



Course report 2019

Subject	Design and Manufacture
Level	National 5

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. It would be helpful to read this report in conjunction with the published assessment documents and marking instructions.

The statistics used in this report have been compiled before the completion of any post-results services.

Section 1: comments on the assessment

Question paper

In the 2018 diet, the question paper was slightly more demanding than anticipated and as a result the grade boundary was lowered. For the 2019 diet, the number of 1-mark 'state' or 'name' questions within question 1 was reduced, and a list of materials was added to question 7. These changes resulted in improved candidate performance and there was no need to lower the grade boundary.

Assignment: design

All tasks performed well and allowed candidates to access the full range of marks. All tasks also generated a wide range of responses and marks. Overall, markers felt the standard of work had improved from the previous year.

Assignment: practical

There was no change to the assignment and it performed as expected, giving candidates full opportunity to demonstrate the skills, knowledge and understanding they had gained in the course. A wide range of evidence was generated and all assignments which were verified had been fully completed.

Section 2: comments on candidate performance

Areas that candidates performed well in

Question paper

Question 1(a)(i)	Answered well by most candidates, showing a good knowledge of hardwoods.
Question 1(c)(i)	Answered well by most candidates, showing a good knowledge of the properties of MDF.
Question 1(c)(ii)	Answered well by most candidates, showing a good knowledge of safety on the pillar drill.
Question 1(c)(iii)	Answered well by most candidates, showing a clear understanding of how to create a high-quality paint finish.
Question 1(e)(iii)	Answered well by most candidates, showing a clear understanding of cutting and shaping copper sheet.
Question 2(b)	Answered well by most candidates, showing a clear understanding of the use of a specification in the design process.
Question 4	Answered well by most candidates, showing a clear understanding of the use of models in the design process.
Question 5(c)	Answered well by most candidates, showing a clear understanding of how safety may have influenced the design of the iron/ironing board.
Question 6(b)	Answered well by most candidates, showing a clear understanding of the benefits of a strong brand image.
Question 6(c)	Answered well by most candidates, showing a good knowledge of marketing techniques.
Question 10	Answered well by most candidates, showing a clear understanding of the benefits of how manufacturers can reduce their impact on the environment.

Assignment: design

The majority of candidates produced good evidence in the pro forma sections of their folio — research/specification and planning for manufacture — with many candidates attracting full marks.

Candidates generally produced good evidence of idea generation. Fewer candidates copied existing products than had done in the previous year.

Candidates generally demonstrated a good level of skill in the use of graphic techniques. Overall, graphics improved in quality and increased in detail as candidates progressed through the design process.

Candidates generally demonstrated a good level of skill in refining their design, and identifying component parts, dimensions, materials and manufacturing techniques.

Assignment: practical

Candidates generally produced good evidence for all sections with the exception of section 5: evaluating.

Areas that candidates found demanding

Question paper

- Question 1(a)(iii) The expected response here was 'parallel turning' which is referenced in the course specification.
- Question 1(a)(iv) The expected response here was 'outside callipers' which is referenced in the course specification.
- Question 1(b)(i) This question asked candidates to complete the sequence of operations table by filling in the correct processes and tools. Many candidates struggled to identify 'marking gauge' as the tool for marking the chamfer and 'cutting the groove' as the process for using the plough plane.
- Question 1(b)(ii) This question asked candidates to explain why cutting the chamfer was done before cutting the lengths. The expected response was 'chamfering one long edge was quicker/easier than chamfering four separate pieces.'
- Question 1(e)(ii) This question asked candidates to describe how to mark out the corners of the copper sheet, with reference to workshop tools. Some candidates were unfamiliar with the common metalwork marking out tools associated with the required response and referenced in the course specification.
- Question 2(a)(ii) The expected response here was 'user trips' which is referenced in the course specification.
- Question 2(c) This question asked candidates to describe the 'key stages of brainstorming'. This topic was also sampled in the specimen question paper.
- Question 7(b) This question asked candidates to describe two identifying features of sand casting. Many candidates could describe one identifying feature of this process but struggled to reference a second.

Question 7(d) This question asked candidates to name a suitable process to manufacture the dumbbells and explain why it was suitable. The expected response was 'rotational moulding'. Many candidates were unfamiliar with this process and could not name it or explain why it was suitable.

Question 8(a) This question asked candidates to describe the impact of mass manufacture on society. Many candidates struggled to fully describe social impacts, or confused them with environmental impacts.

Assignment: design

Although there was more evidence of candidates carrying out exploration, many had little evidence of high-quality exploration and were limited to shape change.

Candidates generally demonstrated little to no modelling throughout their design folio. Many candidates simply modelled a concept that had already been communicated through graphics and so failed to attract additional marks.

Assignment: practical

A significant number of candidates carried out very superficial evaluation.

A number of candidates were only able to access limited marks due to the proposal they had chosen to develop. Teachers and lecturers should remind candidates that their proposal must be capable of allowing them to demonstrate their practical skills.

Section 3: preparing candidates for future assessment

Question paper

Teachers and lecturers should ensure they are familiar with the marking instructions, which are published annually on SQA's website.

Candidates should aim to respond in sentence format rather than single-word responses. Single-word answers can attract marks where the command word is 'name' or 'state', but some degree of description or explanation is required where the command word is 'describe' or 'explain'.

In general, low-level unqualified responses such as 'quick', 'easy' and 'cheap' do not attract marks. The only exception to this in the 2019 diet was question 3(a), where the command word was 'state'. This is to differentiate candidates who show deeper understanding of the topics and are able to qualify their responses from candidates who simply state the low-level unqualified response.

The best preparation for the question paper is for teachers and lecturers to give candidates the opportunity to work through question papers that are similar in style, including specimen question papers and past papers available on SQA's website. Teachers and lecturers should talk through the marking instructions with candidates as they complete each question.

The section in the course specification entitled 'Skills, knowledge and understanding for the course assessment' contains all the available areas of sampling for production of the question paper. Teachers and lecturers should ensure candidates practise responding to these areas of questioning to prepare them for the question paper.

The course support notes appendix to the course specification contains suggested activities and approaches to develop knowledge and understanding which benefits candidates preparing for the question paper.

Assignment: design

Candidates should be aware of the skills and knowledge being assessed in this component. Teachers and lecturers should give candidates access to all relevant documentation and allow them to clarify any issues or concerns they may have before starting the assessment.

It is good practice to share exemplification materials with candidates before they attempt the course assessment task.

Teachers and lecturers should ensure all work submitted is the candidate's own.

- ◆ Research should be relevant to the chosen brief and should be carried out using a range of valid research techniques. Responses that only state the candidate's opinions will not attract marks.
- ◆ The specification should contain all points drawn from the chosen brief and a range of valid points drawn from the candidate's own research. Specification points based on the candidate's own opinions will not generate marks.

- ◆ Ideas should be clearly relevant to the chosen brief. Candidates may communicate ideas through the use of graphic techniques, modelling techniques or annotation. Random shapes with no clear function will not attract marks.

In particular, candidates should:

- ◆ explore different aspects of their design and clearly communicate the impact each option would have on their design moving forward
- ◆ clearly communicate decisions on design issues and materials and manufacturing in order to refine their design effectively
- ◆ use a range of graphic and modelling techniques throughout the design process to generate ideas, explore options, refine their design and plan for manufacture
- ◆ ensure the information on their planning for manufacture pro forma is clear, links across the three sections, and communicates information required to manufacture their final design

Assignment: practical

In this component, candidates manufacture the proposal they developed in the assignment: design. Candidates should select a proposal that allows them to demonstrate all the practical skills being assessed. Teachers and lecturers should advise candidates on the suitability of their proposal for generating practical evidence.

Candidates should be aware that their evaluation must be based on more than personal opinion.

Teachers and lecturers should ensure that candidates have access to 'Instructions for candidates — assignment: practical'.

Teachers and lecturers should make use of the SQA exemplars and the videos on marking guidance for the assignment practical activity available on the Understanding Standards section of SQA's website.

Grade boundary and statistical information:

Statistical information: update on courses

Number of resulted entries in 2018	4599
Number of resulted entries in 2019	4481

Statistical information: performance of candidates

Distribution of course awards including grade boundaries

Distribution of course awards	Percentage	Cumulative %	Number of candidates	Lowest mark
Maximum mark				
A	18.1%	18.1%	809	126
B	25.3%	43.3%	1132	108
C	27.1%	70.4%	1215	90
D	18.7%	89.1%	836	72
No award	10.9%	-	489	-

General commentary on grade boundaries

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

SQA aims to set examinations and create marking instructions that allow:

- ◆ a competent candidate to score a minimum of 50% of the available marks (the notional C boundary)
- ◆ a well-prepared, very competent candidate to score at least 70% of the available marks (the notional 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 every year for each subject at each level to bring together all the information available (statistical and judgemental). The principal assessor and SQA qualifications manager meet with the relevant SQA head of service and statistician to discuss the evidence and make decisions. Members of the SQA management team chair these meetings. SQA can adjust the grade boundaries as a result of the meetings. This allows the pass rate to be unaffected in circumstances where there is evidence that the question paper has been more, or less, challenging than usual.

- ◆ The grade boundaries can be adjusted downwards if there is evidence that the question paper is more challenging than usual.
- ◆ The grade boundaries can be adjusted upwards if there is evidence that the exam is less challenging than usual.
- ◆ Where standards 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 to year. This is because the particular questions, and the mix of questions, are different. This is also the case for question papers set by centres. If SQA alters a boundary, this does not mean that centres should necessarily alter their boundary in the question papers that they set themselves.