



Course report 2023

National 5 Practical Metalworking

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: 1,620

Number of resulted entries in 2023: 1,709

Statistical information: performance of candidates

Distribution of course awards including minimum mark to achieve each grade

A	Number of candidates	711	Percentage	41.6	Cumulative percentage	41.6	Minimum mark required	49
B	Number of candidates	389	Percentage	22.8	Cumulative percentage	64.4	Minimum mark required	42
C	Number of candidates	317	Percentage	18.5	Cumulative percentage	82.9	Minimum mark required	35
D	Number of candidates	130	Percentage	7.6	Cumulative percentage	90.5	Minimum mark required	28
No award	Number of candidates	162	Percentage	9.5	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

The requirement to complete the question paper was removed for session 2022–23.

Practical activity

The practical activity assessment task: garden lantern functioned as intended. It provided the opportunity for candidates to demonstrate different levels of performance across the full range of marks available. Generally, candidates had prepared well, demonstrating that centres had covered the majority of course content.

Section 2: comments on candidate performance

Practical activity

Log book

Candidates tended to score either very high marks or very few marks in 'Machine care and maintenance' and 'Tool care and maintenance'. Candidates who performed well correctly completed all rows in the log book and used tools and machinery that are detailed within the course specification. The candidates who did not perform well either did not use the correct procedures relating specifically to care and maintenance, or did not provide the correct information.

Most candidates were awarded full, or almost full, marks for 'Safe working procedures', as they worked safely without any need for reminders or interventions.

Bench work

Most candidates demonstrated good skills in 'Measuring and marking out'. Assessor commentary confirmed that candidates were able to carry out the tasks appropriately and within tolerance.

Most candidates did not gain full marks for 'Cutting, shaping and forming — not machined parts', because they did not keep within their marking out lines. The candidates who did not achieve full marks had removed too much material from the components. Most candidates did not achieve the correct tolerances for the handle support or the lid components. Most candidates did not cut the correct shape on the ends of the vent component.

Machining

The lathe work of most candidates was good, with the best work displaying linear dimension accuracy after facing off, especially on the overall length of the legs and the handle. Some candidates had difficulty with meeting the required tolerance for the linear length of the knurls on the handle.

Some candidates had difficulty with 'Lathe work — quality of work'. Knurling was evident in the majority of candidates' work, but few managed to repeat the quality of a knurl on the handle and feet components. Most candidates completed the tapers on the handle to a good standard and were able to machine to the tolerances required.

Most candidates showed good skills in machine drilling on the centre lathe, especially when positioning and aligning the holes. Very few candidates achieved full marks for 'Machine drilling — lathe and pedestal/pillar drill', as they were not able to machine-drill holes accurately using the pillar/pedestal drill. Most candidates did not deburr the machine-drilled holes.

Fabrication

Internal threading, in terms of both size and quality, continues to be the area that candidates perform well in. Where candidates used aluminium feet, there was more of a tendency for the external threads to be uneven and misshapen. Snap head rivet forming was completed

well by the candidates who were able to evidence this technique. Some candidates did not follow the instructions on the drawings provided, and used pop rivets instead of snap head rivets to join the vent to the lid. The fold joints on the tray showed good evidence of being crease free, consistent and parallel, which was an improvement this year.

Welding is a more demanding aspect of the assessment and candidates completed it to a similar standard to last year.

Finishing

Most candidates' standard of finishing was poor to very poor. Candidates made the components worse by adding unnecessary processing marks to them, for example chuck marks for lathe work, engineers vice marks or scribing too heavily when marking out. Some candidates did not attempt to polish the lid, base plate, legs or handle supports.

Overall assembly

Candidates who completed the assessment assembled the garden lanterns very well and were awarded high marks in this area. Most of these candidates demonstrated their ability to manufacture individual components to a good standard and within tolerance. This contributed to the majority of functional sizes being well within tolerance and the product being properly assembled.

Section 3: preparing candidates for future assessment

Practical activity

Centres are reminded that they must try to obtain the material thicknesses as specified in the assessment task. Only in circumstances where specified material cannot be sourced, can centres adapt working drawings and issue a different thickness of material. Centres do not need to inform SQA if a change in material thickness is necessary. Centres are reminded that any change of material thickness that changes the validity or fairness of the assessment may affect candidates' overall results.

It is good practice for assessors to ensure that candidates understand the practical activity task before beginning it. Candidates need to be informed of assessment conditions and know what they should do to complete the practical activity.

Candidates must only use the tools, machinery and equipment listed in the practical activity section of the National 5 Practical Metalworking Course Specification when carrying out the practical activity. Candidates must not use the milling machine or grinders for any part of the practical activity assessment task.

The material on the SQA Understanding Standards website should be viewed and used by candidates, assessors, and internal verifiers before beginning the practical activity task. There is also a specimen log book, available on the National 5 Practical Metalworking page of the SQA website, which provides examples of a completed log book and highlights where marks have been awarded. All the above support will help ensure that stakeholders are aware of the standards required when working on this practical activity task, whether it be during the process of gathering evidence, assessing, or internally verifying.

Alternative assessment arrangements can be used to support candidates when they are generating evidence for the practical activity. This may be especially important in the log book area.

A minority of centres reported that malfunctions in their machinery or equipment led to some candidates not being able to complete the practical activity task to the standards specified in the working drawings. It is the centre's responsibility to provide candidates with all materials, equipment and any other resources required to complete any component of the course assessment. If candidates cannot carry out the power, machine and hand tool skills as specified due to issues with their centre's machinery, equipment or resources, they cannot be awarded marks. In order to gain marks, skills must be evidenced.

Teachers and lecturers should ensure that candidates know that work-holding to complete a component or assembly can potentially damage finished work in terms of deforming the work or adding blemishes or scratches. Candidates should plan and problem solve to ensure they know how to manufacture or assemble components from start to finish.

Candidates must follow the information on the drawings regarding joining methods. Centres must ensure they have all the necessary materials before beginning the practical activity and they are following the instructions given in the practical activity, for example if the practical

activity states that snap head rivets should be used, then centres should not be issuing any other type of rivet to candidates.

Visiting verifiers reported that many candidates could not gain marks due to a poor standard of preparing the component parts for a finish. We recommend that teachers and lecturers advise candidates, before assessment takes place, of the standard of finish required. For example, they should debur and polish component parts to remove scratches or process marks. If no attempt has been made by the candidate to prepare the components for a finish, then no marks will be awarded in this area.

A minority of centres had candidates who had applied a finish that obscured their practical evidence before visiting verification took place. Visiting verifiers were therefore not able to fully verify assessment judgements. Teachers and lecturers must ensure that candidates do not apply any finish that obscures their work, such as paint or dip coating, as this may affect the candidates' overall results.

Centres must correctly use five of the suggested dimensions from the table in the practical activity, selecting at least one from each area. Assessors must indicate on either the assessment record, or a pro forma devised by the centre, which functional sizes have been selected for assessment and shown the awarded mark. These functional dimensions must be consistent for all candidates within the group.

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](#).