Course report 2023

Advanced Higher Graphic Communication

This report provides information on candidates' performance. Teachers, lecturers and assessors may find it useful when preparing candidates for future assessment. The report is intended to be constructive and informative, and to promote better understanding. You should read the report in conjunction with the published assessment documents and marking instructions.

The statistics in the report were compiled before any appeals were completed.

Grade boundary and statistical information

Statistical information: update on courses

Number of resulted entries in 2022: 466

Number of resulted entries in 2023: 434

Statistical information: performance of candidates

Distribution of course awards including minimum mark to achieve each grade

A	Number of candidates	72	Percentage	16.6	Cumulative percentage	16.6	Minimum mark required	87
B	Number of candidates	86	Percentage	19.8	Cumulative percentage	36.4	Minimum mark required	73
C	Number of candidates	118	Percentage	27.2	Cumulative percentage	63.6	Minimum mark required	59
D	Number of candidates	82	Percentage	18.9	Cumulative percentage	82.5	Minimum mark required	45
No award	Number of candidates	76	Percentage	17.5	Cumulative percentage	100	Minimum mark required	N/A

Please note that rounding has not been applied to these statistics.

You can read the general commentary on grade boundaries in the appendix.

In this report:

- ‘most’ means greater than 70%
- ‘many’ means 50% to 69%
- ‘some’ means 25% to 49%
- ‘a few’ means less than 25%

You can find more statistical reports on the statistics and information page of SQA’s website.

Section 1: comments on the assessment

Question paper

Although all of the questions were valid, the question paper was more demanding than expected. The grade boundaries were adjusted to account for this.

Project

The project performed as intended.

Most candidates combined their technical graphics (TG) and commercial and visual media graphics (CVMG) work, using TG models to support the development of CVMG graphics. Where candidates separated their TG and CVMG work, their work was still of the same standard, and this had no effect on their overall marks.

TG and CVMG preliminary planning

There was an improvement this year in the range of preliminary graphics. However, some candidates did not attempt TG preliminary planning. A few candidates traced from production drawings, which resulted in them receiving no marks.

TG graphic solution

Many candidates continue to perform well in this area and achieve high marks. Most candidates chose suitable approaches to 3D CAD modelling. Their modelling was of a complex nature and allowed them to access the range of required techniques. The nature of the models produced allowed for a good standard of both component and assembly production drawings and allowed many candidates to perform well across all aspects of the TG solution.

CVMG graphic solution

Many candidates did not gain marks in the top two bands for print-based and digital graphics. This was largely due to the quality of their graphics and their items not being in a format suitable for printing or publishing. Many candidates' annotations demonstrated a good understanding of CVMG techniques.

Section 2: comments on candidate performance

Areas that candidates performed well in

Question paper

Many candidates responded to 3D CAD modelling questions, with well-structured answers that described most modelling terms correctly. This was an improvement on previous years. Most candidates answered the question on digital testing methods about computational fluid dynamics (CFD) very well. Responses to questions about digital and printed media, branding, and animation techniques improved this year.

Question 1(a)

Most candidates demonstrated a good understanding of branding, its application, and the reasons for incorporating a clearly identifiable logo.

Question 1(c)

Most candidates demonstrated a good understanding of factors when dealing with printed and digital media. Many candidates achieved 4 out of the 6 available marks. Some explanations were superficial, for example they stated that digital media uses ppi and printed media uses dpi without showing an understanding of their application and the relationship to the resolution and quality of an image.

Question 1(d)

Most responses were clear and demonstrated a good understanding of the process required to convert and edit the image.

Question 2(b)

Although there were a wide variety of responses, most candidates demonstrated an understanding of the importance of centre of mass and mentioned scaffolding to support or balance a 3D print.

Question 3(a)

In the context of laser cutting, most candidates identified the correct file type.

Question 3(d)

Many candidates demonstrated a solid understanding of modelling techniques, but missed small details or did not use correct terminology, particularly in relation to surface modelling. This was an improvement on previous years.

Question 3(e)

Most candidates answered this question correctly. They demonstrated an understanding of the purpose of the test and its application in a particular context and gave clear examples of how the design could be modified.

Question 4(b)

Most candidates answered this question on offset lithography well. They took the information from the specification and applied it to the production of the book sleeve. The best responses indicated an in-depth knowledge of the printing process.

Question 5(a)

Most candidates explained the main differences between motion capture and motion tweening. However, many candidates had a limited in-depth knowledge of the techniques so did not explain their relevance in this context.

Question 6(a)

Although there were some unusual responses, most candidates achieved 2 marks by explaining how the makeup of the ground, previous land use, and the impact of environmental factors could affect the nature of the foundations and the infrastructure required for a housing development.

Project

TG preliminary planning

Many candidates produced a range of 2D and 3D sketches that provided good visual understanding of their project. They selected and correctly used appropriate modelling techniques and provided some information to enable them to progress to production graphics.

Overall, many candidates demonstrated skill in reverse-engineering and/or designing products or items to support the development of TG work.

CVMG preliminary planning

Many candidates produced good preliminary graphics for print-based and digital work, annotated preliminary graphics to detail technical requirements, and justified their use of elements and principles.

Overall, many candidates demonstrated some good creativity in producing a range of layouts for either print-based or digital graphics that met the project requirements. This was an improvement on previous years.

TG solution

Most candidates' models demonstrated a clear visual link to their preliminary work. Most candidates provided a suitable number of component drawings for all components, or only key components. Overall, most candidates provided the dimensions that would allow their products to be manufactured.

Most candidates' assembly work included sections and exploded views. Some candidates provided enlarged views to detail key assembly features and to demonstrate accurate assembly. Most candidates produced a range of technical detail from the list provided in the project assessment task and produced simulations that were mostly appropriate. Most

candidates' FEA tests were of a good standard, and they presented the results well. Most candidates provided good-quality technical renders that demonstrated the use of the techniques listed in the project assessment task.

CVMG solution

Many candidates produced a range of appropriate graphics for both print-based work and digital work that demonstrated a good standard overall. Many candidates produced clear graphics that included most of the required detail. Many candidates' work featured a clear link between their preliminary graphics and final solutions.

Many candidates identified and explained the use of elements, principles, and technical requirements well across the range of graphic items. They demonstrated good skill in creating brand continuity between print-based and digital graphics.

Areas that candidates found demanding

Question paper

Many candidates did not answer questions on tolerances, post-editing of video files, and surface modelling techniques well. Many candidates attempted questions about analysis of DTP graphics (which included Advanced Higher elements and principles) and questions on some file types and some illustration techniques poorly.

Question 1(b)

Very few candidates showed a clear understanding of negative space. Many candidates incorrectly answered about white space instead.

Question 2(a)

Many candidates identified the file type correctly but gave unclear explanations about why it was used.

Question 2(b)

Many candidates did not answer the parts of the question about volume and model mass correctly. Many candidates did not demonstrate an understanding of what these terms meant.

Question 2(c)

There was a wide variety of responses to this question. Many candidates explained what the term or technique was, rather than giving examples of their use in the rendered graphic. Many candidates did not demonstrate an understanding of volumetrics or image-based lighting. However, most candidates achieved 2 out of 2 marks for the 'bump mapping' part of the question.

Question 3(b)

Many candidates did not identify the surface finish symbol or explain the relevance of the related information.

Question 3(c)

Very few candidates gained marks for this question. Most candidates noted the specific tolerance applied to the feature but did not take account of the 0.01 mm overall tolerance.

Question 3(d)

Although most candidates answered this question well, some candidates attempted to make the central part of the fan using loft rather than revolve. Candidates should have used loft for surfacing modelling the fan blades.

Question 3(f)

Many candidates used their knowledge from the National 5 course to gain marks. Candidates who took a sustainability angle gained 1 or 2 marks. The question encouraged candidates to focus on the advantages of digital media and animation, rather than the disadvantages of printed media.

Question 3(g)

Many candidates demonstrated a poor understanding of the advantages and disadvantages of the mov file type.

Question 4(a)

Many candidates did not explain the terms ‘colour space’, ‘bleed area’, and ‘dots per inch’ to an Advanced Higher standard.

Question 4(c)

Many candidates did not demonstrate an understanding of the difference between printing methods and the function of a test print.

Question 5(c)

Some candidates provided excellent explanations, but most candidates mistook depth of field for dynamic effects. Some candidates correctly identified the elements or principles but gave poor explanations for their applications in this context.

Question 5(d)

Many candidates gave responses relating to game edits or improving the features or functionality in the game rather than video-editing techniques. Some candidates gave well-worded answers that were not relevant to the question.

Question 6(b)(i)

Many candidates described how a gardener, rather than a landscape architect, would use the information.

Question 6(b)(ii)

Many candidates explained that the quantity surveyor was interested in amounts and costs but did not always explain this clearly enough.

Question 6(b)(iii)

Many candidates demonstrated a lack of understanding of the role of the professionals in the construction industry and how they would use the location plan for different areas of planning.

Question 6(c)

Most candidates' responses demonstrated that they did not understand the use of layers or the purpose of building plans. Many candidates identified items already on the plan or gave suggestions that were not suitable for a location plan.

Project

TG preliminary planning

Many candidates did not gain marks because they did not provide sufficient technical detail to support an understanding of the model, for example detailing complex details or features without sectional views to support interpretation, or limited assembly details and limited annotation to highlight key modelling techniques or features of the design or model. Only a few candidates provided enough information to enable the progression to production drawings.

Many candidates did not include dimensions for the position of key features in their products, for example the position of location holes or key assembly features and the more complex features of their chosen items or products. Many candidates only provided sketches including overall sizes.

Some candidates sketched each component on a separate sheet of paper. This resulted in them having to scan and scale pages down to fit the overall page limit, which diminished the quality of their work and made it more difficult for markers to interpret their graphics. Candidates should not take this approach.

TG solution

Some candidates did not gain marks because the scale they chose for their component drawings was too small. This made page layout and interpreting components challenging.

Many candidates did not include sectional views to support understanding and clarity. Although many candidates provided assembly drawings, their scale was often too small, meaning that markers could not judge accurate assembly.

Many component drawings had missing key dimensions that would be required for manufacture. This was often specific to key features, location holes, and complex detail. Many candidates placed cutting planes across both component and assembly work, in particular step sections, poorly, resulting in sectional work that was not useful in supporting

clarity of the assembly. In some candidates' work, exploded views had overlapping components.

Many candidates used line weights for component and assembly drawings that were too heavy. This resulted in a lack of clarity and made it challenging for markers to interpret. Some candidates created too many production drawings, resulting in them having to scale down their work and present it on fewer pages. This limited clarity and made it difficult for markers to interpret. Although standards and conventions were reasonably good, many candidates did not include centre lines, dimension symbols for radii or diameters, or view labels, and did not complete title blocks.

Many candidates had repeated dimensions, touching leader lines, poor hierarchy of dimensions, and produced dimensional work that cluttered drawings and made clarity challenging.

CVMG solution

Many candidates did not access marks for demonstrating high visual impact and/or a high level of skill.

Many candidates did not present their print-based solutions in the correct pre-press formats.

Some candidates produced solutions that contained placeholder text.

Some candidates appear to have rushed their CVMG work in comparison to their TG work, suggesting that they had not given themselves enough time to complete their CVMG work to the same standard.

Some candidates selected a range of graphics that was too large. This resulted in an overall low quality. Candidates should focus on three graphics, as outlined in the project assessment task.

Section 3: preparing candidates for future assessment

Question paper

Teachers and lecturers should ensure that candidates prepare well for topics that follow on directly from the Higher Graphic Communication course, for example 3D computer modelling, desktop publishing, some file types, and analysing the purpose or visual impact of various types of graphics.

If centres do not have access to technology like 3D printers and CFD simulations, they can use online content to support candidates.

Responses to questions specifically related to the content of the Advanced Higher course, such as animation techniques and digital test methods, are improving year on year. However, most candidates seem to struggle with the depth of understanding and analysis required in topics such as CADCAM, the use of file types, commercial printing methods, and the use of graphics in real-life contexts.

Questions on some topics such as elements and principles, 3D modelling techniques, and the function and effectiveness of different commercial graphics can feature in the National 5, Higher, and Advanced Higher question papers. In the Advanced Higher question paper, candidates should primarily aim to demonstrate their understanding of the Advanced Higher course content by using examples they have studied at this level, and only draw upon Higher and National 5 content if it is relevant. Teachers and lecturers should encourage candidates to study the activities of professionals and the graphics used in the engineering, design, and built environment sectors, as this often leads them to produce responses that demonstrate an understanding of application.

Project

TG preliminary planning

Candidates should annotate or label their work to show how they intend to use the required modelling techniques. Candidates will gain more marks if they provide relevant technical detail to enhance the clarity and understanding of their work.

Although candidates are not expected to include every single dimension, they should ensure they include the critical sizes. It may be useful for candidates to complete skill-building tasks, where they apply dimensions to drawings to understand the expected standard at this level.

Candidates should aim to present their work on two pages to avoid having to scan and scale work. This approach limits clarity and reduces quality.

CVMG preliminary planning

Candidates should continue to ensure the range of graphics they choose for both printed and digital graphic items meets the requirements set out in the project assessment task. Candidates should also ensure they include suitable annotations, detailing the use of elements and principles and explaining the CVMG technical requirements of their graphics.

TG solutions

Candidates do not need to produce component drawings for every component and should focus only on key components that demonstrate their chosen modelling techniques. This reduces the need to use too many pages when presenting work.

Candidates should annotate or label their components to demonstrate the modelling techniques they have used in their model. They should also ensure they include sections in their component drawings, especially where this adds clarity to internal detail.

Although candidates can miss some dimensions, they should ensure they include the critical sizes.

In assembly work, cutting planes for sectional work must clearly demonstrate the assembly of the model. Where required, candidates can include more than one section and enlarged views for intricate assembly detail to demonstrate the correct assembly of components. Candidates should ensure they correctly align exploded views with no overlapping components.

Candidates should ensure the scales and line weights they use result in clear printed drawings. Teachers and lecturers can advise candidates on suitable scales and line weights. This could take the form of skill-building lessons focusing on British Standards and conventions for clarity.

CVMG graphic solution

Candidates must present print-based solutions in a pre-press format and digital graphics in a format ready for digital publication. Candidates should ensure that they present final solutions without placeholder text. Placeholder text indicates that graphics are still in the development phase and are not final solutions.

Candidates should present pre-press formats correctly for their chosen graphic items with registration, crop marks, and colour bars applied correctly, where required. For example, many candidates who chose a business card in a suite of graphics presented a single copy of a pre-press format for the front and then for the back, without considering duplexing or how many business cards they could print on one page.

As the Advanced Higher course allows candidates to have complete creative freedom over their CVMG solution, teachers and lecturers should spend time ensuring that candidates have opportunities to complete tasks that help them improve their skills at this level, and their approach to preparing and presenting CVMG graphic items not covered in other levels. This includes ensuring graphics include effective visual impact.

To avoid producing too many graphics with limited quality, candidates should ensure that they produce graphics for the specified criteria as listed under CVMG preliminary planning above, and not take on too much.

Appendix: general commentary on grade boundaries

SQA's main aim when setting grade boundaries is to be fair to candidates across all subjects and levels and maintain comparable standards across the years, even as arrangements evolve and change.

For most National Courses, SQA aims to set examinations and other external assessments and create marking instructions that allow:

- a competent candidate to score a minimum of 50% of the available marks (the notional grade C boundary)
- a well-prepared, very competent candidate to score at least 70% of the available marks (the notional grade A boundary)

It is very challenging to get the standard on target every year, in every subject at every level. Therefore, SQA holds a grade boundary meeting for each course to bring together all the information available (statistical and qualitative) and to make final decisions on grade boundaries based on this information. Members of SQA's Executive Management Team normally chair these meetings.

Principal assessors utilise their subject expertise to evaluate the performance of the assessment and propose suitable grade boundaries based on the full range of evidence. SQA can adjust the grade boundaries as a result of the discussion at these meetings. This allows the pass rate to be unaffected in circumstances where there is evidence that the question paper or other assessment has been more, or less, difficult than usual.

- The grade boundaries can be adjusted downwards if there is evidence that the question paper or other assessment has been more difficult than usual.
- The grade boundaries can be adjusted upwards if there is evidence that the question paper or other assessment has been less difficult than usual.
- Where levels of difficulty are comparable to previous years, similar grade boundaries are maintained.

Grade boundaries from question papers in the same subject at the same level tend to be marginally different year on year. This is because the specific questions, and the mix of questions, are different and this has an impact on candidate performance.

This year, a package of support measures was developed to support learners and centres. This included modifications to course assessment, retained from the 2021–22 session. This support was designed to address the ongoing disruption to learning and teaching that young people have experienced as a result of the COVID-19 pandemic while recognising a lessening of the impact of disruption to learning and teaching as a result of the pandemic. The revision support that was available for the 2021–22 session was not offered to learners in 2022–23.

In addition, SQA adopted a sensitive approach to grading for National 5, Higher and Advanced Higher courses, to help ensure fairness for candidates while maintaining

standards. This is in recognition of the fact that those preparing for and sitting exams continue to do so in different circumstances from those who sat exams in 2019 and 2022.

The key difference this year is that decisions about where the grade boundaries have been set have also been influenced, where necessary and where appropriate, by the unique circumstances in 2023 and the ongoing impact the disruption from the pandemic has had on learners. On a course-by-course basis, SQA has determined grade boundaries in a way that is fair to candidates, taking into account how the assessment (exams and coursework) has functioned and the impact of assessment modifications and the removal of revision support.

The grade boundaries used in 2023 relate to the specific experience of this year's cohort and should not be used by centres if these assessments are used in the future for exam preparation.

For full details of the approach please refer to the National Qualifications 2023 Awarding — Methodology Report.

