OCR
RECOGNISING ACHIEVEMENT

GCE

Design & Technology

Advanced GCE **A2 H453**

Advanced Subsidiary GCE **AS H053**

Reports on the Units

January 2010

HX53/R/10J

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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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Advanced GCE Design and Technology: Product Design (H453)

Advanced Subsidiary GCE Design and Technology: Product Design (H053)

REPORTS ON THE UNITS

Chief Examiner's Report

This was the first January assessment session for the new Advanced Subsidiary GCE Design & Technology: Product Design specification. The intake was a combination of new entries and resits.

Examination Officers are to be reminded that F521 Paper 1 work booklets must be securely retained for use by candidates, when sitting Paper 2.

Candidates are to be reminded that they must not write or work on Paper 1 when answering questions in Paper 2.

Candidates produced some high quality work for the Advanced Innovation Unit, particularly during Session 2 where they used common and inexpensive materials to generate representative 3D models of their design intentions.

The evaluation section however was generally weak; many candidates did not give details of possible modifications or improvements to their ideas.

Candidates were generally well prepared for this unit. It is important that candidates have the opportunity to carry out at least one 6 hour session for Paper 1, followed by a I hour session for Paper 2 before attempting the exam for the first time.

Preparing mock papers that 'second guess' the questions can sometimes result in candidates producing focused and narrow responses with limited creativity and innovation. In some cases candidates misinterpreted the challenge.

There were some excellent responses on Paper 2, however a significant number of candidates did not read the question carefully and did not respond to all of the prompts.

There were a large number or re submissions for F522 the Product Study. Whilst many projects had made significant changes and modifications and were correctly awarded higher grades, many submissions did not clearly show where modifications and improvements had been made. Additional work, which is added to a previous submission, should be clearly annotated by attaching a 'post it sticker'.

There was an increase in the number of Product Studies submitted as e-portfolio. Some were of an exceptionally high quality. OCR actively encourages the use of e-portfolios. The inclusion of interactive dialogue and 'real time' presentation of information can be carried out very effectively with the use of digital technologies.

Specific INSET on the generation of e-portfolios will be included in next years training programmes.

Some Centres are producing Product Studies to the old specification criteria. Please check that the assessment criteria used relates to Unit F522.

Centres are reminded to ensure that where two or more groups are taught that a rigorous internal standardisation is carried out to ensure a valid rank order.

This detailed report should be read in conjunction with the current specification and the Mark Scheme for Unit F521.

F521 Advanced Innovation Challenge

General Comments

Administration

It is important that both examination papers are dispatched to the appointed examiner as soon as the innovation challenge activity has been completed. Candidates will have access to their challenge work booklets during session 2; however they are not to write in it.

There is sufficient additional space both in the challenge booklet and realisation booklet, should candidates require it, the use of this space should be labelled carefully with the box number work relates to and **additional loose sheets should be avoided**. There is no need for candidates to stick models into the booklet, photographs are sufficient.

All materials relating to examinations sent from OCR to centres will be dispatched 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 challenge activity.

Examination notices must be displayed in the area where the examination is to take place and an invigilator should be present. The teacher is there to read the instructions.

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 modelling materials, monitor health and safety issues and read the teacher script to candidates, elaborating and explaining where this is indicated.

Colleagues must not:

- give advice to students about the design or manufacture of their product;
- cut materials to correct shape or dimension for students.

It must be made clear to all candidates that this is an examination to assess the individual student's designing and modelling capability.

It is clear in this the second session that a number of students have approached the challenge with pre-conceived ideas and have failed to respond creatively to the design challenges.

It is the centres responsibility to provide modelling materials for candidates. It is not advisable for candidates to bring their own materials for modelling as this will hamper design thinking.

A job bag should contain inspirational materials, images and information that could be useful when designing.

It is not advisable to second guess questions as this can also hamper creativity. The way in which Centres use the pre-release theme can have a significant impact on the responses. A few candidates misinterpret challenges, either because they do not read them with sufficient care or because they choose to base their work on practiced work to a design challenge based on the pre-release themes. The themes for the examination deliberately give little opportunity to prepare specification points or ideas in advance of the examination to prevent over-preparation of candidates.

Centres are reminded of the specification content:
"A theme is released in the September prior to the examination. Each theme runs for a year, enabling candidates to research and gather resources to form a personal handling collection/inspiration box/mood board, etc. Candidates should identify and collect these resources individually, into a collection called a job bag, which is then taken into sessions 1 and 2. A challenge sheet based on the theme will be included with the workbook and will first be seen in session 1."

Candidates must not share resources or job bags during this examination.

Photographs

The quality of photographs is generally good but examiners have reported some problems with the photographs presented for assessment. These problems include; failing to focus on the object, photos being printed at a size too large for the allocated positions within the workbook. **Photographs must be stuck into the correct boxes in the booklet.**

It is important that colour images of a good quality are provided by the centre. The addition of a card with the candidate's name within the photo can be used to aid the return of photos to students. Centres are reminded that three "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, mechanisms etc to fully illustrate the final outcome. A small number of candidates did not stick photographs in the correct place. Photograph 1 is of modelling progress after first session, Photo 2 progress after the second session and Photo 3 the final model. Space in this area allows for an extra photo of the final model if necessary to show detail or workings. More photographs can be included in the evaluation or progress report boxes.

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

Security of Workbooks

Centres are reminded of the importance of appropriate security of all workbooks between the three sessions of the Innovation Challenge.

Work of Candidates

Some highly creative work has been seen this session from candidates who have shown both design flair and sound technical knowledge.

It is recommended that a significant part of the preparation for the exam should include techniques to allow the candidates to present ideas quickly and practice of workbook completion under timed conditions. Examiners are aware of the pressure on candidates in this examination and marks are awarded with this in mind.

It is also worth noting that "skills involving analysis, evaluation and synthesis (creation of new knowledge) are thought to be of a higher order, requiring different learning and teaching methods, than the learning of facts and concepts." Centres should teach evaluation and analysis throughout the AS year in order for candidates to achieve greater success in these areas. It is notable that areas such as specification, evaluation of ideas and final products and the realisation test specifically test these skills and are areas that continue to discriminate well between candidates.

The reflection paper continues to discriminate well between candidates.

The Challenge

Initial Thoughts

Candidates used a combination of text and drawings to explore the given theme and identify possible design areas/problems. Some candidates failed to think creatively about the problem and suggested only very predictable responses. Candidates need to be encouraged to explore the challenge widely, take risks and think creatively. Many candidates explored the problem in depth thinking creatively, whilst considering the environment and market they were designing for.

Design Brief

Many candidates restated the challenge word for word in this section. Candidates should be encouraged to write clear and precise design briefs that develop the design challenge further and offer scope for creativity. The majority of candidates identified the appropriate user groups for their products.

Specification

This section continues to discriminate well between - able candidates. The more successful responses are where candidates concentrate their thinking on the functional and user needs of the product, and ensure that the relevance of all points is explained.

Generic specification points -cannot be awarded marks unless made relevant to the question answered through specific references to the situation and careful justification. It is disappointing that a significant number of candidates continue to produce specification points that lack justification. In order to explain ‘why’ and justify points candidates should be encouraged to include words such as “because”, “so that” or “in order to” when writing their statements. Specific detail is required for high marks in this section, e.g. weight, size, material properties etc.

Ideas

Candidates used a combination of drawings, text, annotation and occasionally modelling/photographs to show their ideas. Lower scoring candidates reproduced the initial thoughts from section one of the challenge activity and disregarded both the design brief and specification. Higher performing candidates produced a range of innovative ideas that clearly related to their specification and potential users. Most candidates produced a suitable range of creative ideas although for some it seemed difficult to move away from one basic concept, meaning that all ideas were essentially the same, with relatively superficial changes in shape or configuration.

To be awarded high marks the ideas must be *functionally different and innovative.*

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 creative design thinking, along with annotation relating to specific materials and construction methods. Reference to the specification was generally good. Reference to source of inspiration/job bag was usually given although not always with pictures. The better examples of evidence from job bags were where candidates had collected a very broad range of items and took their inspiration from unrelated objects. A number of candidates just simply copied existing products showing no innovation at all.

In many cases there was a lack of sufficient evaluative comments, with annotation purely descriptive. Some only focussed on the positive aspects of their ideas, with no reference to possible problems or improvements. More able candidates were able to offer objective evaluation against their specification points.

Group feedback

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. All candidates recorded feedback but many failed to record a response to this feedback. Where candidates scored highly they had taken the feedback and responded giving suggested improvements with the use of sketches to illustrate. Some candidates benefitted greatly from the feedback from other students showing a receptive approach to ideas and sometimes clearly responding to suggestions when developing their ideas in the next section. This is a skill that can be practiced through coursework, design activities and practice challenges.

Development of ideas

Some candidates failed to develop their ideas and simply copied the design from the ideas section into the development section or produced a card model of their initial idea with no further development taking place. It is important that candidates use notes or annotations to show how they are developing and improving their design towards an optimum solution that satisfies the design brief, specification and needs of the user.

Candidates are also expected to show consideration of materials, components and to consider methods of manufacture for their product. In some cases there was little or no evidence that candidates have any understanding of how their designs could be manufactured commercially using volume or batch production.

Most candidates suggested materials for construction, however generic terms such as ‘wood’, ‘plastic’ or ‘card’ should be avoided, candidates will have information in their job bags about suitable materials and specific names and details are expected. Unfortunately, in some cases the materials are unsuitable for the product and its application, candidates should be encouraged to consider and explain their choice of materials. It is expected in this section that the size of the product is considered, dimensions of individual features, components and/or thicknesses of materials are considered by the more able candidates.

Plan for modelling

Action plans were good with lists of materials and action plans ranging from basic statements to ones which included time schedules/ flow charts and annotated sketches of how model would be constructed etc

Recording progress and modelling

Reflection in many cases was focussed particularly on the problems that candidates had encountered rather than details on all the possible solutions.

There were some excellent examples of models – the main point here is for candidates to use appropriate modelling materials to enable them to fully reflect their design – where candidates fell down was where they failed to show all parts of their product through the model, e.g. if it has moving parts these were not modelled.

In a few cases candidates used inappropriate materials for their model making. Good preparation for the exam, by the centre, in terms of proving a suitable range of modelling materials is really important. Most centres seemed to provide appropriate modelling materials, where a wide range of items was provided the candidates were unrestricted and able to reflect

their design. In some cases candidates modelling in resistant materials rather than modelling materials were unable to show all aspects of a model due to time limitations. Lego and other similar kits should be avoided for final models as it restricts the candidate's ability to model their design accurately.

Centres should spend some of the year allowing students to develop their quick modelling skills using a variety of modelling materials. Creative use of common inexpensive materials is probably the easiest way for candidates to score well in this section. The scale of the model also had a significant bearing on the success of the model making. When candidates attempted to make full size seats they encountered real problems whilst working with simple pliant materials that were not really stiff or strong enough to complete the product; they may have had more success modelling a much smaller version.

In a few cases the quality and number of photos made it difficult to judge the real quality of the models made. It can be helpful to the examiner where candidates have shown photos through the reflect and record section and in the evaluation, as it is easier to see the skills they have used. Some centres need to think more about how best to photograph the models to show full details, and any mechanisms etc. The use duplicate photographs within the evaluation can assist communication.

Evaluation

There has been an improvement in this area. However, many candidates continue to fail to record any further modifications and some don't indicate any possible weaknesses of their product. In some candidates just talked about their model and not the product so failed to score marks. There was a noticeable improvement in evaluations linking to the specification however these still tend to overlook weaknesses or points that can be improved upon. This is an example of higher order thinking skills mentioned at the start of the report.

Comments on Individual questions:

Generally the most popular questions were the seat, the storage of personal items and shopping and the newspaper recycling. Responses to most questions were similar in quality, with all questions allowing scope for creativity.

Reflection Paper

A number of candidates just simply seemed to write down everything they had learned rather than giving a focussed response to the question. Candidates should be encouraged to read the question carefully and plan their answers ensuring all bullet points are addressed in relation to the **topic of the question**.

It should be noted that it is stated in the specification; "candidates have the opportunity to reflect on the challenge by answering questions that require them to consider their product. These will be derived from a design, manufacturing or marketing perspective, including: sustainability and the environment; product life; social, moral and cultural issues; environmental issues; inclusive design; the human interface; aesthetics; scale of production; production technologies; fashion; marketing; commercial issues."

These areas should be taught through the AS course and students should learn to apply knowledge to products when evaluating and analysing. Candidates should be familiar with technical terms related to these topics.

Question 1

A number of candidates failed to cover ergonomics at all in their response, perhaps due a lack of understanding of ergonomics and usability. The majority of candidates managed to give a suitable response for the modifications to make the product more ergonomic – however, some gave modifications to make a product more environmentally friendly or aesthetically pleasing and were awarded no marks. Some candidates described the existing ergonomic features of their design and how it would be made rather than providing modifications they could make to the product they had designed and the implications of these. The better candidates were able to discuss materials and manufacturing techniques that could be used to achieve better ergonomics and usability and the cost implications of this. No marks were given for manufacturing methods unless related to improving its ergonomics and usability.

Question 2

The second question was generally well answered, most candidates were able to suggest improvements to their product in relation to trends and fashion and support their points. The better candidates were able to relate their answers to the topic area of travel and commuting and gave good responses on specific marketing techniques, commercial viability and scale of production.

It should be noted that candidates need to read each bullet point carefully and that they address each to ensure access to the full range of marks.

F522 Product Study

General Comments

This was the second assessment session for the new Product Study Unit F522 and many centres used it as an opportunity to resubmit the work of some candidates from the June 2009 session. In some cases centres re-submitted the whole of the centre sample. Over 80% of this session's entry consisted of work resubmitted from June. In these circumstances it is essential that centres carefully consider their actions and only resubmit work where there is a realistic possibility that more work undertaken will result in additional marks. 10 centres withdrew all of their candidates and many withdrew groups of individual candidates when it was obvious that no additional work had been undertaken. This very sensible measure is to be applauded and OCR appreciated those centres who annotated MS1 forms and CSF mark sheets with notes to this effect.

A surprisingly high number of centres however, resubmitted work, which had no clear indication of additional, work undertaken. In many cases it was not clear to moderators if work had been enhanced since the last submission either to justify the marks given then or slightly higher marks awarded in January. Moderators work to an OCR tolerance and in very many cases insufficient evidence of additional work was seen to justify any alterations in the marks previously awarded. To make a re-submission worthwhile considering the time and effort involved there must be a clear and direct attempt to rectify an omission identified in the moderators report to centres. Simply re-drawing some sheets or reformatting content in different text boxes is unlikely to make any difference to previous academic judgments. Additional work which is added to a previous submission should be clearly annotated by attaching a 'post it sticker'.

There are two matters which are causing OCR serious concern:

- Invalid rank order; care needs to be taken to ensure that candidates are ranked in a correct order of merit.

OCR's procedure in invalid rank order situations is to refer the matter back to the Head of Centre using form CWL2 to notify rank order violations. The centre will then need to re-mark the work and resubmit it with marks, which reflect a reliable rank order.

- Submitting the work of two or more groups of candidates where it is clear that a rigorous internal standardisation process to establish a single, reliable rank order of candidates has not taken place.

In these circumstances in all future sessions the work may be returned to centres for re-marking and form CWL2 and CW Amend will be referred to the Head of Centre for consideration. In some cases a CW Amend form suggesting an appropriate rank order might be provided. Centres may wish to consider agreeing the marks proposed which will have been produced as a consensus of the judgment of senior moderators. OCR is unable to propose a scaling of marks which would change a centres rank order of candidates. This situation is taking a disproportionate amount of moderation time and centres are urged to consider a rigorous standardisation process involving all the teachers of all groups of candidates to establish a single reliable and robust rank order**. If this process is in doubt or difficult to achieve centres may wish to take an unorthodox but acceptable course of action and submit the work of different groups of candidates in different sessions.**

There is now an opportunity for candidates to enter E-Portfolios on an individual CD in the appropriate OCR standard format, which is at present Power Point. Although E-portfolios are not a mandatory requirement, OCR sees it as the preferred option and Centres are encouraged to develop in this direction as soon as they feel comfortable with the change of approach. There is

no pressure to do this immediately but Centres are encouraged to explore this possibility .OCR are developing an INSET course for next Autumn session which will give delegates the opportunity to either engage in basic E-Portfolio techniques or undertake a more advanced sessions. This course will be offered by one of our senior moderators in his own centre where appropriate equipment and support will be available. Places will be limited and early booking is advisable.

This session only 50% of candidates entered their work as E-Portfolios. The reason that OCR is encouraging the E-Portfolio has an academic rationale. The overall ethos of this new Product study unit is that evidence is provided in real time, as it actually happens and that 'interactive dialogue' is used to present information, again in real time. Candidates presenting on CD have the opportunity to include video clips and sound bites as part of a PP presentation, which show real time use of their selected product and development of ideas. There were some outstanding presentations from candidates who utilised this new approach but again it is interesting to note that not all who resubmitted a CD portfolio chose to do this. Again in January over half of the CDs presented were PP presentations including scanned images and digital photographs without any video clips or dialogue.

It is worth stressing again that whether centres choose to continue to enter paper portfolios or E-Portfolios it needs to be made categorically clear to candidates that the presentation of information in 'real time ' is mandatory. They must show digital images of work undertaken as it is actually taking place. Candidates who failed to do this in some key sections would again have had marks reduced. 'Interactive dialogue' is also an important requirement. Candidates need to understand that this means an interaction between themselves and others to discuss issues, as they actually arise in real time. Videos and sound bites are a good way to achieve this; those working on paper still need to meet this requirement - the use of digital real time images is mandatory, dialogue can be added as written comment by others presented in their folder. Some candidates may be reluctant to allow others to write on their portfolio pages –the use of 'overlay pages' may be one way of overcoming this. Candidates must not be reticent about adding real time comments, it may be that comments from others are not well presented, they must however be there! This approach is successfully adopted in the Advanced Innovation Challenge and its use should be actively encouraged in this unit.

Some Centres are still using practice and techniques from the old legacy specification:

Details of the new specification are clearly labelled Design and Technology: Product Design Advanced Subsidiary GCE H053 Unit F522. For first award in Summer 2009.

To support Centres and individual candidates, guidance for the new Unit can be found in the recommended OCR text 'OCR DESIGN AND TECHNOLOGY FOR A LEVEL' available from Hodder Education ISBN 978-0-340-96634-1.

OCR also offers a comprehensive programme of training for Design and Technology – details can be found in 'Eventbooker' – www.ocr.org.uk/eventbooker
Including:
Basic and advanced E-Portfolio course offered by a senior examiner in his own centre.
Section by section guidance on Product Study requirements for Unit F522
This product study should take candidates 30 hours to earn up to 120 marks.
(1 hours work is notionally 4 marks)
OCR recommended A3 /PP allocations are indicated for each section

Product focus and analysis (8 marks 2 x A3/PP)
Products can be selected from any of 8 different focus areas:

- Built Environment and construction, Engineering, Food, Graphic Products, Manufacturing, Resistant Materials, Systems and Control, Textiles.

For marks in the top band all of the following should be addressed:

- Detailed description of the intended purpose of **one single selected named** product (not a range)
- Key Criteria used in the design of the product.
- The needs of the manufacturer.
- The needs of the consumer.

Where all four of the above have not been covered the Centre should consider awarding marks in the lower bands. Some candidates and some whole Centre groups are still considering generic groups of products. The first page of the candidate product study should state quite clearly and categorically what **specific, single named product** has been selected for analysis. Better candidates awarded marks in the top band show a clear photograph or video clip of their single selected product being used.

- For the new specification 'real time digital images' are required which show the single selected named product in use. Not all candidates do this.
- 'Interactive dialogue' should be used to identify product features- this means talk about the product with others and record observations in real time-as it actually happens. This was a major omission in the majority of candidates re-submitting work this January.

Strengths and weaknesses comparison (12) (2x A3/PP)
Good candidates should be encouraged to analyse the strengths and weaknesses of a *product* in *comparison* with similar products. Good responses often include a conclusion or summary, which relates similar products back to the single selected named product. Poor responses often include charts and tables populated with Internet images with no identification of the strengths and weaknesses of the selected product. Candidates should be encouraged to show evidence of actually using a range of products, which are compared with the selected product.

For marks in the top band the following should be addressed: function, suitability of materials and manufacturing processes, ergonomics, aesthetics and cost.

- For the new specification 'real time digital images' should show the strengths and weaknesses of the single selected product and also comparative products. The actual selected product should be used and shown in use.
- Comparative products should be shown in use - in real time. This is a departure from previous practice and must be undertaken to meet the assessment criteria. Very few re-submissions this January showed a range of comparative products actually in use.
- Digital photographs or videos should be used.
- 'Interactive dialogue' should be used to discuss relative merits of products with others and recorded using video, sound bites, or written comment. Very few candidates provided this in January on A3 portfolios.

Moral Implications (8) (1 x A3/PP)
Identify and analyse the moral implications associated with environmental, social and economic issues in the design and use of the product.
Moral implications should be considered in relation to the design and use of the product chosen for study:

- The requirements for this section in the new specification are generally unchanged. Centres should note that there is now a requirement to consider the moral implications associated with economic issues. (The term 'economical' issues should not be used.)

This section has a new direction and is being misinterpreted by many candidates. The clear emphasis is now on the **moral implications** associated with three specific issues. Centres need to prepare candidates for this by organising and structuring **ethical debates** about the

environment, social cultures and economic issues. The term 'economical *issues'* should be avoided as it encourages a discussion of general cost issues, which is not what is intended. A far wider debate about the effects of the global economy and exploitation of workers is required. This section is very poor in many cases and large reductions are being made by moderators. Marks in the top band are not awarded in many cases. For future candidates and any candidates re-submitting an ethical debate about economic issues is essential. Clear advice and structured teaching is required. Advice may be sought from the Intermediate Technology Development Group now renamed Practical Action. Access to this is through their Sustainable Design Award Web site: (www.sda-uk.org). They are willing to help and have structured their advice to mirror our assessment criteria. A new DVD is now available 'Sustainability Matters in Design and Technology.' This is targeted at GCSE but has will provide a useful starting point for AS and A level candidates. Centres may wish to consider inviting staff from 'critical thinking' departments to facilitate discussions or inviting in visiting speakers.

Brief and specification for improving the product (8 1 x A3/PP)
The design brief presented should relate to improving the single selected chosen product in some way. Centres should award marks in the lower bands where an improvement is not identified, or where the proposal is to redesign a complete product. Moderators still report that many candidates are still trying to improve too many aspects of their selected product.

Specifications need to be detailed and justified, resulting from the objective analysis of the original product. Where there is little or no justification Centres should award marks in the lower bands. It can help if the justification for each specification point is clearly identified by using a different font size, style or colour- better candidates often use this technique, and it would help candidates in the middle and lower bands.

- For the new specification these two sections are linked and assessed under one criterion for brief and specification.
- Centres should note that the brief should identify a clear improvement to one single selected product and the specification should be fully justified.
- Proposals to redesign a complete new product should always be marked in the lower band.

Development of improvement (56 10 x A3/PP)
This new section relies on the integration of three separate requirements for successful completion. There is a very large allocation of marks for this assessment criterion; this is deliberate as it was considered during development that this is where the majority of candidates would choose to spend their time and energies. As there will be many different approaches to this section appropriate to different focus areas It might be helpful to consider that the expectation in relation the notional guideline of 4 marks per hour means that candidates should devote 14 hours to this section.

56 marks is a very large allocation to accurately apportion in three mark bands and many Centres found this difficult. OCR has produced a new CSF F522 form to make this task easier. The 56 marks have been broken down into three sections as identified below. Additional advice is also given on the new CSF F522 form to award marks in different bands within each section. The new mark sheet will be available on the OCR web site in time for the marking of the May session. Please make sure this new form is used.

- The generation of innovative/creative ideas (14)
- The making of appropriate prototype models (36)
- Detailed and objective evaluation of ideas against the specification. (6) (This is ongoing evaluation in this specification and should be carried out as ideas develop)

Present a wide range of innovative/creative initial ideas, which demonstrate a high level of development using high quality annotated sketching, real time digital images and interactive dialogue. (14 marks)

Integrate this with real time evidence of a wide range of appropriate prototype models. (36 marks)

Evaluate ideas against the specification in real time and justify the choice of one idea worthy of being taken forward. (6 marks)

The expectation here, for marks in the top band, is that a wide range of innovative/creative initial ideas are presented which demonstrate a high level of development using high quality annotated sketching. Simplistic sketches with little or no annotation should be awarded marks in the lower band. The expectation is that a specific improvement is developed, a few candidates try to re-design a whole product, and this is not the intention of this section.

- For the new specification, for all focus areas there is a need for presenting innovative and creative ideas which are annotated. This is required for an E-portfolio as well as A3 portfolios-many candidates re-submitting this January did not provide sufficient well annotated design sheets.
- The main difference for this specification is that these ideas are not presented in a separate section but integrated with ongoing evaluation and the development of the improvement through appropriate prototype modelling.

It is important that candidates evaluate their ideas against the specification and clearly justify decisions made. Where little reference is made to the specification, Centres should award marks in the lower band. No marks at all should be awarded where there is no reference to the specification. Centres should note that it is impossible for candidates to access these marks if the original specification is missing. Zero for the specification automatically results in zero for the evaluation against it.

Where candidates choose to annotate their ideas sheets, they must make it clear which specification points are being cross-referenced. Colour highlighting can help in this respect. Better candidates clearly rationalise the choice of one idea to be further developed.

- For the new specification Centres should encourage the use of ongoing evaluation on the candidate ideas sheets.
- Previous practice of tabulating responses to this section could still be relevant to the justification of an idea to be taken forward but should not be encouraged as the main mechanism for ongoing evaluation which is best provided in real time as ideas develop.

Testing of final developed idea (12 marks 2 x A3/PP)
There is no requirement to make a test rig - candidates can if they want to! (Many candidates still produced test rigs in this session). Any appropriate method or system to formally test and evaluate the final developed idea will meet this requirement. Appropriate test might include using a product or getting others to use it, wearing it or getting others to wear it or eating it or getting others to eat it. A scientific or technical test could also be appropriate for some focus areas. Whichever method is thought by the candidate to be appropriate -there must be formally presented results. The results should be presented in real time, clearly and concisely. Many candidates are using customer surveys; some of these produce low level numerical data, which was of little value. Candidates should be encouraged to deepen the level of their analysis. It is worth emphasizing again that real time evidence is required. Copying out neatly the responses of others is counter productive-it could actually result in reduced marks if there was no real evidence of real people being involved.

Produce a summary of the results of the product development with detailed analysis of how the prototypes and final tests contributed to establishing the validity of the chosen idea.

Present one further improvement in detail.

(8 marks 2 x A3/PP)

In addition to the presentation of the final test results, Candidates should summarise the results of their prototyping and suggest one further possible improvement to the product. There are three distinct sections to this assessment criterion. For marks in the top band, all three areas need to be considered. Better candidates show a clear annotated sketch of a further improvement. Analysis of results is also a more complex matter than simply stating results in a table.

Communication (8 marks)

Use a wide range of high quality text, graphical techniques, digital technology, and interactive dialogue as appropriate to present information. (8 marks All 20 A3 sheets)

The use of ICT must be included in the range of communication techniques used in the presentation of the folder; an over-dependence on the use of ICT/CAD should however be avoided. A combination of different approaches is to be encouraged. Candidates should be encouraged not to over enhance the background of their ideas sheets if this impairs the clarity of presentation. Many moderators report that it is hard to read through some ‘over decorative backgrounds. Some candidates spend a disproportionate amount of time in enhancing the appearance of their pages, often at the expense of clarity. Candidates presenting on CD still need to provide evidence of annotated sketching .This assessment requirement is not met by scanning in a few small images amongst other computer generated design. Many candidates try to avoid this issue.

- For the new specification the use of ‘real time digital images ‘ is mandatory-they have to be used to record evidence of work as it actually happens.
- OCR is encouraging the use of short video clips, with sound bites (interactive dialogue) recorded as part of an E-Portfolio on a CD.
- If the preferred option is to continue to use a paper portfolio- Digital photographs must be used and interactive dialogue must be presented in alternative forms which show positive response to opinions from others. Overlay sheets could provide an opportunity for comment without affecting the quality of candidate presentation.
- Communication in the new specification relates to the whole product study.
- Candidates should not over-enhance the background of design sheets.
- The use of Arial 10 pt (min) should be encouraged –this is widely available and does not corrupt.
- For the new specification prototype modelling should be fully integrated in to the development of creative ideas and ongoing evaluation. Different focus areas should respond with an appropriate balance of prototyping which suits the development of improvement for their selected product.
- It is important that all focus areas do respond with presenting an appropriate range of prototyped developments. <u>One single ‘final prototype' is not within the overall ethos of the specification.</u>

Summary of Main features for Unit F522

- Products can be selected from any of 8 different focus areas:
- Built Environment and construction, Engineering, Food, Graphic Products, Manufacturing, Resistant Materials, Systems and Control, Textiles.
- Work can be presented on 20 sheets of A3 paper or CD ROM equivalent to current OCR approved standard. (currently PP)
- Please consult the OCR guidance booklet for submitting E-Portfolios. In particular guidance on 'Pack and Go' or 'Package for CD' facility for PowerPoint. Videos will not work without this facility being used. This booklet stipulates acceptable formats and should be strictly observed.
- For the Product Study please do not over enhance backgrounds.
- Please use Arial font at least 10pt- This is widely available -can be read easily -does not corrupt.
- If video clips are used: 3-5 of no more than 20 sec. each would be appropriate. **-** Make sure they work from an individual CD on an independent stand-alone laptop.
- A candidate must submit either an A3 paper folder **or** an individual CD **not** both.
- A Centre can submit some candidates work as A3 paper folders and some as CD's.
- Centre and candidate name and number must be on all paper and individual CD's.
- CD's must have full details on both the outside cover and written on the actual CD.
- Work must be recorded in real time and digital technologies must be used.
- A 'real time' digital image of the product in use will be an essential feature.
- The ethos of the Unit remains the same: A single specific named product is selected and shown in use- a detailed description of the product is given together with needs of manufacturer and consumer. Key criteria are identified.
- The idea section and modelling are linked in a new section called 'Design Development'. The approach to this section will differ depending on the focus area studied by the candidate. The key thing is that the development is appropriate to the product and the focus area.
- The requirement to make a test rig is no longer necessary this has been replaced with the need to plan and implement an appropriate test on the final developed idea it is however still possible to submit one if it is considered an appropriate test.
- Communication skills now include the use of digital technology, and interactive dialogue candidates who fail to use these techniques should be marked in the lower bands.

Grade Thresholds

Advanced GCE Design and Technology: Product Design (H453)
Advanced Subsidiary GCE Design and Technology: Product Design (H053)
January 2010 Assessment Series

Unit Threshold Marks

Unit		Maximum Mark	A	B	C	D	E	U
F521	Raw	80	58	52	46	40	34	0
	UMS	80	64	56	48	32	24	0
F522	Raw	120	97	87	77	67	57	0
	UMS	120	96	84	72	60	48	0

Specification Aggregation Results

Overall threshold marks in UMS (ie after conversion of raw marks to uniform marks)

	Maximum Mark	A	B	C	D	E	U
H053	200	160	140	120	100	80	0

The cumulative percentage of candidates awarded each grade was as follows:

	A	B	C	D	E	U	Total Number of Candidates
H053	7.6	27.6	61.2	84.1	97.6	100	192

XXXX candidates aggregated this series

For a description of how UMS marks are calculated see:
http://www.ocr.org.uk/learners/ums/index.html

Statistics are correct at the time of publication.

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