

Moderators' Report/ Principal Moderator Feedback

June 2011

GCSE Design & Technology
5RM01 Resistant Materials
Controlled Assessment

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Introduction

In the first real test of the new specification, it was impossible to predict the quantity or quality of work that we would be seeing nor to anticipate any difficulties that centres would have found in converting from the old specification to the new format. In general the vast majority of centres have continued with the traditional approach to this controlled assessment by allowing candidates to design and then manufacture that candidate's conceptual product. However, it was pleasing to note that many centres took the greater opportunity of freedom to split the project in two. To allow candidates to be really creative and design /model one product and then to manufacture a different product that had the complexity and skills required at Key Stage 4. Centres are also to be congratulated in this first year, on ensuring that candidates presented work that was within the five various controlled assessment themes set by the board.

The team of moderators have reported a number of factors that will be shared with you in this document. It is hoped that everybody will be able to glean some information that will improve their centre's performance in future years.

Administration

Centres are reminded that only the work of the requested sample on the OPTEMS should be sent to the moderator; in addition the work of the highest and lowest scoring candidate should also be sent if not included in the original sample request. The use of heavy folders should be avoided as this adds to the centre's postage charges.

The Candidate Mark record Booklet (CMRB) used by centres for each candidate has caused some issues. These should be used to guide the moderator to understand how centre assessment has been awarded. It is vital therefore that each CMRB from the sample requested is utilised to the maximum. On the first page it should contain full details about the centre, candidate's number, name and task selected. There is also space for one high quality photographic image of the product made by the candidate. Additional photos are then to be inserted later in the booklet. On the next few sides the assessment criteria are presented and allow centres to mark/ring/highlight aspects of the criteria to produce a best fit for the work presented by the candidate. Centres should then page reference this work to allow the moderator to be directed towards it and then can compare the centre's assessment to national standards for accuracy and fairness. This works only if the candidate's work is clearly labelled and consists of a folio where page numbering has been used throughout.

Centres have produced the CMRBs in a variety of ways, the best method contained a portrait style approach double sided printed and stapled at the centre for security. This made the booklet a very manageable document and allowed all the addition of marks to be accurately counted and recorded prior to transfer to the OPTEMs sheets or EDI sheets. In the extreme case, CMRB sheets were found to be out of order, upside down, not page referenced and contained arithmetic errors.

New this year, the Assessor witness statement allowed for centres to support the marks awarded for the skilled use of tools and equipment by the candidate during manufacturing stage. Evidence here could support assessment criteria and is viewed alongside the photographic evidence of candidate achievements. Finally the CMRB is to be signed by both the assessor and the candidate to authenticate the work submitted for assessment. Moderators have returned to centres any sheets missing such signatures for authentication.

Design Activity

Analysing the brief

This section was reasonably well completed by many candidates who used this section to really set the scene of the problem and offer some insight into who they were designing for. It was clear where centres had a good understanding of what was required, as their candidates scored well. Some centres are still submitting work where a single sentence problem is outlined and then some needs are presented to justify the project. In some instances the design needs identified by candidates were too generic, formed by a basic mind map and could have been applied to almost any design problem. Where they were good, candidates had fully identified most design needs and had used the headings such as form, function, performance requirements, and sustainability and so on to direct their thinking.

Research

In some instances candidates failed to produce selective and focused research tending to concentrate on materials and manufacturing processes and techniques they could use. This resulted in a great deal of "padding" or mood boards that often bore little or no relation to the project being undertaken. Where it was good candidates produced succinct focused research concentrating on such things as the environment and location the product was intended to be used in. They contained details and dimensions of things to be stored such as wine bottles, CDs or cosmetic containers for example and a good thorough product analysis of an existing product. In very good work the product analysis was detailed and again related to the various criteria such as form, function, performance requirements and mention sustainability issues. In good examples candidates had summarised their research findings.

Specification

Many candidates produced specifications that were limited to the middle mark band as they lacked any sort of justification back to the research. Many candidates could enter the top mark box through comments that were realistic, measurable and mentioned sustainability. Where sustainability had been covered it was of a generic content as opposed to being specifically related to the product and design brief. This section is perhaps best achieved where candidates have a table with the specification point, a justification, a measurable point/section, with a suggested test. This detail will help candidates in the final section where the product is "tested and evaluated" as it gives measurable points to test against.

Initial ideas

Most centres had directed their candidates to produce three or four different design ideas but other candidates produce eight to ten ideas but they lack any real detail to be useful. Although many candidates will produce nice drawings of realistic products, they must annotate in more detail and add

mini sketches to explain processes of making them. Centres that have clearly taught their candidates to sketch and design well indicate that the focussed work completed was of a very good level. Ideas were well annotated with a detailed understanding of materials, processes and techniques. Research gathered in the earlier sections needs to be better used in leading and formulating design ideas that relate to all key specification points. In many centres however much of the work seen was too similar, showed limited creativity with little annotation to explain intention, materials or processes. It should be remembered that this section is for initial ideas. The finished product should not be identical to images produced here, there has to be room for refinement and development otherwise access to marks later could be restricted.

Review

The review stage was mixed across many centres. If a centre approached it well then all candidates were successful. Some good work was seen where candidates had clearly reviewed their work objectively against the initial specification and had considered user group feedback and issues of sustainability. On too many occasions however candidates simply resort to using tick boxes, smiley faces or a scoring system ranging from 1 to 10 for example to review their work. This is not subjective and candidates must be better guided in future series to undertake objective evaluations. A separate sheet is preferable rather than making comments alongside the initial idea sketches.

Communication

This section is assessed across the whole project; moderators reported a varied approach to assessment here. Some centres had access to Computer Aided Design software and candidates had used it effectively. Other centres had looked at the overall presentation of the folder and the use of ICT within it to award marks here. Both are acceptable approaches providing that the ICT is appropriate and age specific skills are rewarded. It should be noted that the final design section would benefit from greater candidate skill in the production of working drawings, exploded views to help explain initial ideas and sectional views might be useful to explain manufacturing intentions.

Development

Generally this section is poorly completed with most candidates focusing on developing one single initial idea from a manufacturing perspective rather than amalgamating various elements of their initial ideas into a single final design proposal. Candidates were either producing quality sketch work with real development from their initial idea; but no modelling in traditional methods / CAD – or – they produced models/CAD which was tenuously referred to. Ideally in this section candidates will take us on a genuine developmental journey with justified modelling witnessed through photographs, along the way that will test/refine the initial basic design. The use of user group feedback to help refinements was often missing from candidate's work; this ultimately restricts access to all the marks available.

Final design

For some candidates this could be the final design to the first project and work will stop here on that topic, as such drawings here need to contain enough information to fully convey the candidate's intentions. Candidates would be better guided in future series to present a single formal final design proposal which then considered the technical details of the materials and/or component parts in a cutting list. Processes and techniques to be used for the manufacture of the final design could also be detailed on such a drawing. In some instances candidates had simply generated a final design proposal from a CAD package and as such included silly dimensions (e.g. 15.454mm).

Make Activity

Production plan

This section produced a wide variety of responses, at best this was achieved through a tabular format where candidates had evidenced the correct sequential order for manufacture of the product, had included evidence of time, specific and varied quality control checks that could be made for that stage of making and showed a knowledge of which tools and equipment should be used. The title "production plan" should indicate that this is a plan of future events but quite often this section was evidenced as a diary format reflecting past events. Some candidates produced detailed flow charts akin to the old specification or had indicated their plan via a gannt chart.

Some candidates had not indicated sufficient quality control checks beyond simplistic yet generic statements that did not add detail to their work. In some cases a photographic diary of construction was evidenced as a production plan when it could never be a futures plan.

Quality of Manufacture

Centres are to be congratulated on the whole for the high level of outstanding products that were made this year. In these centres candidates had produced work that suitably challenging and had demonstrated a wide range of skills accurately performed and were appropriate for Key stage 4 candidates. Some work witnessed by moderators was not deemed to be at such an appropriate level for the KS4 candidates. In some instances candidates had provided no information or justification as to why tools, equipment and processes had been used and although the centres had correctly filled in the CMRB in some cases it was difficult to justify how marks had been awarded particularly at the top end when trying to judge accuracy and precision. Centres would be advised to guide candidates to include such evidence either via photographs or written comments to justify these high marks.

Centres are also reminded that the new Assessor Witness Statement will help moderators see what was completed at the centre by each candidate and what level of guidance they received during the manufacturing stage.

These tended to be well used by most centres and the information provided was detailed and helpful.

Quality of Outcome

This section was again a pleasure to witness the varied and detailed work produced by GCSE candidates in centres. The level of complexity of projects, variety of materials used and pride candidates had in their work often was demonstrated well. Where moderators have seen projects that did not have the complexity and rigour for KS4 or had projects that included the over use of CAD/CAM equipment (such as laser cutting) it was much harder to agree centre assessments.

This section was generally well marked by centres but it is important that some form of rank order and parity be established within centres to ensure that candidates are marked and rewarded fairly. Photographic evidence could be better used in this section to justify the award of higher marks where the product includes the manufacture of high quality component parts that are accurately assembled and well finished. The CMRB allows a variety of photographs to be attached as a record but also the candidate should include photographic evidence in the folder of the finished product they have made.

Health and Safety

This section was generally well done however; some centres had assessed candidates in the lower mark band yet photographic evidence provided in the folder showed candidates working safely. Given that the teacher observation is sufficient to be able to award the full two marks available moderators generally agreed centre assessment here.

Testing and Evaluating

The responses to this section varied widely across centres; at best this section was very detailed with a clear range of relevant and measurable tests with their results also containing useful sustainability issues and user group feedback. These tests were developed from the ones initially described in the initial specification points. The photographic results of these tests were displayed in a detailed, objective evaluation and future modifications proposed and were fully justified. Third party and user group evaluation was in evidence but for the most cases it lacked objective or detailed evaluative comments that were of use in assessing the merits of the product.

In other cases a simple table of specification points and met/not met assessment occurred. This was often subjective especially with tick boxes being used or where one or two generic tests which were not objectively measurable against the specification were used. It is recommended that the user group feedback does not necessarily come from peer groups but reflects the thoughts of the target user of the product. The need to assess sustainability issues was not well done this year.

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