

GCSE (9-1)

Moderators' report

DESIGN AND TECHNOLOGY

J310

For first teaching in 2017

J310/02/03 Summer 2019 series

Version 1

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Introduction

Our Moderators' reports are produced to offer constructive feedback on centres' assessment of moderated work, based on what has been observed by our moderation team. These reports include a general commentary of accuracy of internal assessment judgements; identify good practice in relation to evidence collation and presentation and comments on the quality of centre assessment decisions against individual Learning Objectives. This report also highlights areas where requirements have been misinterpreted and provides guidance to centre assessors on requirements for accessing higher mark bands. Where appropriate, the report will also signpost to other sources of information that centre assessors will find helpful.

OCR completes moderation of centre-assessed work in order to quality assure the internal assessment judgements made by assessors within a centre. Where OCR cannot confirm the centre's marks, we may adjust them in order to align them to the national standard. Any adjustments to centre marks are detailed on the Moderation Adjustments report, which can be downloaded from Interchange when results are issued. Centres should also refer to their individual centre report provided after moderation has been completed. In combination, these centre-specific documents and this overall report should help to support centres' internal assessment and moderation practice for future series.

General overview

General Comments

This was the first series of the newly reformed GCSE 9-1 Design & Technology Iterative Design Challenge. We were pleased to receive, view and moderate some extremely good examples of iterative design across a range of material areas. The majority of folders were well organised and presented.

We saw a range of work that responded to all three of the contexts published by OCR last June with 'Smarter Living' being the most popular choice with candidates.

Candidates identified suitable opportunities for creative and innovative designing and, where they maintained regular contact with genuine users or stakeholders, were able to sustain a focused approach throughout their project and access high marks.

The exemplar work and guidance provided by OCR both online and at training events appears to have been well received and it was clear that successful centres had adopted many of the practices demonstrated and had structured their folders in line with the requirements of the new specification.

Forms and Administration

The majority of centres submitted work digitally, using PowerPoint presentations, either via the repository or on a USB stick by post. Excessive file sizes are still a problem in some cases and centres should do their best to compress their files as much as possible before submitting them. Several centres submitted videos separately for moderators to view and it is preferable that this is done only as a backup and that viewing videos in context during the presentation is more useful if possible.

Centres coped well with the demands of the new Candidate Declaration Forms (CDFs) and Candidate Record Forms (CRFs). The Centre Authentication Form (CCS160) should not be sent with the sample. It should be signed by all teachers involved and kept at the centre in case you receive a JCQ inspection.

The CRFs were mainly used to note the location of evidence within the candidate's folder. To aid teachers, we recommend that this is passed on to candidates using the resource that has been created to support this on the OCR website. This spreadsheet can then be displayed on slide/page 1.

Observations on the CRF can be very helpful and should be used to clarify a centre's marking only where it is not clear in the candidate's folder. It should not be used to replicate phrases from the mark scheme as this can be time consuming and unproductive.

The digital CRF was used by the majority of centres as this automatically calculates the average marks for each strand. However, in a small number of cases centres printed out and completed the CRFs by hand. Whilst this is acceptable, centres must ensure that their averaging and addition of marks are correct.

The majority of projects focused on outcomes in timber, polymers and metals with higher ability candidates combining them as necessary. There were fewer entries that focused on textiles and papers/boards and even fewer that focused on design engineering solutions.

Higher ability candidates used headings to manage the design process smoothly, accompanied by brief descriptions of what each page focused on as well as their 'next steps' in the iterative process.

Key Points

The purpose of the moderation process is to ensure that centre assessments are in line with a common national standard. This is achieved by adjusting any centre assessment where the moderation process indicates that this is necessary based on the sample of work viewed. Centres receive a detailed report following moderation which identifies specific areas of the assessment criteria which need attention, where applicable.

In internally assessed units such as this one, where the assessment contains many sections, erring on the side of generosity in the assessment of several areas can have a significant cumulative effect.

	OCR support	Familiarise yourself with the 'Internal Marking Guidance' provided on the subject web page to make sure you are clear on the requirements of each Marking Criteria. https://www.ocr.org.uk/Images/531798-internal-marking-guidance.pdf
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Several centres approached the challenge from a range of specific material areas. Where this occurs it is essential that they internally moderate across all candidates' portfolios to arrive at a consensus.

OCR suggests approximately 40 hours for completion of this non-exam assessment. This does not present a limit, but it is important to recognise if candidates are producing excessive work that becomes irrelevant and the folder is not concise this can impact on areas of assessment that relate to the relevant and concise nature of the portfolios.

Strand by strand guidance on J310/02, 03 requirements

This is not an exhaustive list and these comments relate directly to the GCSE Specification which can be found on the OCR website. Chapter 11: NEA Iterative Design Challenge of the OCR Design & Technology text book is also particularly informative and is extremely detailed.

Strand 1 – Explore

To attain high marks in this section candidates are required to **fully** consider the user, stakeholders and the context **throughout** their project. The chosen brief must be **relevant** to the context and suitably **challenging**. **Comprehensive** and **relevant** investigations must be carried out **throughout** the project as they will lead to a **clearly defined** set of user/stakeholder requirements. A highly **accurate** technical specification must be produced that communicates all technical requirements to make the final design commercially, such as **dimensions**, **manufacturing methods** and **materials**, to a third party.

Centres' assessments in this strand tended to be slightly lenient when compared with the nationally agreed standard. These were some of the issues raised by moderators:

- Narrow investigation of a single context resulting in few genuinely suitable problems
- Lack of potential user/stakeholder guidance in the selection of a suitably challenging brief
- Some legacy thinking reflected in large numbers of candidates fixating on 'desk tidies' for the 'Smarter Living' context
- Too much research at the start of the folder with little taking place as and when required during the development
- Sometimes irrelevant research (such as generic materials information) at the start of the folder before an idea has even been selected
- Limited use of a genuine (or in persona) user/stakeholder for feedback during development
- User/stakeholder requirements presented as a 'specification' (legacy spec)

- Existing products analysis being predominantly secondary/internet based with little 'hands on' product analysis
- Some folders lacked research into technical requirements, such as a storage product lacking details of the sizes of the items to be stored
- Technical specifications being misinterpreted as a list of requirements. When it should be dominated by a set of working drawings and information to make the design.

	<p>Misconception</p> <p>The Technical Specification replaces manufacturing/production specifications from legacy specifications and should be developed with consideration of the final design being manufactured commercially rather than in the school workshop.</p> <p>The planning that is assessed in Strand 4 is where candidates demonstrate how they will make the final design, as set out in the Technical Specification in a school workshop. This may involve consideration of alternative materials and processes that are more appropriate for prototyping in a school workshop rather than commercial production.</p>
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Strand 2 – Create: Design Thinking

To attain high marks in this section candidates are required to demonstrate high levels of design thinking with **clearly progressive** iterations when developing solutions. They must demonstrate **different** approaches to design that **avoid** fixation. There must be **systematic** evidence of responding to **problems** and **requirements** and **clear** evidence of **innovation** throughout the design process.

Centres' assessments in this strand tended to be lenient when compared with the nationally agreed standard. These were some of the issues raised by moderators:

- Initial ideas that were too similar in their approach
- Few candidates using sketch modelling to generate potential ideas
- Some initial ideas barely changing through the development
- Development recorded as sketches then models rather than an integrated approach
- Some legacy thinking/approaches to development that focused on clarifying how the chosen initial idea would be made
- A lack of clarity concerning how the idea was meeting the requirements as it was being tested and developed

Strand 3 – Create: Design Communication

To attain high marks in this strand candidates are required to demonstrate excellent quality of chronological progression in their development. It must be clear and obvious **how** their design is developing. A range of **different** approaches that can **effectively** communicate will need to be used that demonstrate **high levels** of skill in both the generation of **initial ideas** and **development**. This will need to be shown both **graphically** and via effective **modelling**. A key requirement at the end of development is a **formal presentation** of a final design that will provide impact and clarity to stakeholders.

Centres' assessments in this section tended to be slightly lenient when compared with the nationally agreed standard. These were some of the issues raised by moderators:

- Short development sections that limited the amount of chronological progression possible
- A lack of quick effective sketch modelling to make initial judgements
- Poor quality sketching that was difficult to understand
- A narrow range of techniques used to communicate ideas and developments
- No formal final design presented at the end of development

Strand 4 – Create: Final Prototype

To attain high marks in this strand candidates are required to have a **comprehensive** plan of how they will manage the making of their final prototype(s) in the centres' workshops. A **making diary** or production log must present evidence of the candidate **using** specialist techniques and processes that are **appropriate** to the materials being used. It must also show the **candidate using** appropriate hand tools, machinery and effective use of digital design and manufacture (if it has not been appropriate to use all four during the making then evidence must be provided from the earlier development). The final prototype must demonstrate high levels of **accuracy** and **finish** that will present well and **provide impact to a stakeholder**. A formal check of **viability** is required that demonstrates how the prototype(s) meets or differs from the **technical specification**. Consideration of **marketability** is also crucial to a high mark.

Centres' assessments in this section tended to be slightly lenient when compared with the nationally agreed standard. These were some of the issues raised by moderators:

- Plans of making that offered little support to the making of a prototype in the school workshop, or in some cases no plan at all
- Some inappropriate techniques and processes used
- Candidates not present or using tools/machinery in the photos in their making diary
- Over reliance on images of just the prototype becoming more and more complete
- Centres awarding higher band marks for candidates who had not presented evidence of **all four** requirements (tools, machinery, digital design, digital manufacture)
- Lack of video evidence to demonstrate the prototype's functionality
- Lack of clear photos of the final prototype(s) until testing
- Lack of close up detail photos
- Teachers using their own judgement on the viability and marketability of the prototype(s) based on little to no evidence of consideration provided by the candidate.

	AfL	<p>Encourage candidates to record the making of their earlier models and prototypes to ensure that use of hand tools, machinery, digital design and digital manufacture are covered as frequently as possible.</p> <p>Build in a touch point before candidates finalise their design to ensure they are meeting these requirements.</p>
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Strand 5 – Evaluation

To attain high marks in this strand candidates are required to demonstrate excellent levels of analysis and evaluation **throughout** their folder that is both **critical** and **reflective**. This will include information from stakeholders, existing products and wider issues. It must be clear how this information **supports** and **informs** the design process. Ongoing evaluation must demonstrate clearly how the development is

meeting the requirements and informing the **next steps** for future iterations. **Fully appropriate** methods of testing should be used to test whether the design is fit for purpose followed by **full evaluation** of the designs strengths and weaknesses. Comprehensive suggestions for modification must consider **design optimisation**.

Centres' assessments in this section tended to be lenient when compared with the nationally agreed standard. These were some of the issues raised by moderators:

- Reflective evaluation of the sources of information was weak
- Analysis of the information found was sometimes not clear
- The link between the analysis of the information and the forming of stakeholder requirements was sometimes not clear
- Tick lists can be a helpful tool during development but more is needed to demonstrate critical evaluation
- Inappropriate methods of testing that did not determine whether the design was fit for purpose
- Poorly planned feasibility testing that seemed rushed
- Testing that failed to include the primary user/stakeholders
- A reluctance by some candidates to admit that their design had flaws
- Over reliance on fellow candidates to assess and provide feedback
- Modifications based on mistakes in the making rather than improving the design
- Design optimisation rarely considered

Final points

Candidates should aim for a concise folder of approximately 30 slides/pages and, the use of Arial 10 point should be encouraged for PowerPoint presentations. Candidates should think about the structure of their folders in advance in order to make sure the presentation offers clear communication and pages are not wasted with large fonts and fewer images.

Centre and candidate name and number must be on all work that is presented.

Slides need to be numbered to aid navigation for centre and moderation process.

Videos used should be short, relevant and compressed.

Using staff and/or peers acting in the role of user/stakeholder in persona is a useful tactic but this must be clearly articulated and referenced within the portfolio. All work undertaken must be by the candidate.

Acknowledging sources of information is a requirement of the qualification and should be acknowledged when candidates sign the Declaration. Referencing can be done on a per page basis or with a bibliography at the end. Getting candidates in the habit of copying URLs as they find images or information on the internet for instance and pasting them under the relevant image/information will make referencing more manageable.

The overall ethos for this specification is based on 'real time recording 'of events as they actually happen. Evidence of interaction should be recorded in real time with the active comments of those involved recorded first hand and not retrospectively.

Re-typing of genuine first hand comments is totally counterproductive and should be avoided.

Helpful resources

Internal marking guidance

This guide provides comprehensive reference when marking and preparing for the NEA.

<https://www.ocr.org.uk/Images/531798-internal-marking-guidance.pdf>

Main guidance - Security

This guide offers an approach to an iterative design challenge for a security context.

<https://www.ocr.org.uk/Images/461596-portfolio-guidance-main-security.pdf>

Identifying evidence in your NEA

Documents to support candidates in identifying the location of evidence for assessment of their NEA.

<https://www.ocr.org.uk/Images/527332-identifying-evidence-in-your-nea.zip>

Terminology guide

This guide will offer definitions of terminology that bring Design and Technology thinking up to date with the 2017 specifications

<https://www.ocr.org.uk/Images/400188-terminology-guide.pdf>

NEA marking criteria

<https://www.ocr.org.uk/Images/379521-nea-marking-criteria.pdf>

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