OCR
Oxford Cambridge and RSA

GCSE (9-1)

Moderators' report

DESIGN AND TECHNOLOGY

J310

For first teaching in 2017

J310/02/03 Summer 2024 series

Contents

Introduction

Our moderators' reports are produced to offer constructive feedback on candidates' performance in the examinations. They provide useful guidance for future candidates.

The reports will include a general commentary on candidates' performance, identify technical aspects examined in the questions and highlight good performance and where performance could be improved. The reports will also explain aspects which caused difficulty and why the difficulties arose, whether through a lack of knowledge, poor examination technique, or any other identifiable and explainable reason.

Where overall performance on a question/question part was considered good, with no particular areas to highlight, these questions have not been included in the report.

Online courses

We have created online courses to build your confidence in delivering, marking and administering internal assessment for our qualifications. Courses are available for Cambridge Nationals, GCSE, A Level and Cambridge Technicals (2016).

Cambridge Nationals

All teachers delivering our redeveloped Cambridge Nationals suite from September 2022 are asked to complete the Essentials for the NEA course, which describes how to guide and support your students. You'll receive a certificate which you should retain.

Following this you can also complete a subject-specific Focus on Internal Assessment course for your individual Cambridge Nationals qualification, covering marking and delivery.

GCSE, A Level and Cambridge Technicals (2016)

We recommend all teachers complete the introductory module Building your Confidence in Internal Assessment, which covers key internal assessment and standardisation principles.

Following this you will find a subject-specific course for your individual qualification, covering marking criteria with examples and commentary, along with interactive marking practice.

Accessing our online courses

You can access all our online courses from our teacher support website [Teach Cambridge](#).

You will find links relevant to your subject under Assessment, NEA/Coursework and then Online Courses from the left hand menu on your Subject page.

If you have any queries, please contact our Customer Support Centre on 01223 553998 or email support@ocr.org.uk.

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Simply click on **File > Export to** and select **Microsoft Word**

(If you have opened this PDF in your browser you will need to save it first. Simply right click anywhere on the page and select **Save as . . .** to save the PDF. Then open the PDF in Acrobat Professional.)

If you do not have access to Acrobat Professional there are a number of **free** applications available that will also convert PDF to Word (search for PDF to Word converter).

General overview

This was the fourth series of the newly reformed GCSE 9-1 Design & Technology Iterative Design Challenge. We were pleased to receive and moderate a broad range of interesting folders that covered several material areas.

We saw a range of Iterative Design projects that responded to all three of the contexts published by OCR last June, with 'Celebrations' being a clear favourite among candidates.

The majority of projects focused on Product Design outcomes using timber, polymers and metals with higher scoring candidates combining them as required. There were fewer entries that focused on textiles and design engineering solutions and very limited responses that focused on papers and boards.

Candidates identified a broad variety of suitable opportunities for innovative and creative outcomes. As with previous years, candidates who maintained regular contact with genuine users and stakeholders throughout the project were able to effectively test and iterate successfully.

It was clear to see where centres had made use of the guidance and exemplar folders provided by OCR at training events to structure their folders and this has helped to mark them correctly.

Forms and Administration

Most centres now submit work digitally using either PowerPoint or PDF presentations. A small number of centres printed out e-portfolios when a digital submission would have sufficed. OCR's new 'Submit for Assessment' was used by the majority of centres to submit work electronically. Candidate Record and Declaration Forms were uploaded successfully to this new service.

There was a slight rise in clerical errors this year, therefore centres should make sure they use OCR's official form and to double check when entering their marks before uploading. There was also a rise in centres submitting work late and having to be chased for CRF and CDFs this should be avoided as it can delay moderation and risk the publication of results for the candidates of those centres involved.

Misconception
? The comments section on the candidate CRFs should only be used if the work is not clear in the portfolio. Generic comments that replicate the mark scheme are not useful.

The location of evidence is the most useful aspect of the CRF and we recommend that this is passed on to candidates using the resource that has been created to support this on Teach Cambridge. Very few candidates included this slide/page at the start of their folders again this year and it is recommended that centres allow sufficient time at the end of the project for this important administration task before marking.

Key Points

The purpose of the moderation process is to make sure 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, it is worth noting that erring on the side of generosity in the assessment of several areas can have a significant cumulative effect.

OCR support
i A free online training resource has been developed to support the moderation processes for internally assessed qualifications including Design & Technology on the Teach Cambridge website.

It is important to recognise when candidates are producing excessive work that can become irrelevant. If their portfolio is not concise this can impact on areas of assessment that relate to the relevant and concise nature of the portfolios. A high quality portfolio is perfectly achievable in less than 30 slides (the recommendation is around 25 slides).

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 and Teach Cambridge. Chapter 11 of the OCR Design & Technology textbook is also particularly informative and is extremely detailed.

Strand 1 – Explore

On the whole, this strand was marked **accurately** by the majority of centres. However, there was a worrying rise in the amount of generic investigation presented by candidates.

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 at the **end of development** that communicates all technical requirements to make the final design commercially, such as **dimensions, manufacturing methods** and **materials**, to a third party.

Candidates who did well generally:	Candidates who did less well generally:
- used a variety of approaches to investigate the contexts - selected a suitably challenging design brief that focused on a PROBLEM (not a product) - used a considerable amount of 'hands on' investigation throughout their project - presented a detailed technical specification at the end of their development in the form of suitably annotated and dimensioned working drawings.	- focused on a product to make rather than a PROBLEM to solve - avoided 'hands on' investigation and relied too much on web based information - focused on material investigation too early often just copying and pasting information from websites/textbooks - confused the technical specification with their list of requirements.

Misconception
?   The Technical Specification should be a series of working drawings at the **end** of development (before planning). Suitably accurate and dimensioned well enough for a third party to manufacture their prototype. It is NOT a list of what the design must do – that is the 'List of Requirements' that comes after the initial investigation. The mark scheme is not linear and requires teachers to find evidence throughout the portfolio.

Strand 2 – Create: Design Thinking

The marking of this strand was marked **more accurately** this year but still generously by a number of centres.

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.

Candidates who did well generally:	Candidates who did less well generally:
- used a variety of approaches to generate a wide range initial ideas - adopted a clear strategy of iteration 'build-test-improve' - made excellent use of feedback to inform their iteration - showed a clear path from initial idea to final design.	- generated only a few initial ideas – often very similar – at the start of development - fixated on a solution far too early - did not iterate – focused on explaining the chosen design rather than improving it - had a random approach to development that did not include enough user feedback - did not check their development against their requirements.

Strand 3 – Create: Design Communication

On the whole, this strand was often **over marked** by centres this year

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. This was absent in a worrying number of portfolios this year.

Candidates who did well generally:	Candidates who did less well generally:
- used a range of appropriate techniques to communicate their design thinking throughout their development - recorded their development in real time as and when it happened - modelled aspects of their ideas not just full designs - explained HOW models were helping - formally presented their Final Design as a presentation to stakeholders.	- presented low level sketching that lacked annotation - tended to use a single modelling material - explained how models were made - avoided the use of clear headings/subheadings to direct the reader - did not present their Final Design in a suitable way that would provide impact to stakeholders - did not present a Final Design at all, in some cases.

Assessment for learning
CAD is an effective tool to both develop ideas as well as be used to create the final design presentation.

Strand 4 – Create: Final Prototype

Centres' assessments in this section tended to be **more accurate** this year. However, there are still some centres that did not consider a candidate's lack of digital design and manufacture - a key requirement of this strand – when marking their portfolios.

To attain high marks in this strand candidates are required to have a **comprehensive** plan of how they would make their final prototype(s) in the centres' workshops. Along with **clear evidence** of them using the tools, techniques and machinery they required.

Clear photographs are an essential requirement to help moderators understand how marks have been given for the quality of the final prototype. This will often include a **video** to help demonstrate any specific aspects of functionality.

Misconception
It is not acceptable for the teacher to assume the potential marketability of the product. Evidence that the candidate has considered the **viability** of their final prototype(s) is a crucial component in the final assessment statement. This can be done with a comparison against the final design and an exploration of suitable marketing considerations.

Candidates who did well generally:	Candidates who did less well generally:
• organised their making plan to consider each component required for the build • clearly and concisely documented their use of tools and machinery throughout • presented a series of clear photos that showed both the whole prototype and suitable close up details • compared their prototype to the intended final design • explored marketing considerations relevant to their design.	• produced a simplistic plan that lacked detail • did not produce a plan of making at all, in some cases • did not provide enough photographic evidence of the final prototype • used inappropriate tools and machinery • provided no evidence of viability.

Strand 5 – Evaluation

Centres' assessments in this section tended to be **lenient** when compared with the nationally agreed standard.

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 must be used to test whether the **design solution** is fit for purpose and then followed by a **full evaluation** of the final prototype(s) strengths and weaknesses. Comprehensive suggestions for modification must also consider **design optimisation**.

Candidates who did well generally:	Candidates who did less well generally:
- evaluated at every opportunity, drawing conclusions regularly - analysed their investigation by considering HOW it could influence their design - conducted regular and frequent checks of their development against the requirements - made excellent use of appropriate users/stakeholders during development and feasibility testing - were open to criticism of their ideas - explored a focused range of meaningful modifications at the end of their project.	- assumed their design had few, if any, faults - did not engage with relevant users and stakeholders - did not check their progress against their requirements - tended to rush testing and evaluation - focused on low level modifications.

Most common causes of centres not passing

Not really applicable as NEA – the majority of centres get a 'pass' grade of above a one.

However, the most common causes of low scoring folders are:

Early fixation on a product rather than focusing on a problem to solve.

Lack of genuine user/stakeholder involvement.

A reliance on too much internet based (secondary) investigation.

Fixation on an early design.

Lack of iteration.

Rushed/inadequate testing.

Fear of failure – an unwillingness to accept that their idea/design has flaws.

Common misconceptions

Covered in the main text.

But of particular note is the confusion surrounding the 'Technical Specification'. Too many centres list the requirements under this title as it is marked at the end of Strand 1 - Explore.

Avoiding potential malpractice

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.

Any work not done by the candidate must also be highlighted in the folder. This could include work done collaboratively or ideas/suggestions presented by users and stakeholders. More recently this could also include ideas inspired by AI image generators.

Helpful resources

All useful resources can be found on Teach Cambridge. These include:

Internal Marking Guidance

Candidate Exemplars

Online e-learning marking course

Additional comments

Key influences on marks in all categories depend on the level of thinking, complexity, sophistication and difficulty involved.

The level of innovation, creativity and the depth of approach and the appropriateness of the skills involved is also an important factor.

Candidates should think about the structure of their folders in advance in order to make sure the presentation offers clear communication. Project management and organisation are key skills.

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.

Try to keep portfolio sizes down to under 30 slides.

The overall ethos for this specification is based on 'real time recording' of events as they actually happen.

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.

Supporting you

Teach Cambridge

Make sure you visit our secure website **Teach Cambridge** to find the full range of resources and support for the subjects you teach. This includes secure materials such as set assignments and exemplars, online and on-demand training.

Don't have access? If your school or college teaches any OCR qualifications, please contact your exams officer. You can forward them this link to help get you started.

Reviews of marking

If any of your students' results are not as expected, you may wish to consider one of our post-results services. For full information about the options available visit the OCR website.

Access to Scripts

We've made it easier for Exams Officers to download copies of your candidates' completed papers or 'scripts'. Your centre can use these scripts to decide whether to request a review of marking and to support teaching and learning.

Our free, on-demand service, Access to Scripts is available via our single sign-on service, My Cambridge. Step-by-step instructions are on our website.

Keep up-to-date

We send a monthly bulletin to tell you about important updates. You can also sign up for your subject specific updates. If you haven't already, sign up here.

OCR Professional Development

Attend one of our popular professional development courses to hear directly from a senior assessor or drop in to a Q&A session. Most of our courses are delivered live via an online platform, so you can attend from any location.

Please find details for all our courses for your subject on **Teach Cambridge**. You'll also find links to our online courses on NEA marking and support.

Signed up for ExamBuilder?

ExamBuilder is a free test-building platform, providing unlimited users exclusively for staff at OCR centres with an Interchange account.

Choose from a large bank of questions to build personalised tests and custom mark schemes, with the option to add custom cover pages to simulate real examinations. You can also edit and download complete past papers.

Find out more.

Active Results

Review students' exam performance with our free online results analysis tool. It is available for all GCSEs, AS and A Levels and Cambridge Nationals (examined units only).

Find out more.

You will need an Interchange account to access our digital products. If you do not have an Interchange account please contact your centre administrator (usually the Exams Officer) to request a username, or nominate an existing Interchange user in your department.

Online courses

Enhance your skills and confidence in internal assessment

What are our online courses?

Our online courses are self-paced eLearning courses designed to help you deliver, mark and administer internal assessment for our qualifications. They are suitable for both new and experienced teachers who want to refresh their knowledge and practice.

Why should you use our online courses?

With these online courses you will:

- learn about the key principles and processes of internal assessment and standardisation

- gain a deeper understanding of the marking criteria and how to apply them consistently and accurately

- see examples of student work with commentary and feedback from OCR moderators

- have the opportunity to practise marking and compare your judgements with those of OCR moderators

- receive instant feedback and guidance on your marking and standardisation skills

- be able to track your progress and achievements through the courses.

How can you access our online courses?

Access courses from Teach Cambridge. Teach Cambridge is our secure teacher website, where you'll find all teacher support for your subject.

If you already have a Teach Cambridge account, you'll find available courses for your subject under Assessment - NEA/Coursework - Online courses. Click on the blue arrow to start the course.

If you don't have a Teach Cambridge account yet, ask your exams officer to set you up – just send them this link and ask them to add you as a Teacher.

Access the courses **anytime, anywhere and at your own pace**. You can also revisit the courses as many times as you need.

Which courses are available?

There are **two types** of online course: an **introductory module** and **subject-specific** courses.

The introductory module, Building your Confidence in Internal Assessment, is designed for all teachers who are involved in internal assessment for our qualifications. It covers the following topics:

- the purpose and benefits of internal assessment

- the roles and responsibilities of teachers, assessors, internal verifiers and moderators

- the principles and methods of standardisation

- the best practices for collecting, storing and submitting evidence

- the common issues and challenges in internal assessment and how to avoid them.

The subject-specific courses are tailored for each qualification that has non-exam assessment (NEA) units, except for AS Level and Entry Level. They cover the following topics:

- the structure and content of the NEA units

- the assessment objectives and marking criteria for the NEA units

- examples of student work with commentary and feedback for the NEA units

- interactive marking practice and feedback for the NEA units.

We are also developing courses for some of the examined units, which will be available soon.

How can you get support and feedback?

If you have any queries, please contact our Customer Support Centre on 01223 553998 or email support@ocr.org.uk.

We welcome your feedback and suggestions on how to improve the online courses and make them more useful and relevant for you. You can share your views by completing the evaluation form at the end of each course.

Need to get in touch?

If you ever have any questions about OCR qualifications or services (including administration, logistics and teaching) please feel free to get in touch with our customer support centre.

Call us on
01223 553998

Alternatively, you can email us on
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