to examiners prior to the completion of the three examination sessions in this exam session.

To avoid delays and unnecessary 'missing script' investigation work for both OCR and the Examination Centre it is important that examination workbooks are posted to examiners as soon as the 'Time to Reflect' activity has been completed. Exams officers must ensure that the exam register is fully completed and that a copy of the register is sent with the examination scripts to the examiner.

Examination scripts must be posted to examiners using approved secure postage. Examiners have reported that some centres are posting scripts using ordinary post services which are untraceable in the event of a parcel not being received.

Centres are reminded of the requirement to submit details of the dates of the Innovation Challenge to OCR using the VAF form. A number of centres failed to submit this form before the given deadline this session. Copies of the form are available on the OCR website – www.ocr.org.uk.

The Innovation Challenge is designed to take place within a time window of the 1st May to the 25th June. Centres are not allowed to run the Challenge outside of this window.

All materials relating to examinations sent from OCR to centres will be despatched to the examinations officer. It is important that colleagues check with the examinations officer that they have received all relevant and most up to date information prior to starting the Innovation Challenge activity. It is very important that centres use only the workbook and teacher script provided for Unit A552.

A number of centres were visited during the challenge this session. Examination notices must be displayed in the area where the examination is to take place and an invigilator should be present. Candidates should work in silence unless otherwise instructed by the teacher script.

Running the Challenge

Centres are reminded that the role of the teaching colleague is that of a facilitator and not that of a normal classroom teacher. They are there to provide access to materials, monitor health and safety issues and read the teacher script to candidates, elaborating and explaining where this is indicated within the script.

Teaching colleagues and support staff must not give advice to candidates about the design/manufacture of their prototype product or cut materials to correct shape or size. It must be made clear to all candidates that this is an examination and we are assessing the individual candidate's designing and modelling capability.

Photographs

The quality and size of photographs supplied by most centres is appropriate for this examination. Photographs form an essential part of the assessment process. Photographs must be good quality colour images that are of an appropriate size to fit into the space provided on the work book. Centres should refrain from inserting large images that are folded to fit the available space in the workbook. This can make the assessment task more difficult for examiners.

The addition of a card with the candidates name within the photo aids the return of photos to candidates. Centres are reminded that four "teacher" photographs is the minimum required. Additional photos can be added to the workbook. This is particularly important if it is necessary to show other parts or views of an artefact to fully illustrate the final outcome.

It is recommended that if candidates wish to annotate photographs that a second print is produced and stuck into either the appropriate section of the workbook or into the 'additional space' and clearly labelled and then annotated. Where overlay paper is used on the four 'scripted' photographs examiners have reported difficulty in viewing the photos due to the application of excessive glue.

Candidates should be encouraged to stick photos into the workbook as they are printed.

Completion of the workbook

Examiners have again reported difficulty in understanding candidate's work where blunt pencil, highlight pens or gel pens have been used for written work. Please advise candidates of the need for all of their work to be legible. Work should be completed in English. 'Text messaging' abbreviations are not acceptable.

Security of Workbooks

Centres are reminded of the importance of appropriate security of all workbooks between the three sessions of the Innovation Challenge. Workbooks must be returned to the examinations officer and should be stored in secure conditions.

Development of design. Evolution through making.

Initial Thoughts

Candidates used a mix of text and drawings to explore the selected challenge. The majority of candidates produced a range of initial concept ideas and were thinking creatively about the challenge that they have selected.

Candidates should be encouraged to take risks and think creatively about the design task.

Briefs

Design Briefs identified by candidates are often poorly written. Design Briefs are often too prescriptive with many candidates confusing the design brief with the specification. Candidates should be encouraged to write clear and precise design briefs that offer scope for creativity.

User/Clients

The majority of candidates identified appropriate user groups for their products. Higher performing candidates gave clear consideration of their user group whilst undertaking the design activity making clear reference to the target user and user needs.

Specifications

Specifications from many candidates are clear and precise allowing candidates to achieve full marks for this area. However, examiners have again raised concerns that some candidates are producing vague, often generic specification points that could apply to any product. The specification must be 'specific' to the product that is being designed. Vague points such as 'it must be the right size', 'it must be ergonomic' and 'it must not cost too much' should be avoided. Presenting the specification in a bullet pointed format rather than in an essay style would be of benefit to candidates.

Ideas

The majority of candidates used a mix of drawings, text, annotation and occasionally modelling/photographs to show their ideas.

Higher performing candidates produced a range of creative ideas that clearly related to their design brief, specification and potential users. Drawings of both full designs and parts of designs were provided along with detailed annotation relating to materials and construction methods. Development of the design from the 'initial thoughts' was clearly evident. Designs were 'rendered' to enhance communication.

Lower scoring candidates reproduced the initial thoughts from box 1 of the challenge activity or only produced a single design idea. Very often these candidates disregarded both the design brief and specification from boxes 3 and 4.

Some candidates produced ideas based upon production using modelling materials. The design ideas should be based around the future manufacture of the product.

Examiners reported a lack of material knowledge amongst candidates. The majority of candidates failed to identify specific materials for product manufacture.

Communicating information through sketches, writing and photographs

The standard of design communication was generally good. Candidates presented their ideas using a range of annotated drawings and text. Higher performing candidates gave different views of objects or parts of objects and clearly communicated their design thinking through the use of annotation.

Examiners felt that the work of many candidates could have been enhanced with the use of rendering techniques and that centres should encourage candidates to be more adventurous in their forms of communication.

Written communication is generally good but many candidates fail to use technical vocabulary when this is appropriate.

Materials, Components, Processes, Techniques and Industrial Practice

Examiners have reported that the majority of centres have prepared their candidates well for this part of the examination. Candidates from these centres clearly understood that they were making a prototype model rather than the 'final' product. Appropriate materials were supplied by these centres for candidates use. These materials included foam, foam board, card, balsa, clay, modelling clay, mechanism kits, polymorph, etc.

It is essential that during the product design course candidates undertake modelling activity in order to develop their manufacturing skills and knowledge of modelling materials.

Some candidates whose design work was of a good standard were limited by the materials supplied by their centres. 'Junk' modelling materials impose restrictions upon candidates use of materials and can have an adverse impact upon the quality of modelling. Sheet materials such as MDF and Plywood are often unsuitable for modelling. These materials can limit the candidate's ability to model designs appropriately and/or impact upon the candidates design work. Where these materials were used, the candidates' work was often incomplete because candidates were trying to manufacture 'final outcomes' rather than 'prototype products'. Some candidates highlight the availability of materials as a problem within the evaluation activity. Models must be an appropriate size for the candidate to be able to successfully manipulate materials and demonstrate the features of the product.

Higher achieving candidates considered the choice of materials and components available and identified the most appropriate materials for the manufacture of their product demonstrating adept use of these materials. They completed their models to a high standard, showing all features of their design.

Analysis of ideas, models and prototypes

Peer Evaluation

The majority of candidates planned for the presentation and recorded the outcome. Clear evidence was seen of candidates using the feedback to further develop ideas. Occasionally, candidates failed to record the feedback or planning for this activity.

Development of ideas

Design development was generally good. Higher achieving candidates show clear development of their ideas between box 1 'initial thoughts' and box 5 'initial ideas'. They also show development between box 5 'initial ideas' and box 9 'developing your idea'.

It is important that candidates use notes or annotations to show how they are developing their design towards an optimum solution that satisfies the design brief, specification and needs of the user.

Producing a model of the initial idea or redrawing the initial idea does not show development of the design and therefore will gain no marks for design development.

Evaluation

Many candidates produced detailed evaluations of their prototype product. Higher performing candidates clearly considered each element of the evaluation section of the workbook and also provided detailed analysis of their design in relation to the design specification.

Reflection

To score highly candidates should focus on the product design rather than the modelling activity. It is essential that candidates use the 30 minutes available to read through their workbook and reflect upon the product design. They should identify strengths and weaknesses in the design and suggest detailed alterations/improvements. Where design alterations are proposed these should be drawn and clearly communicated. Cursory written comments will not attract high marks.

A553 Making, Testing & Marketing Products

Administration

Increased use of candidate's work submitted electronically (via the repository) over the paper-based (postal) approach. Centres should ensure that all electronic files are packaged correctly. Moderators have experienced difficulties in accessing files that have not been correctly uploaded.

The use of PDF files with hyper-links to you tube or similar web based programmes is also working well and giving centres an increased range of options.

Candidates can present work in paper or electronic formats but not a combination of the two. Centres should consult the specification document for acceptable electronic formats when submitting on CD. Electronic portfolios are favoured for this unit and the use of photographs, sound and video is becoming popular. The use of the OCR repository has also worked well this series.

OCR would prefer candidate's work submitted on individual CDs for this unit. Centres should be aware that electronic folders are not returned, so ensure a copy is kept at the Centre.

Internal assessment Objective 4

This section is about creating a single, functioning, quality product. All evidence in the portfolio should be through annotation and photographs, the final outcome should be a working product not a model.

A good range of products were presented for moderation varying considerably in size and complexity. If candidates are making similar products, it is important that ownership of the work, folio and photographs should show this. Individual approach to the product and comments are necessary.

The recording of manufacture was generally poor, especially when submitted on paper. There is a distinct difference emerging between centres who submit candidate's work on CD and those who use paper. The recording of the manufacture is very important and should be given more attention by centres.

The submitted evidence should be in the form of a diary explaining what has been achieved and how problems have been solved. It must include evidence of how candidates have used economy in their approach, how they have worked safely and how they have worked with precision. A plan, time lines or similar are not required.

The production log was much improved for this series, candidates are using a range of photographs showing a range of skills, materials and equipment used. Candidates are showing ownership and confidence in explaining how they completed the product. Evidence of how candidates demonstrate economic use of materials and how they obtain precision in the making of the product are areas to focus on in the future.

The use of CAD/CAM should be encouraged. Centres must ensure candidates have used a range of skills (CAD/CAM is one skill) in producing the practical work to achieve the higher marks. If CAD/CAM is used, candidates should produce evidence they understand the process by using screen shots and appropriate annotation.

The quantity and quality of photographs enclosed in the portfolio is important, centres should ensure sufficient photographic evidence of a good quality is evident. Candidates tend not to include close ups showing the quality and precision of their work.

Internal assessment Objective 5

This objective is all about taking the product forward and should not contain reference to the making process.

Evaluations were well done with reference to the specification and appropriate photographic evidence of realistic user testing. Good video evidence of testing and user views are strengths of this unit.

Modifications and improvements to the product should be seen as a product development opportunity, candidates should sketch possible improvements that could be made to their product with appropriate annotation. Candidates may wish to alter or draw on original images of the finished product or use overlays in an innovative design way. This element of the objective tended to be over marked by centres as it was not design based and improving the product, but often focused on what could have been done during the making.

Quantity production is an area where candidates/centres could improve marks. Candidates researching how their product could be made in a Real World situation and then applying the knowledge gained to parts of the candidate's product, providing the necessary evidence to generate additional marks.

This should be the fun element of the course, candidates sometimes play safe by creating an advert on a bus or shelter with an insert into a web based shopping site. Centres should encourage candidates to explain the reasoning behind the type of marketing presentation used. If the product was to be taken to full production, where and how would the candidate want to advertise/promote the product in order to maximize its market potential? In answering this question candidates will hopefully produce a much more meaningful and pertinent marketing presentation.

A554 Designing Influences

General Comments

The majority of candidates found the paper accessible and were able to attempt all questions. The paper proved successful in discriminating across the ability ranges.

Question 1 - The Hole Punch

- (a) Where candidates had been well practised in the skills of product analysis, the identification of three design features was straightforward, the majority of candidates could correctly identify two or three of the design features of the hole punch. Handle, lever, non-slip base, tray for waste and ruler were the most popular responses.
- (b)
 - (i) The majority of candidates were able to identify a product other than a hole punch that uses the same type of lever. Stapler was the answer provided by most candidates with a range of other suitable products gaining the mark.
 - (ii) Few candidates showed any understanding of the concept of mechanical advantage. Many candidates gave incorrect and vague answers, often thinking that mechanical advantage means that a product with a mechanism is better than one without and with no direct reference to the hole punch itself.

To gain three marks candidates were required to show an understanding that mechanical advantage reduces the force or effort required to punch a hole by altering the length of the handle.

- (c) A few candidates provided excellent answers giving specific examples of Smart Materials and products they are used in along with the properties that the new materials offer but other candidates had limited knowledge of new materials, their properties or how they have created new design opportunities. Many candidates gave very general answers often relating to the development of plastics, this did not attract marks unless a candidate had given details of materials they had superseded.

Question 2 – The Kettle

- (a) Most candidates were able to access marks and many achieved full marks. Candidates who did not achieve four marks mainly had repetition of previous answers, or providing generic electrical safety points that did not relate specifically to the design of the kettle.
- (b) Candidates who achieved full marks gave a clear description of either the water level indicator on the kettle or the automatic switch off. For both of these acceptable answers candidates explained how the features would lead to reduced energy usage and the environmental impact. Most incorrect attempts at the question related to the use of recycled or recyclable plastic and failed to appreciate the answer required environmental issues linked to the **use** of the electric kettle.
- (c) The majority of candidates were able to explain and give examples of the use of labels achieving one or two marks. Candidates often failed to link their points to the importance these labels have in the marketing of products and how labels can influence a consumer's choice to buy a product.

Question 3 – The Trainer and Gym Shoe

- (a) This question was well attempted with most candidates being able to identify three successful features of the modern trainer, with most answers referring to the addition of laces, improved comfort and grip. However, candidates have to be careful not to see this as a 'spot the difference' task. Many candidates gave the answer 'grip' without appreciating that the 1950's shoe also had grip and that the modern trainer had an improved or contoured grip to improve its' performance.

Candidates need to ensure that their writing on the spider diagram is clear and legible. The question was asking for features of the modern trainer so only one or two word answers are required for each feature. Explanation and justification of the feature attract no credit in (a) and should be 'saved' for answering part (b).

- (b) Explanations of why the features make the modern trainer successful were generally well attempted with most candidates scoring three or four marks. Candidates need to be aware that simply repeating the feature again in their answer does not attract any credit, it is the explanation of this feature that is important.
- (c) Generally the requirements of this question were not appreciated. Few candidates explained the reasons for the differences between the two designs, often simply making comparisons and repeating answers from (a) and (b). Where candidates did achieve marks the most common reasons given for the change in the two designs were related to changes in fashion and advances in materials and technology to manufacture the trainers.

Question 4 – Trendsetter and Iconic Product

Memphis Group, Abba and Confectionary Packaging had been well researched and were well represented in many of the answers to this question. The Laser and Ice Cream were equally well researched but less popular.

- (a) This question is designed to assess candidate's quality of written communication. Candidates must demonstrate their use of specialist terms, accurate spelling, punctuation and grammar. Their answer should demonstrate an understanding of the trendsetters influence on modern design and be written in a fluent and coherent style. Points raised by candidates should be exemplified in order to achieve the full marks. Candidates who write simple statements or a bulleted list will not achieve high marks.
- (b) In preparing for this question, candidates should understand that marks are awarded on 4(a) for information about the Trendsetter and marks are awarded in 4(b) for information about the specific iconic product. Knowledge about the Carlton Room Divider, Lycra and Kit Kat gain credit in 4(b). Knowledge of the important influences (other than the given iconic product) and the long-term legacy of the Trendsetter have to be explained in 4(a).

Question 5 – Design Responses

The book shelf in the style of the Memphis group proved the most popular design response question, followed by the Lycra 'Jungle Rock' dancer costume and the packaging for the 'Cruncher' breakfast bar. Candidates answering the book shelf and the dance costume question responded with a wide range of varied and often creative design ideas. Candidates that answered the 'Cruncher' design question did not tend to score as highly, ideas often lacked creativity and concepts were not varied enough from one another. Although less popular the '50's inspired ice cream dessert' question was answered well. Candidates answering the 'room measuring device' question tended to not score as highly, often this was due to a lack of detail of the actual system design.

- (a) The formulation of the four specification points in (a) continues to be of concern to examiners. Many candidates score no more than one or two marks.

For full credit, candidates must provide four discrete points that have not already been given in the question paper, so references to the Trendsetter (in the style of Memphis) or the Iconic Product (like the Kit Kat logo) will gain little credit. References to the requirements outlined in the need (Jungle rock theme) also gain little credit.

Candidates have to use their knowledge of the Trendsetter and the Iconic Product, together with their analysis of the requirements of the need to formulate 'new' points. Generic specification points such as 'must look good' or 'bright coloured' are often too subjective to be able to be used to inform the design process and gain limited credit.

Specifications that name specific materials such as 'must be made of oak' or specify precise measurements such as 'must be no more than 300mm high' are rationally objective; they can become measurable points in the development of ideas. Specification points that list particular colours such as 'must be brightly coloured using red, white and blue', or describe particular features such as 'must allow the dancers to move freely' aid the generation of designs to a much greater extent.

The purpose of the specification points is to help the candidates focus their thoughts on viable design ideas. Time spent 'thinking before writing' the specification points will not only improve the mark score in section (a), but also help the candidate improve their performance in all of the other sections of this question.

- (b) To score well for the design ideas part of the question, candidates must provide a range of different ideas, each with explanatory annotations (rather than just labels), and with some indication that some aspects, of some of the ideas, address at least two of their specification points.

Typically, candidates score 3 or 4 of the available marks for design ideas. Pictorial sketches with appropriate colour or shading should be encouraged, as it tends to communicate the thinking of the candidates more fully.

- (c) Development at this level requires the competent application of D&T subject knowledge to **move** a particular idea towards a solution that more successfully satisfies the requirements of the design need and the specification points. This requires much more than just redrawing a previous design idea, making the drawing neater or bigger or just adding colour. This requires analytical thinking and decision making about such aspects as materials/ingredients, sizes/quantities, constructions and finishes, ergonomic considerations, ease of use, cleaning and hygiene, maintenance, durability and life expectancy.

Through the use of **notes** and **sketches** of little details, the candidate should show how they have considered and refined key aspects of their idea to make it more likely to satisfy the original design need.

The presentation of just one well drawn idea, without evidence of any design thinking may qualify for only 1 or 2 marks.

- (d) This is where the final idea needs to be presented along with appropriate technical detail. Then around the drawing of the final idea there should be **four sets of notes** drawing attention to particular features of the design and explaining **how** these features satisfy the requirements of the original four specification points from 5(a).

Notes that merely state that “*the feature satisfies spec point 2*” without explaining **how** the specification point is satisfied, can gain no credit.

Where a spec point refers to comfort and ease of use, the evaluation comment must explain **how** the feature makes the final idea comfortable and easy to use.

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