GCSE

Design and Technology: Product Design

General Certificate of Secondary Education **J305**

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

OCR Report to Centres June 2015

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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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A551 Developing and Applying Design Skills

General Comments

When completing this unit, Candidates should be 'designing to satisfy a need'. The process candidates follow should be completely joined up. There are no 'isolated activities' within this design process. Each step is conditional on the previous step and influential on the next step. Research should inform the design specification which in turn informs the design ideas. It is essential that candidates understand the purpose and influence of each element within each assessment objective.

Centre Administration

In general, Centre administration was effective and moderators received the required documentation and sample candidate materials on time. However, moderators have reported that a number of centres provided incomplete paperwork resulting in delays in the moderation process. Centres are reminded that forms CCS160, CCS/A551and 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. Where candidate work is submitted on the OCR repository the centre must ensure that they upload the centre administration documents as well as the candidate portfolios. Centre arithmetic and transcription errors have reduced.

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 portfolios submitted by postal moderation.

When using electronic portfolios 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-portfolios in a PowerPoint format. This enabled candidates to use sound and video within their portfolios. Centres are reminded that they must submit candidate work using one of the formats detailed in the OCR Specification for this subject. Centre must check to ensure that all videos are correctly embedded when sending work to moderators. Moderators will not open external links in folders.

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 15 or fewer candidates entered sending all the portfolios to the moderator without waiting for notification of the selected sample will aid the speed of the moderation process.

Centres must ensure that candidate work is easily identifiable with candidate name, candidate number and centre number being clearly stated.

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 portfolios 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' teacher generated problem that the whole teaching group followed. Candidate performance in A551 is often better where Candidates undertake design activities involving the 'real' needs of an elderly person, a young child, a brother or sister, a friend at school, a parent or a whole family: essentially someone who is known to the candidate.

It is essential that Candidates keep an open mind whilst undertaking the design activity. It is clear that some candidates approach the task with a pre-conceived idea from the outset. This limits their ability to produce a range of creative design solutions to the initial design problem. Candidates need to present evidence of the user or user group. An interview, a profile, likes, dislikes, lifestyle, etc. can all contribute to the first layer of understanding for the subsequent design activity. Consideration of the situation where the user experiences the need, will add context to the design problem.

As a consequence of focussing on a specific user with a specific need in a specific situation, a candidate should be able to compile a brief statement to explain what that they are going to design to satisfy the need of the user (design brief).

Internal Assessment Objective 2

The main area of work within IAO2 is a research activity, where the candidate investigates, collects and analyses information. The purpose of this research activity is to ensure that the candidate has obtained relevant facts, data, measurements and opinions to be able to formulate a viable specification for the development of a solution to the design need. 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).

When undertaking existing product analysis, 'primary' research was clearly seen to provide greater depth of information than the use of 'secondary' research methods. 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.

Ideally, candidates should 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.

When researching the user requirements for the product to be designed, many candidates use either questionnaires or interviews. 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 continue to 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 (more suited to Assessment Objective 1). 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.
An analysis of all the information collected from and about the user, as well as the information about the features of existing products, should produce a list of key features for the solution to the need.

Candidate specifications were often found to contain vague or generic points which could apply to almost any product. Superficial specification points such as 'it must look good', it must be colourful', 'must not be too heavy', 'must be suitable for the user', 'must be ergonomic', 'must be inexpensive' or 'it must be safe', should be avoided. This type of specification should not be rewarded highly.

The specification should be the foundation to the design activity of IAO3 and it should be 'visible' when Candidates are generating and developing ideas. Weak specifications often lead to poor design activity.

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. The specification should be derived from facts and data and information: it should not be based on just the candidate's thoughts and preferences.

Internal Assessment Objective 3

There were examples of some excellent design activity, with some very creative thinking evidenced.

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.

The evaluation of design ideas against the design specification is an area where candidate performance could be improved. Moderators report that candidates often 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. Design annotation should make reference to the user, aesthetics, ergonomics, function or other design influences.

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

Moderators have again 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 portfolio. 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 2015 theme 'Summer Music Festivals' was accessible to all candidates and work has been seen for each of the four set challenges. Candidates clearly enjoy the work they undertake during the 'challenge' with many reflecting positively on their experience. Very few 'nil response' sections are seen when marking this paper.

Running the Challenge

As this is an external examination an invigilator must be present.

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.

Where candidates have approval for the use of a scribe the appropriate JCQ forms should be attached and completed by the scribe. Failure to do this can result in malpractice investigations which could lead to a delay in the issuing of results.

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. Examiners have reported that some centres do not take 'close up' images. This results in loss of detail within the image.

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.

Completion of the workbook

Despite previous comments 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. Centres should encourage eligible candidates to use 'scribes' to complete workbooks.

It is essential that candidates fully complete the front of the workbook with their name and candidate number.

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 produce a range of initial concept ideas and think creatively about the challenge that they have selected. The production of a thought shower is not sufficient to justify the reward of higher marks.

Briefs

Candidates often gain little or no reward for Initial Briefs or the Design Brief. These 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. The brief should be a short statement of intent.

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

The specification must be 'specific' to the product that is being designed. Vague points such as 'it must hold the right bits', 'it must not be too big' and it 'must not cost too much' will not attract high marks. Presenting the specification in a bullet pointed format rather than in an essay style would be of benefit to candidates. Re-wording the points outlined in the exam question is not enough to gain high marks for the specification.

It is clear that some candidates do not understand the difference between a design brief and a specification.

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. Appropriate materials and construction methods should be indicated.

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

Communicating information through sketches, writing and photographs

The standard of design communication was satisfactory overall. Candidates presented their ideas using annotated drawings and text. The work of many candidates could have been enhanced with the use of 3D drawing techniques and rendering. . Time spent developing graphical communication skills would be of benefit to all units within this qualification. Higher performing candidates gave different views of objects or parts of objects and clearly communicated their design thinking through the use of annotation.

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.

Some candidates whose design work was of a good standard were limited by the materials supplied by their centres. Inappropriate or junk modelling materials impose restrictions upon candidate's use of materials and can have an adverse impact upon the quality of modelling. Examiners have highlighted that many centres provided inappropriate materials for textiles responses.

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.

Models must be an appropriate size for the candidate to be able to successfully manipulate materials and demonstrate the features of the product. Solid block models limit the candidate's ability to test, analyse and develop their design.

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 satisfactory. 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.

Some candidates either produce a model of the initial idea or simply redraw the initial idea again. This does not show development of the design and therefore will gain no marks for design development. Candidates should consider the construction and operation of their design during 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. Candidates are asked within evaluation to reflect upon the future of the product. Many candidates fail to give sufficient detail within this section of work with generic comments being given such as it will be made from plastic.

Reflection

Candidates respond well to this element of the examination.

It is essential that candidates use the 30 minutes available to read through their workbook and reflect upon the product design.

To score highly candidates should focus on the product design rather than the modelling activity that has taken place. 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

General Comments:

It was pleasing to see that most centres apply the assessment criteria correctly and the accuracy of marking continues to improve.

Centres should ensure that files are packaged/linked properly within the presentation to ensure that candidates gain full credit for their efforts. Moderators have reported experiencing difficulties when accessing files that have not been correctly uploaded.

The use of PDF files with hyperlinks to YouTube or similar web based programmes is also working well and giving centres a greater range of options

It is the centres responsibility to ensure sufficient photographic evidence is available to support the marks for the practical outcome.

In centres where there is more than one staff member teaching candidates, it is essential that internal standardisation is completed in order 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).

Candidates are free to present the work in any appropriate medium, both on paper format or in electronic format on CD, but not a combination of the two. CD seems to be the favoured format for this unit and the use of photographs, sound and video is becoming popular. The use of the OCR repository has worked very well where Centres have uploaded work to the system.

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

Comments on Individual Objectives:

Internal assessment Objective 4

This is all about creating a single, functioning, quality product. All evidence in the portfolio should be through photographs and annotation and 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 centres are making similar products with all candidates it is important that candidates show ownership of the work and portfolio - photographs should show the individuals approach to the product and be commented on accordingly.

The submitted evidence should be a diary explaining what has been achieved and how problems have been solved and 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 best candidates are presented detailed and well thought out evidence of how the product was made. The production log should be a range of photographs showing a range of skills, materials and equipment used and candidates showing ownership in their confident ways they are explaining how they completed the product. Areas to focus on is evidence of how candidates demonstrate economic use of materials and how they obtain precision in the making of the product.

The use of CAD/CAM should be encouraged; however this is just one skill. Centres must ensure candidates have used a range of skills 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 available to justify the awarded marks**.** 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 needs to contain no 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 is now a strength 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 continues to be 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 element should be the fun element of the course, but centres do not seem to be encouraging this as candidates seem to be playing safe and creating an advert on a bus or shelter with an insert into a web based shopping site seems to be the norm. Centres need to 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 Examination Paper gave a wide range of opportunities for candidates to show their knowledge of Product Design and their ability to apply it.

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.

Centres should note that there is still a tendency amongst candidates to confuse the trend setter with the iconic product. For example, in question 4(a), the impact and legacy of the trend setter (such as Robin Day), candidates often wrote about the iconic product rather than the wider work and impact of the Trend Setter.

Comments on Individual Questions:

Question No.1a

Identifying three design requirements was required to gain full marks and almost all candidates were able to do this for the child's soft toy.
With this kind of question, candidates need to firstly look carefully at the illustration and then identify three **requirements**. There was answers related to function, ergonomics and safety, generally it acted as a good confidence booster at the start of the exam.

Question No.1b

The candidates were required to identify two anthropometric measurements and identifying how they would be used to design toys. Many candidates were able to select a human measurement or dimension of the body and how it related to the designing of a children's toy. The most common answer identified was 'hand and mouth sizes" designing for handles and making toys big enough so that they cannot be swallowed. A common mistake was the candidate identifying measurements of the toy and it giving children better grip. Anthropometrics for some candidates was misunderstood and caused them to gain no marks for this question.

Question No.1c

The requirement of this question was to explain the role that BSI have in ensuring toys are safe. Most candidates were able to explain that BSI are a body which "Tests" and sets "Standards" on products which are sold to consumers. Candidates were also able to identify particular harmful aspects of products which are investigated by BSI. Less common was the labelling aspect which manufacturers put on their products showing that they are approved and meet such standards. Due to limited explanation, many candidates were restricted to the first two marks only.

Question No.2a

In this part of the question, candidates give two qualified reasons for the popularity of sports watches. The answer should include reasons and exemplifications, explaining why consumers find these products so attractive to buy. This could include trends, features, cost and use.

Candidates generally gained four marks, the lack of explanation cost many candidates two marks.

Question No.2bi

Candidates were asked to state the effect of phosphorescent pigment in the sports. Most candidates had little problem with stating that phosphorescent pigment in the body of the watch would make it "glow in the dark". Using other simple statements like light-up, see in the dark, luminous, also gained a mark in this question. Changes colour was not acceptable and gained no marks.

Question No.2bii

The candidate was asked to identify one smart material and give an example of its use. When the candidate gave a correct name of a smart material, they went on to give the correct application and gained the two marks. However, on this question the second mark was only awarded when a named smart material was suggested. This question was answered well by some candidates; answers included Photochromic materials, shape memory alloys, Kevlar. Most students did not understand what a smart material was and concentrate on giving properties of materials.

Question No.2c

The candidate needed to discuss the issues of parts which cannot be replaced in products. Answers included: built in obsolescence, environmental, regular replacement, products designed not to be repaired. This question was answered well, with most candidates achieving 2 marks. The final mark was not awarded in cases where three separate points were given, for not having an explanation for one of the points made. Lower achieving candidates generally stated a single point and gave no explanation, gaining 1 mark only.

Question No.3 a

The question required the candidate to give **three** design features of modern soft drinks packaging that benefit the consumer. This worked well; the reason for this I suspect is due to the product being within candidate's experiences. The difficulty that some candidates experienced was that part (a) and (b) were separated into two, one concerned with the needs of the consumer and the other the needs of the manufacturer. Most candidates gained 3 marks easily, but with a minority of candidates the question wasn't read properly and they missed the reference to the consumer.

Question No.3b

Candidates had to identify **two** features and explain how the designs of modern packaging benefit soft drinks manufacturers. The best answers included: larger area to advertise, change of material meant less breakages, packaged into smaller parcels for delivery. Candidates, who misunderstood that benefits should relate to the packaging, gained no marks. There were many references to cheaper materials/processes/parts to which the candidate could not possibly make that judgement. There were a minority of candidates who confused benefits for the consumer with benefits for the manufacturer.

Question No.3c

Candidates had to explain why packaging was important in the marketing of new products. This question was well received, candidates giving good answers to a topic area they seemed to be familiar with. Responses included: promotion, appeal/first impressions, product information, brand awareness. The most common example was information about the product and the look to entice customers to buy. Candidates commonly gained 2 marks for two points and where explanations were not offered the final mark was not awarded.

Question No.4a

Knowledge of the important influences and the long-term legacy of the Trendsetter have to be explained in 4(a), 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, and a balanced argument, to exemplify the issue explaining the **importance** of the trendsetter in the context of **modern design**. Robin Day was the most popular to be chosen by candidates, with Luella Bartley and Otl Archer well represented in many of the answers to this question, Microprocessors and Canned food products were less popular.

In preparing for this question, candidates need to be very clear that marks will be awarded in 4(a) for information about the Trendsetter. Candidates have to be especially careful to avoid repeating the same information in 4(a) and 4(b), and to ensure that they give information in 4(a) that focuses on the Trendsetter rather than their Iconic Product.

This question was reasonably well answered, with some candidates finding it very difficult to separate the product from the trendsetter.

Most common answer referred to was Robin Day, candidates included a wide range of reasons his influence has had on post war design, this may be due to familiarity to the chair he designed and is widely used in schools. Candidates, who answered this question with the main discussion revolving around the stackable polypropylene chair, were capped at 2 marks.

There were a few candidates who attempted the Luella Bartley option, these were well done. Only a few attempted the question with reference to Otl Archer, a reasonable attempt looked at the wider influence of his work. Microprocessors and Canned food products were rarely chosen and few accessed the full range of marks as most of the responses focused on one aspect.

Question 4b

In preparing for this question, candidates need to be very clear that marks will be awarded in 4(b) for information about their Iconic product. Knowledge about the Polypropylene Stackable Chair, Pictograms-1972 Olympics, Intel 4004 4-bit central processing unit, SPAM and Gisele Bag gain credit in 4(b).

Candidates have to be especially careful to avoid repeating the same information in 4(a), and to ensure that they give information in 4(b) that focuses on the Iconic Product rather than their Trendsetter. In 4(b), candidates need to identify specific features of the Iconic Product, and explain the importance of the features, their legacy, and how they have influenced the design of other products.

The most common answer referred to Polypropylene Stackable Chair and these were often well done with full marks awarded. There were a few which made reference to the Gisele Bag and to Pictograms-1972 Olympics. Very few candidates mentioned SPAM and the Intel 4004 4-bit central processing unit. Due to references from the trendsetter in 4a, some candidates repeated the information which gained no marks in this section.

Question No.5a

Writing specification points is a fundamental skill in all aspects of Product Design. This skill may require direct formal teaching and students should be given extensive opportunities to write specifications for a wide range of design needs.

Specification points that merely re-phrase the design, identify features that a solution must **not** have (*no sharp edges, not too heavy*), stipulate selling price or cost, suggest that it *must look good* or *bright bold colours* or *in the style of*, gain very few marks and should be avoided.

Specification points that name particular materials (must be made of aluminium) or stipulate precise measurements (must be 300 mm high) are rationally objective: they can become controls in the development of an idea. Specification points that list particular colours (*red, white and blue*), or describe particular features (*comfortably fit in the hand*, or *easy to open and close*), are definable and impartial enough to control the generation and the development of the design solution. To be successful in Question 5, candidates must compile four considered specification points that can be used to direct the design thinking in Part (b), refine the developments in Part (c) and evaluate the final proposal in Part (d).

Candidates struggled to write a good specification, they were generally not sufficient for the designing to proceed. Most candidates took the ***piece of furniture in the style of Robin Day for a children's nursery*** option. There were some ***school bag for 14-16 year olds in the style of Luella Bartley*** and the ***sign in the style of Otl Archer for a school design and technology department***. Very few attempted the ***automatic control system for a greenhouse*** or ***nutritional balanced hot school meal using SPAM***.

Specifications generally remained far too generic and would have been of little or no value to the designer. Many candidates quoted directly from the question, offering no new specification points.

It would not have been possible to deduce what the product may have been by reading the specification. Most specifications were vague and did not address the fundamental design requirements of the product in sufficient detail. Common weak points were 'pleasing to the eye', 'strong enough to carry weight', 'reasonable size', 'fits in most front rooms', etc. Centre's need to get across to students that products are designed for a purpose and their specifications need to address this, being prefaced with 'it must be' and then expanding on the detail being focused on saying why it needs to be like this.

Question No.5b

In this part, candidates must provide a **range** of different ideas, each with explanatory notes (rather than just labels), and with indication that aspects of some of the ideas, address 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 they tend to communicate the thinking of the candidate more fully. There was very little use of colour, but those that did enhanced the communication of their designs making them stand out.

High quality responses with creativity were evident this year and some candidates gaining the sixth mark. Some detailed designs were produced for the piece of furniture; however most designs were standard chairs and tables with some added functionality such as storage or stackability. Candidates generally produced at least two designs and notes, but design ideas were not normally of high quality and simplistic in nature. There were some excellent designs of school bags which showed a depth of thought and creativity, with ideas suitable for children and school environments. The general standard of sketching remains limited, candidates struggle to use drawing systems to demonstrate their ideas in pictorial view.

Question No.5c

Development at this level requires the competent application of subject knowledge to **move** a particular idea towards a solution that more successfully satisfies the requirements of the design need and meets the specification points. This requires analytical thinking and decision making about such influences 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**, 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 as it is unlikely to show the developmental activity required.

There were a lot of well-developed chairs and tables, this is unsurprising due to this been a common item in the home and well known to candidates. As a result, there were many tables but with the functionality aspect ignored which reduced the marks awarded. There were no circuit diagram or schematic diagram for the control system for greenhouse; this would be a requirement at the development stage of designing an electronic product, this resulted in the award reduced to 2 marks. Candidates seemed unable to develop their chosen idea, there were many with no indication of size, details of construction and materials, suggesting that they do not possess enough knowledge about materials or construction to confidently state them. Some developments were merely limited to redrawing of the original idea with a few additional notes about how it might meet one or two specification points.

Question No.5d

The candidate evaluates their final idea against the four design specification points identified in part **(a)**. A reasonable consideration of how their design satisfies their original specification enables full marks to be awarded. The format of the question directs candidates to carry out an audit of their specification, which enabled responses by candidates which had more focus. The new format in the question this year has seen an improvement in the candidate's performance. The addition of lines sent a very clear message that candidates should write an evaluation of their ideas against the original specification. There was a good range of responses, indicating that the question differentiated well. Candidates, who restated their specification and gave little further insight into their designs, were awarded the lowest marks. There were very few candidates who were awarded no marks for this question, since it was rare to see no responses to their specification and ideas. Candidates with a weak specification in 5a commonly were awarded with a low mark in 5d. Conversely, an excellent specification commonly converted into full marks in the evaluation.

A561 01/02 Controlled Assessment

Please read this report in conjunction with that for A563 as together they form the two controlled assessment units for the innovator specification.

Introduction

As a result of the changes in Government legislation relating to GCSE exam entries this specification is now a linear only qualification which has resulted in there being no January entries for this cohort of candidates. Overall candidate numbers have remained positive for this unit although the decline in students nationally studying design and technology courses is reflected in this specification.

Paper portfolios still remain as the most popular medium for entering the candidates work and whilst repository entries have also remained steady there has been an increase in the number of centres using other electronic storage methods to enter candidates work. However, there have been concerns mentioned by the moderators in connection with some of these portfolios due to the quality of the design work that was presented in this style of work. In some cases the reproduction techniques used to show this work, in what were predominantly power point presentations, were of such a low quality that it was difficult to see the content and detail of the designs. It is important in all cases that the moderator is able to see the full range of work which shows all of the presentation techniques used by the candidates.

With the improvements seen in storage options and the development of more readily available student friendly software it could be fair to conclude that the e-portfolio will become the chosen medium for an increasing number of centres over the next few years. From our experience it would be in the centre's own interest that they ensure, before sending the work, that all E-Portportfolios are capable of being opened in PP 2003 or earlier using the 'Pack and Go' facility in PP which ensures videos and sound clips are correctly transferred to the CD.

Administration

It is encouraging to report that communication with Centres was generally good however, it should be noted that not all assessment material reached the moderators by the dates given in the specification or within the three days once the sample request has been notified and that this clearly needs to be addressed for future entries.

Most centres provided individual Controlled Assessment Cover Sheets for each candidate with clear and relevant information which was helpful to the moderation process; however Centres are also reminded that moderators still need to receive the Centre Authentication form CSS160 as without either of these forms moderation cannot take place and feedback provided to the centre on their assessment of the candidates work.

Since the introduction of postal moderation moderators rely on the centres to provide enough evidence to support the marks that they submit for each candidate. Photographic evidence is a major part of this evidence and at least two photographs, produced by the centre, of the end prototype product should be provided which are normally supplemented by others that the candidates presents when recording the stages in producing the practical work.

These photographs are an important element of the postal moderation process and centres are requested to ensure that they supply photographs which are of a sufficient size and quality to provide full details of the prototype product that the candidate has produced.

Advice to centres

It may be advisable include annotation or other documentation to support your internal assessment in order to clarify your thinking. It was not always clear how the marks submitted by some centres related to the marking criteria.

Please could we remind you that the CSF forms should be completed in the same order as the MS1 sheets as this enables effective checking of the marks by the moderator.

Please note that work should be sent within three days of receipt of the sample request email.

It should be worth noting that it is the centres responsibility, and not the candidates, to provide at least two clear photographs of the end product in each of the folders.

Performance of Candidates

Moderators were again asked this year to ensure that every centre's attention was drawn to the contents of this report as there were still a number of misconceptions that were still not being addressed in the candidates work.

It has become apparent that even though a link is provided on the moderators report back to centres not all of them had taken the time to read the Principal's report or certainly act upon the information it provided. Centres that have acted upon this feedback were able to focus the candidates work on the requirements of the assessment criteria which in turn then supported the preparation they had received before starting the controlled elements of this unit of work.

Overall it was encouraging to see that there were fewer recommendations for change this year, especially in terms of the larger scaling that have been evident with a few centres in previous years. Where some recommendations were made by the moderators it was due to different interpretations of the mark scheme being taken by teachers in the same centre. It is important that all centres ensure that they internally standardise your assessment, otherwise there is a risk that the whole cohort will be affected by the inaccuracies in the assessment of a few candidates.

Interpretation of the Marking Criteria

In wishing to support to centre's we offer the following advice and would wish to draw their attention to some of the more common issues which again affected candidate's achievement included –

Creativity

In this assessment strand candidates are required to select a theme set by OCR in the specification for this subject as part of the control guidance for the unit. Once the theme is stated the candidate will then need to identify a specific product or starting point that is associated with the theme to complete a product analysis. For example, if the chosen theme is 'Travel' a candidate may decide to design and model a prototype hand held game which can be used 'on the move'.

This assessment strand and the use of the word "creativity" as an assessment heading has clearly caused some confusion in centres who have not adapted their previous work from the legacy specifications to meet the content expected in this unit. It is intended that the word creativity, as used in this assessment, should be related to how the candidate shows this ability through the work they present in identifying trends or design features from their research work.

Candidates should be encouraged to -

Produce a clear and precise design brief to improve, modify or develop the product and the theme they have previously selected.

Identify any design features (trends) or technical knowledge gained from analysing a range of similar or existing products.

Candidates in this assessment strand should be encouraged to give examples of the intended users and their likely needs when using the product.

Edit research information and provide summary conclusions as to what they had learned from producing these materials.

However, during the moderation process it was reported that some candidates –

Produced a "range" of existing products in the creativity section of the portfolio without **concluding what trends or design features they had identified**.

Were unable to edit their research material by explaining what would be relevant to their product and how this will help them to develop their design ideas.

Were seen to complete questionnaires and charts with no summary or analysis of the findings which should be the main reason for producing them.

Successful candidates clearly showed how they had selected their own problem area from the list of controlled assessment themes stated in the specification. They carried out a thorough analysis of one existing product and then by editing information from other similar research they were able to identify what were good design features and explained the significance of any trends in these existing products. By using notes, sketches and photographs they were also able to give examples of intended users and their likely needs when using the product. From this, candidates were then able to analyse the information that they had gathered before using this to generate a concise Design Brief that clearly identified the product and users.

Designing

The vast majority of candidates used freehand sketching to illustrate their initial design ideas with basic annotation, which sometimes provided little in terms of detail or explanation. The quality of presentation also varied both within centres and across the whole cohort, with some candidates being awarded very high marks for what was a range of limited design ideas. In other cases candidates had combined a variety of presentation techniques to develop their design ideas towards a working prototype product.

There also continues to be a gradual increase in the use of both 2D and 3D modelling, however, some centres still need to be reminded that it is a stated requirement in the specification, and therefore the assessment criteria, that candidates show evidence of these techniques in developing their design solutions.

Ref specification content 3.1 (page 9)

"They develop their design and use modelling before making and testing their prototype".

Develop Designing Skills – "Use appropriate modelling techniques to aid product development".

Candidates should be encouraged to -

Begin this assessment strand with a detailed list of specifications for their own prototype product that they have identified in the previous section of their project work.

Show a range of creative and original design ideas using a variety of presentation techniques; which should include the use of CAD to support the development of a solution to their chosen problem especially if the higher grades are submitted by the centre.

Show appropriate modelling techniques in order to support the development of the final prototype product.

Explain the reasons behind the selection of the design chosen for production and to provide details of the final developed idea.

However, during the moderation process it was reported that some candidates –

Produced design ideas which did not show the variety of techniques and quality of presentation described in the assessment criteria.

Produced limited, if any, **evidence of modelling techniques** to support their development of the design ideas.

Successful candidates having analysed their brief and the conclusions that they had reached from the research were then able to produce a clearly structured design specification which related to the product that they intended to design. Design ideas were presented using a range of graphic techniques, including the use of CAD, which were supported by detailed annotation. Modelling helped them to develop the final solution where they were then able to give details of sizes, possible materials, likely construction methods and processes. Reference to the specifications then helped them to give reasons for the choice of the prototype product that they intended to make.

Making

It should also be remembered that in this unit candidates should be developing a prototype product which should enable them to show some creativity in their work. The emphasis should be on the candidates experiencing an introduction to designing and making within the 20hrs of controlled assessment.

It is for this reason, that along with evidence of the more traditional materials and process that we connect with "Resistant Materials" we also accept prototypes where **parts of the prototype** may be made in foam, balsa, jelutong instead of a more durable timber, aluminium instead of steel or silver, plastozote instead of acrylic etc. This would then demonstrate an understanding of how the "real" product might be made, have most of the function of the "real" product but not be so demanding in time spent on production or finish.

Candidates should be able to show a variety of construction techniques in the making of the prototype product and where this includes CAM they should be made aware that there also needs to be evidence of other techniques used in conjunction with this in order to comply with the requirements of the assessment criteria. Please note that he higher mark range should not be applied to these products, however well-assembled, unless a variety of processes are used in the construction of the prototype.

Centres are also reminded that if a prototype, or part of one, has been produced using CAM as one of the manufacturing processes than the use of screen shots or CAD drawings to show "ownership" of this process should also be expected as without this supporting work moderators are left with concerns regarding the involvement of the candidate in the making process.

Whilst the majority of candidates had planned the stages of making their product to some degree or other before starting to make the prototype, there were also portportfolios where no pre-planning was evident and yet centres had awarded marks well into the "works competently" assessment responses. Therefore, centres are reminded that when assessing the making of the prototype product, the planning provided by the candidate should be taken into account when deciding upon the overall mark to award.

Candidates should be encouraged to

Produce a "prototype" product primarily be made from "resistant materials" which is capable of being tested for its intended use.

Use a range of skills to produce a 3D functioning prototype/product and if CAM is used in its production there also needs to be sufficient evidence that the candidate has used a variety of other constructional techniques in the making process.

Produce a production plan showing the intended use of the tools, and equipment along with the relevant risk assessment for processes that they intend to use.

Produce a diary, notebook or record of the key stages in the making of the prototype product. Evidence should be provided in the form of written notes and photographs.

Record in a clear written format how they solved any technical difficulties in the making of the prototype.

However, during the moderation process it was reported that some candidates –

Did not produce a **written commentary** to support the marks awarded to show how they overcame technical problems in the making. Far too often centres are rewarding the candidates in this assessment strand purely on what they have observed rather then evidence provided by the candidate.

Produced limited photographic and written evidence in the record of the key stages in making the prototype.

Successful candidates made appropriate choices of materials, tools and equipment and worked skilfully and safely to produce a high quality prototype product suitable for the intended user. They showed evidence of having used a variety of making processes in producing the product and where CAM had been used as one of these techniques they provided supporting evidence in the form of screen shots which indicated understanding and ownership of the manufacturing system. Planning the stages of manufacture had clearly been produced before they started the practical work and they were then able to demonstrate their ability to solve any technical problems in the record they made of the key stages in creating the prototype through comprehensive notes and visual evidence.

Evaluation

It still remains disappointing to see the number of candidates who have based their evaluation on their prototype product and how it functioned rather than modifications to improve the designing and making process as stated in the wording of this assessment.

Clearly centres need to be more aware of the assessment criteria for this particular strand as it is evident that it is the work of the whole centre and not individual candidates where this misconception occurs.

Centres are therefore again reminded that the Specification for Unit A561 clearly states the evaluation should be of the **designing and making process** and not how well the final product functions. Furthermore that any modifications proposed by the candidate should be of ways to improve the designing and making process that they have completed in developing the final prototype product.

Finally attention is drawn to the marking criteria for spelling punctuation and grammar which has three different response levels which should be applied when marking the work presented by the candidate in this assessment strand.

Successful candidates critically evaluated the processes involved in designing and making the prototype in this unit of work as opposed to the product itself (as in unit A 563). With reference to their initial planning, and the record they produced of the stages in making their prototype product, they were then able to reflect and suggest modifications to improve the design, modelling and prototyping processes using specialist terms with a clear emphasis on the correct use of spelling, punctuation and grammar.

A563 01/02 Controlled Assessment

Please read this report in conjunction with that for A561 as together they form the two controlled assessment units for the innovator specification.

Administration

Moderators were able to accept candidates portfolios for moderation as "traditional" paper folders, e -portfolios or through the repository which allowed them to see a good range and variety of work. However, centres should be aware that the methods they employ for uploading some of the design work resulted in very unclear images of hand drawn ideas. Our advice would be ensure that the images are scanned into the presentation as accurately as possible and to avoid the use of photographing the pages as this does not allow the clarity of the candidates work to be fully appreciated during the moderation process.

A number of difficulties where experienced in the administration of this unit and for future reference centres attention should be drawn to the following –

- The method of entering candidates for this exam has obviously caused confusion in some centres as a number of the repository entries that we were expecting eventually reached the moderator as paper portfolios. Please note that the 01 prefix is the repository entry and not postal.
- Most centres included CWS forms and / or coversheets to indicate the marks awarded for each of the assessment strands and this is to be commended. However, not all centres provided at least one of these forms and without them moderation cannot take place and feedback provided to the centre on their assessment of the candidates work.
- There needs to be sufficient photographic evidence of the completed product shown in all portfolios which is separate to any that is shown in the candidate's record of the practical work. Centres are reminded that it is their responsibility, and not the candidates, to provide at least two clear photographs of the end product in each of the folders.
- When presenting paper portfolios please could candidates be reminded not to enclose folios in separate plastic wallets or binders?

Performance of Candidates

The more successful candidates work was clearly focused upon the requirements of the assessment criteria which indicated the preparation candidates had received before starting the controlled elements of this unit of work.

Moderators this year were also asked to ensure that the centre's attention was drawn to the contents of this report as there were still a number of misconceptions that were not being addressed in aspects of the work. Again some of the more common issues which affected candidate's achievement included –

- The presentation and annotation of the design ideas was, in some portfolios, of a limited quality and this was not reflected in the marks awarded by a few centres.
- Limited use of CAD in developing the design ideas and yet full marks were often awarded for the designing sections of the folders.
- Little evidence of suitable modelling techniques being employed that would support the development of the design ideas.
- The lack of formal detail (written notes) to support the marks awarded on how they overcame technical problems in the making.

- Little information including sizes and construction details of the final chosen product and why this one was selected for production instead of the other design ideas in the folder. Centres need to be aware that marks for these details should be accounted for in the Communication assessment.

Designing

This assessment strand has three separate marks than can be awarded –

• *An appropriate and considered response to a brief and a detailed specification for a product produced as a result of analysis.*

Centres should be aware that the focus of this unit should be on the making of a quality product and therefore within the 20hrs of controlled time, the majority of this period should be used by the candidates to produce the product rather than portfolio of design work.

In this unit of work candidates will be expected to further develop skills and abilities gained while undertaking Unit A561 in order to design and make a fully functioning quality product. Our advice would be to encourage candidates to consider their own needs/requirements or those of an identified user group, as well as the situation in which the product will be used when selecting a suitable theme for their project from those listed in the specification. It should be explained that the type of project selected needs to be challenging, but realistic in terms of the resources and time that is available.

The majority of candidates provided a suitable "response" in terms of the content of the work that they presented in this assessment strand having previously identified their own brief from those themes stated in the specification. However, there are still some candidates who provide far more information than is required to fulfil the assessment criteria as much of their work is lacking in the focus and direction expected.

Centres are advised to look carefully at the allocation of marks in this section of the portfolio as an indication of the amount of work that should be produced by the candidates. The advice that we offer would be to show this response in about two sheets of detailed and focused presentation.

By editing the work a considered response could possibly include –

– Sizes of any items important to the design of the intended product.
– Relevant design features of other similar products.
– The needs of the intended user group.
– The nature of how and where the product is likely to be used

Design specifications again showed great variation in both the quality and content with a lot of very generic or vague statements being produced that could apply to any product rather than specifically to the design that candidates wish to produce. Candidates should be encouraged to refer back to their research and analysis to justify their specifications.

Our advice would be to produce this list of specifications as a series of bullet points that are relevant to the product being produced and which reflect the information presented in the designing sections of the portfolio.

• *The production of a range of creative design ideas using a variety of techniques.*

Freehand sketching is still the most popular method used by candidates to illustrate their initial design ideas with annotation which varied both in terms of content and quality. In this cohort of entry there was increasing evidence of CAD being used to support the development of the final design with Google "sketch up" proving to be the most popular software used by the candidates. However, centres should be aware that the assessment criteria requires a response which shows a variety of techniques if the higher marks are to be submitted.

The standard of work seen where candidates had used CAD effectively was very encouraging as it provides a high standard of presentation and visual support in developing the candidates design ideas.

However, there are still some centres that have not understood the need for 2D and 3D modelling to be included as part of this process and are still awarding high marks for this assessment strand without there being any real evidence in the portfolios to support this requirement.

As in A561 it is essential that candidates include evidence of modelling work to show how the product has developed from their earlier designs and to make informed decisions about materials and construction techniques in order to gain full credit for their work. Please reference the relevant sections of the specifications as detailed in the report for unit A 561.

- *The use of detailed drawings and annotation to communicate these ideas.*

The final mark in this assessment strand should be used to indicate how well the candidate has communicated the details of the product they have chosen to produce for this unit. In some cases it was difficult to see any evidence of the final product as candidates moved straight from a series of design ideas onto the planning required for production. Higher achieving candidates were able to provide details of construction, sizes and materials at this stage of their portfolios which then helped them to produce a suitable plan for construction of the chosen product.

Successful candidates Clearly showed how they had selected their own problem area from the list of controlled assessment themes stated in the specification. They were then able to produce a design brief for their intended product together with some supporting evidence to show what conclusions they had reached from any related research that they had previously conducted. A clearly structured specification resulted from this which was specific to the product that they intended to design. Design ideas were then presented using a range of graphic techniques, including the use of CAD, and were supported by detailed annotation. Modelling helped them to develop the final solution where they were then able to give details of sizes, possible materials, likely construction methods and processes. Reference to the specifications then helped them to give reasons for the choice of the product that they intended to make.

Making

There are three main requirements in this assessment strand that the candidates need to address –

- *The planning and making of a Quality product.*

The planning that was seen in the portfolios varied considerably in content and detail with a few centres giving very high marks for the quality of the making assessment even though the planning provided by the candidates was felt to be very limited. It is worth noting that although there are no specific marks given for planning in this specification it is a requirement in all three response levels of the assessment criteria that planning is evident to support the production of the product.

It should also be remembered that where candidates use CNC (CAM) techniques to produce the final product they should be used in conjunction with other construction methods as stated in the specification guidance. Further reference to this issue is also made in the report for unit A561.

Centres need to be more aware of the importance of the marks in the following two assessment strands as the six marks that can be awarded for evidence of this work is equal to the current grade boundaries for this unit.

- *Recording the making of the product.*

The responses from this cohort of entry were generally of a better standard than we had observed from previous years as centres now seem to have a much better understanding of the work required in this assessment. However, in a few cases it was still limited to just a few written notes produced by the candidate. Our advice remains that photographic evidence should be provided to support this process and where this was evident and detailed many of the candidates were able to achieve full marks for this assessment strand.

- *Details of how they overcame any technical problems in the making of the product.*

Centres attention is also drawn to the requirement that in order to achieve the marks that can be awarded for identifying how the candidates overcame technical problems they must provide evidence of this in their portfolios. Out of all the assessment strands in this unit this was the one indicated by moderators as needing the greater number of adjustments. Our advice would be to ensure that candidates clearly state these issues in the record they make of producing the product or on a separate sheet in their portfolios.

Successful candidates made appropriate choices of materials, tools and equipment and worked skilfully and safely to produce a high quality product suitable for the intended user. They showed evidence of having used a variety of making processes in producing the product. Where CAM had been used as one of these techniques candidates provided supporting evidence in the form of screen shots which indicated understanding and ownership of the manufacturing system. Planning the stages of manufacture had clearly been produced before candidates started the practical work and they were then able to demonstrate their ability to solve any technical problems in the record they made of the key stages in creating the product through comprehensive notes and visual evidence.

Evaluation

With the requirement here to evaluate the function of the product as opposed to the design processes as in A561 it was encouraging to note that there were far fewer recommendations to adjust centre marks.

By evaluating their products firstly against the specifications candidates were able to base their conclusions on the product and how it functioned having previously conducted a series of tests to see how it performed in use. From this they were then able to suggest modifications through notes and detailed sketches.

Successful candidates Showed evidence of having tested their completed product in use and compared this to their list of specifications. From this they were then able suggest improvements to their product using a series of notes and sketches. Throughout this assessment strand they also showed evidence of the correct use of specialist terms and showed accurate use of spelling, punctuation and grammar.

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