

Moderators' Report/
Principal Moderator Feedback

Summer 2012

GCSE Design & Technology
Graphic Products (5GR01)

Paper 01 Creative Design and
Make Activities

Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications come from Pearson, the world's leading learning company. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information visit our qualifications websites at www.edexcel.com or www.btec.co.uk for our BTEC qualifications.

Alternatively, you can get in touch with us using the details on our contact us page at www.edexcel.com/contactus.

If you have any subject specific questions about this specification that require the help of a subject specialist, you can speak directly to the subject team at Pearson. Their contact details can be found on this link: www.edexcel.com/teachingservices.

You can also use our online Ask the Expert service at www.edexcel.com/ask. You will need an Edexcel username and password to access this service.

Pearson: helping people progress, everywhere

Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for our commitment to high standards and raising achievement through innovation in education. Find out more about how we can help you and your students at: www.pearson.com/uk

Summer 2012

Publications Code UG031986

All the material in this publication is copyright

© Pearson Education Ltd 2012

Introduction

This is the third year of this specification and so we would be expecting centres to be getting to grips with the requirements of the coursework section. It is clear that centres have read, listened and acted upon the advice given by Edexcel in the majority of cases. It is imperative that centres continue to act on the advice offered to them in the Moderator Feedback reports written by the moderation team.

It is the case every year that we see a range of submissions, there was a mixture of exceptionally good work, some that would be expected of GCSE candidates and some fairly poor. Where centres had allowed the more able candidates some freedom to develop their own approach to the portfolio this was very successful. It was also true that structured scaffolded sheets allowed some candidates a degree of success. The centres must ensure that the approaches used are personalised such that over structuring does not stifle real creativity. However, it was a pleasure to moderate some of the folders due to the creativity and imagination some candidates showed in the presentation of the folder work and practical outcomes.

In terms of the moderation process, some centres were lenient, most often in the quality of manufacture section where centres had provided projects that were too simplistic.

Most samples consisted of an integrated design and make, although a small minority had chosen the separate design and make route. We still see some products more suited to a Resistant Material submission and some products that relied too heavily on CAM outputs. This was however very much in the minority, which is pleasing to report.

Administration

In general the administration of the coursework was much improved on the first full year of the specification, centres and examination officers have taken on the advice offered via the board and through the reports to centres.

It is pleasing to report that centres, in the main did adhere to the regulations regarding the sample required but we did still see centres sending the incorrect sample and, most often, sending the sample with the highest and lowest candidates missing. The centres do have to send the asterisked candidates but they must also send the highest and lowest even if they are not asterisked. Centres should also substitute candidates on a similar mark if they are missing for whatever reason. Where centres had failed to comply with this important starting point they would have to be contacted to complete the correct sampling thus slowing the moderation process.

Some centres failed to comply with the instructions on the OPTEMs form, sending all copies to the moderator. In these cases the top copy needs to be sent to Edexcel, in order that the centre marks are entered on the

system. The green copy is retained by the centre for their record of marks sent and the yellow copy should be sent to the moderator.

The centre mark record booklets (CMRB) were completed well by most centres. Centre markers completed the booklets as intended, including the annotation required for the evidencing of making skills undertaken in the manufacturing process. This skills matrix must be completed as it helps to corroborate the production skills and techniques undertaken by individual candidates.

Annotation in general was often excellent and most moderators found the additional comments to be of use to them during the moderation process. As was the case last year, the single biggest issue that moderators found a problem with in terms of centre administration of the submission was that some centres did not add the marks correctly. It is vital that any addition errors are corrected at source by the centre, so that the marks input by the centre are accurate; the addition errors cause difficulties as the final moderator mark and the incorrect mark on the system differ.

Photographic evidence for practical work was clear and well documented for many candidates, which is very pleasing to report. However it is imperative that this is a priority for centres. The centres need to demonstrate clearly that the marks asked by the centre are evidenced in the photography. In the best cases centres provided evidence in the folder of the products being manufactured as an addition to the summative photographs in the CMRB, this use of a photographic diary of events cannot be under-estimated as a method to demonstrate to the moderator the range of skills and processes undertaken.

The submission of very lengthy portfolios was much improved this year although the guidance of 15 to 20 pages was often exceeded by 80 plus pages for some candidates. Candidates should be guided by the centres to be succinct and to remain focussed on the task analysis and specification to structure the whole portfolio.

The centres must ensure that each page of the portfolio has the correct labelling on it i.e. candidate name and number as a minimum, the binding of the CMRB to the folder is a nuisance to the moderation team as it has to be immediately separated from the folder. This slows down the moderation process and often results in damage to the CMRB. This practise should be avoided.

The moderators reported that the majority of centres submitted work that was of a single design and make approach, with packaging being very popular as a submission. Point of sale displays were also popular and most often submitted with a packaged item designed by the candidates. The perfume bottle and accompanying package was also seen regularly by the moderation team.

Where candidates opted for separate design and make submissions, candidates did well if they manufactured a more complex product such as an architectural model and accompanied this with a different design element such as a piece of product design.

Centres must take care not to stifle the opportunities for individuality where the centre provides a theme that all candidates work on. This was especially true where the candidates were provided with a working drawing, this of course is a valid method of working but centres must allow the candidates to make decisions with regard to the technical elements such as the choice of materials and processes.

Design Activity

Analysing the brief

In this section of the assessment criteria we are looking for a thorough analysis of the issues raised by the problem, we need to see that the candidates are using this to structure the research.

Most centres broke the initial brief down through a mind map but listed only the obvious criteria. Many centres failed to raise the questions inherent in the problem.

Although candidates broke down their task into key areas, often reasonably successfully, many failed to explore these beyond a cursory level – usually by the use of a ‘spider diagram’. Where mind maps are utilised we should see several ‘legs’ of the diagram showing that the candidates understand the complexities of the problem. In the best cases the candidates should link the analysis to an explanation of their thinking which could then be linked to the research.

Candidates, who had completed a successful thorough analysis, often linked the mind maps to paragraphs of writing with related headings. This produced focussed and relevant questions about the problem being considered. Some centres were found to be quite often lenient in their assessment of this section, this tended to be where candidates produced simple mind maps of criteria rather than a detailed analysis of the brief. Mind maps are a good starting point to highlight the issues that may need to be considered, but they must be extended and then related to some further justification and relation to the brief.

Centres were often reminded in Moderator Feedback reports that ‘Analysing the Brief’ should be free from design decisions. The use of a real client can be a useful tool to initiate a task, but it should be kept realistic and in keeping with the amount of emphasis the mark scheme demands for this section. We saw less use of major multi-national companies and some candidates did use a client to good effect and it did help in the best cases to structure the research. The key to success is to ensure that the task is analysed with real depth if candidates are to gain the highest marks in this section.

Research

The majority of centres generally assessed this section accurately. Centres that were lenient needed to focus on performance, materials, components, processes and quality in terms of related research.

Centres need to focus their research on the key criteria highlighted in the initial section. If they used the questions in the analysis then the research would be more focused, relevant and useful. We are still seeing too much dependency on product analysis, without looking at design, shape, materials or sustainability. Many candidates just commented on the ‘niceness’ of the design. This is an element that needs further centre focus in that the accompanying annotation must be relevant and illustrate the candidate’s

technical knowledge and understanding, for instance most candidates commonly did not show sizes or use of ergonomics. There was a slimmer response to this section than seen in previous years, but there is a danger that the students will miss vital and important details because they are being encouraged to jump through specific focused hoops by centres. A good example of this would be the manufacturing processes that might be used to make the product.

The single most common element that was missing, was the lack of critical data, sizes etc. Many candidates designed products with no indication of key sizes or legal requirements. A perfume box but no bottle size, a package with no information about the necessary minimum legal information to be included on it, the design of the interior of a room without any primary dimensions as a starting point.

In a number of cases research was submitted which, in the first instance, might have seemed to be relevant but on further inspection it lacked real depth. This was true of questionnaires that were rather flimsy, with questions that would not provide useful research information and materials research that lacked relevancy to the product.

More successful centres clearly encouraged candidates to link their research to their analysis, specifications and design activities. In these situations the work often flowed more effectively and read more clearly, but specifically helped candidates to produce more realistic and effective design solutions.

Specification

In this section candidates appeared to find it difficult to access the top range of marks on many occasions. In the best performances, the candidates made obvious links to the research previously undertaken. Here the specification was presented as a series of answers to the questions raised in the analysis, all too often though the points presented were not justified and lacked technical, measurable points. This lack of technical and measurable elements could lead to candidates not having access to the highest levels of the assessment criteria.

The best specifications seen were those where the candidates had written down how they would test each point at the end of the project. This seems to be an exemplary method of linking some of the most important elements of the project.

Candidates that used headings such as form, function, user requirements or other similar sub-divisions, tended to perform better than those without headings. However, in some cases this led to candidates producing some very general specifications. A good example of this might be under the title of 'Form' where candidates make simple aesthetic judgements.

In many cases the issue of sustainability needs to feature more heavily in the specifications not simply a late addition and the lack of, sizes and other such measurable points must be apparent if high level marks are to be awarded. The structuring of this section by centres linking directly to the

mark scheme helped with the high performance of candidates in this section.

It is crucial that the candidates link the specification to the methods of testing and evaluating to access the highest marks in this section and the specification points grow from the research.

Initial ideas

The moderator feedback appears to suggest that the work in this section was lacking in certain respects when compared to the requirements of the assessment criteria. Many centres supplied a minimal number of alternative ideas and the work lacked detail in both sub-system consideration and in depth technical knowledge about materials and processes. Generic comments about 'plastic' and 'wood' were common.

In the best cases candidates produced decent design ideas, but even here they often lacked annotated detail. Candidates still need to make greater use of their research information regarding materials, processes and techniques. Annotation to say how the ideas address all key specification points was frequently absent.

Centres illustrating generic material terms at this stage were advised to be more specific and give justification for their potential appropriateness for a product.

Many candidates produced some good design ideas, but often lacked detail. Candidates needed to make greater use of their research information, for example, understanding of materials, processes and techniques, and show that ideas address all key specification points; reproduction of the specification helped candidates produce decent evaluative commentary. This use of the specification throughout the process is important; it opens up the assessment criteria at the highest levels.

Some of the advice offered in last year's report is still very relevant and worthy of note. The perfume bottle alone was often offered as a body styling exercise, with no consideration given to the package or labelling/logo to be presented on the bottle. In these cases the designing section usually lacked the depth for the higher marks. Candidates similarly struggled with the design of complex architectural projects. When candidates tackled large architectural projects (hotels, sky-scrapers etc...) they struggled to meet the requirements of the assessment criteria. There was a lack of detail, and information concerning materials and processes was repetitive at best.

There was evidence of good sketching from some candidates. Some good examples of CAD programs were used such as Solid works. Many candidates lacked good evidence of knowledge of materials and processes through annotation. This was dependant on the quality of the specification written by candidates in the previous section. Issues did arise when centres had scanned candidates' drawings thus making them difficult to see and potentially denying them marks in the communication sections.

Many ideas across the range of samples based their ideas on pure aesthetics and layout and there was limited evidence of technical annotation, generic material terms were plentiful.

The vast majority of the moderation team reported some disappointment in the level of the annotation.

Review

The reviews were completed successfully in general with candidates, as a minimum, looking at each idea and making some subjective judgements about their relative merits. This was handled well by centres.

Candidates who were able to make a clear decision as to which was the most suitable design idea to take forward did well; these candidates tended to formalise design thinking on a discreet review sheet. As in ideas, the reproduction of the specification worked well. User group feedback and sustainability issues were sometimes some-what lacking and indeed some candidates produced detailed review sheets but failed to make clear their final choice / decision.

Sometimes this section was rather leniently dealt with as many candidates completed this section in a brief table rather than looking at the designs in some detail. Objective evaluative comments made by candidates were sometimes not justified at the highest levels decisions made need to be justified.

Some centres marked this section as 'on-going' or 'throughout' for comments made through annotation or in the case of one centre comments made in the evaluation section. This will be credited but the commentary must be highly specific and related to the ideas section. Candidates cannot gain credit for commentary in the review section and then be awarded for the same work in the evaluation section.

In the best cases we should see some user group feedback but this opportunity was not always taken.

In the vast majority of cases this section was well handled by the centres.

Communication

At the highest level of achievement a wide variety of well communicated skills was demonstrated, with good use of CAD. Centres are increasingly evidencing demanding CAD programmes and some excellent use of Google Sketchup for interior and architectural work.

Candidates often used a good range of communication techniques, including CAD, and this was usually assessed accurately. Candidates would benefit from being encouraged to highlight the most important design decisions on their design sheets. The higher attaining candidates produced a good standard of work using a variety of techniques. Some of the CAD modelling

was high level and in the best cases we did see a mix of traditional modelling materials used to good effect to test real refinements.

We did see a number of candidates that had been allowed to restrict their graphic media to just a pencil or to produce the whole folder using ICT. In this section we are expecting to see a range of communication techniques evidenced. The value of a sketched sheet where through good annotation and detailed sketching you can see the candidate's thoughts being developed should not be undervalued.

Centres also need to be aware that the assessment criteria for this section can be evidenced in the development section as well as the design section.

Development

It appears that, as last year, this was the section that candidates had the most difficulty with. We are expecting to see modelling used to good effect in this section we should see the developments of individual components/elements and then those components coming together in sub-systems of the final design. This should then culminate in the progressive refining of the whole solution. It is rare to see candidates looking at individual components, processes or sub-systems in deciding what was required to ensure a quality outcome was proposed.

The use of modelling and sketching of elements of proposals is the key to success in this section of the assessment criteria, candidates should be encouraged to try things out, test the possible proposals and model sub-elements. Some candidates seemed to consider minor cosmetic changes as refined development, ignoring more important issues such as the locking/opening mechanism for a box or container. This was highlighted in last year's report:

"To be successful in this section, centres need to teach candidates that this section involves change. It is not a section requiring a presentation of how a product is to be constructed; nor is it a section that only requires the presentation of a final solution. Candidates must look at the key sub-systems in the design, developing changes to those systems, how a box closes, how a bottle top can be applied securely, positioning and fixing of signage outside a building, etc.

The inclusion of sub-system consideration meant that the candidates had much wider opportunities to demonstrate decisions, technical information and communication skills. The modelling of a handle or perfume bottle body shape, can be quickly and easily shaped in Styrofoam and then reviewed! Bottle or package labels can be professionally reproduced on a variety of CAD packages from Photoshop to Word. The development of these sub-systems will not only lead to more successful outcomes, but will also provide more opportunities for demonstrating a variety of communication skills, but they should be use as exploratory tools, not just as presentational devices".

Make Activity

The application of the assessment criteria by centres within the *Final Design* section was somewhat lenient for many candidates. The main issues were the lack of information to enable third party manufacture, a lack of working drawings or a lack of technical detail.

In a number of cases the candidates need to present the work with a little more clarity; we often saw the main 3D outcome presented or just an artist impression / sketch. This is a good opportunity to highlight / justify the materials, components, processes etc. Working drawings were either missing or were too simplistic. Most centres failed to list any materials to be used, let alone justify them, at its best there were orthographic drawings with measurements and even exploded views with justified materials and constructional information. In this section we should see the candidates displaying all the technical details/dimensions/materials required to manufacture the final design if they are to gain the highest levels of the assessment criteria. The key is the notion of third party manufacture: Candidates would benefit from asking a third-party to look at their final design and decide if they could be made without recourse to the designer. The final design section is an opportunity for the candidate to present the chosen solution and justify its choice, giving clear and detailed information for a third party with some technical knowledge to construct the product proposed.

Many candidates failed to meet these requirements, particularly if they used a CAD drawing from their development section, and simply converted it to a working drawing. This often showed their lack of understanding of the needs of a working drawing and its purpose. We often saw working drawings simply produced from a CAD final illustration. These were often un-edited with dimensions running to 4 decimal places. Other technical detail was also often missing. Some candidates produced final illustrations but lacked detail of materials, processes, size etc.

Production Plan

This element of the assessment criteria was similar to last year's submission in that generally the candidates' production plans often took the form of a flow chart showing a sequence of stages of production. The flow charts often had the correct sequences, but quality control (QC) points were often generic phrases, merely suggesting what needed to be tested without suggesting how. The specific QC was rarely named or described, for example 'check fit with pre-drilled hole', but was instead a question 'is column big enough?' Most could organise their practical work into a series of processes but many did not cover all the requirements of the assessment criteria to gain full marks.

We did see table formatted evidence submitted including basic task lists, tools and equipment, health and safety and quality control. This approach, whilst being concise, did not allow candidates to demonstrate the whole

view of the manufacturing experience. Technical detail in the task list could have been more substantial for many centres.

There were a few examples of retrospective planning.

Quality of Manufacture

In this section the centre needs to demonstrate to the moderator that the candidate has used tools, processes and equipment with precision and accuracy. The moderators found that when centres had provided good quality photographs clearly showing the step-by-step manufacture of the product, assessment of this section was usually straightforward, and centre marks were often easier to agree. However, where this did not occur, it was much more difficult to agree marks as evidence was not always available.

The main issue was the level of demand and range of processes / materials used. Centres do seem to have their CAD under control with very few centres entering predominately CAD outcomes. In terms of lack of demand or range of processes centres that restrained candidates by setting low demand products to be made as class items often were not able to access the highest levels of the assessment criteria.

Some centres demonstrated excellent manufacture and a substantial level of complexity to secure the top grades however there was a proportion of centres who had over credited. When separate design and make tasks appeared, particularly in much prescribed centres more able candidates weren't stretched due to the limitations of the product on offer from centre. Where this occurred centres were advised that an opportunity for additional complexity to stretch more able candidates to reach higher parts of the assessment criteria still existed.

Manufacturing diaries were evidenced very well and positively assisted in the moderation process particularly when there was insufficient detail in the 'production planning' section and/or poor photographic evidence of final products either in folders or CRMB's.

Witness statements on the whole were generally accurate and helpful. Some centres appeared to have allowed the candidates to fill this section in, which is clearly a concern if they have assessed their own level of participation. The majority of candidates undertook projects of an appropriate challenge. Where problems occurred, centres completed projects such as simplistic pop-up cards, packaging (without a bottle) or very simple interior design models. This would be an issue for the moderation team. To a lesser degree there was occasionally an over-reliance on one manufacturing technique, particularly the over use of CAM. A general guide for this should be no more than a 50/50 balance between CAM and more traditional manufacturing processes. Clearly an over-reliance on laser-cutting is not demonstrating a range of manufacturing processes.

Quality of Outcome

Here we are looking to see the quality of the assembly and finish of the entire end product rather than the processes involved in the individual manufacture of the components, although the quality, assembly and fitting of the individual components into the final product, is an essential aspect of producing the finished item.

There was a good range of outcomes. The main concern here was precision and accuracy with a large proportion of centres describing work of good quality as excellent or high quality and led to work being leniently marked by centres.

This section was often more accurately marked and evidenced than the previous section. The inclusion of as many photographs in the folder as the centre feels necessary to justify marks, is encouraged.

Most candidates had produced some practical outcomes but not all were completed. Problems occasionally arose with centres over marking work that involved minimal skill and processes. The candidates must be encouraged to generate products that show a range of skills but also demand assembly and finishing techniques that show real accuracy and precision if they are to gain the highest marks available.

There were some difficulties assessing identical make tasks particularly if not photographed clearly. It is important for the centre to offer very detailed justification of the marks in these cases in order that the marks can be accepted.

Health and Safety

Good quality annotation of photographs showing the step-by-step manufacture of the product regarding safety was helpful. No dangerous practices were evidenced. Many candidates included elements of safety and risk assessments in their folder work which wasn't really necessary but good to see.

Testing and Evaluation

In this section candidates are expected to evidence a range of tests. This should then be followed up by a summative evaluation. Many centres showed candidates' evaluation against the specification. Third party opinions were evidence to varying degrees but were very much secondary to the candidate's thoughts. A minority of centres were able to demonstrate devised testing to inform the candidate as to the success of their product. Candidates would benefit from being encouraged to test against the specification to determine the effectiveness of the final product. Tests were sometimes omitted completely or amounted to a user/client survey. Candidates sometimes failed to focus upon the models that had been produced, instead referring to the real building etc. It would appear the many candidates had failed to plan for this section when writing their specifications.

Several candidates were marked a little leniently, particularly where they had not carried out a range of tests to check the performance and/or quality of the final product with justifications. Testing of performance and quality was lacking in the many candidates work. Evidence of user group testing was also limited by many candidates.

However in some cases the Evaluations were done well. A number of centres evidenced candidates' evaluations against the specification as expected and indeed tried to devise tests that would allow them to gain useful information to suggest further improvements and inform the summative evaluation.

Some candidates did not attempt this section. Centres should provide enough time at the end of the project to allow candidates a good attempt at this section as they are quite easy marks to gain if done reasonably well. Centres are reminded that QWC marks are only awarded for work produced in this section. Many did not read the requirements of the mark scheme and submitted generalised comments that did not relate to that requirement. Indeed justifying marks that had been allocated from evidence in other sections.

Grade Boundaries

Grade boundaries for this, and all other papers, can be found on the website on this link:

<http://www.edexcel.com/iwantto/Pages/grade-boundaries.aspx>

Further copies of this publication are available from
Edexcel Publications, Adamsway, Mansfield, Notts, NG18 4FN

Telephone 01623 467467

Fax 01623 450481

Email publication.orders@edexcel.com

Order Code UG031986 Summer 2012

For more information on Edexcel qualifications, please visit
www.edexcel.com/quals

Pearson Education Limited. Registered company number 872828
with its registered office at Edinburgh Gate, Harlow, Essex CM20 2JE

Ofqual



Llywodraeth Cynulliad Cymru
Welsh Assembly Government

