



Course report 2022

Subject	Practical Metalworking
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 appeals.

Grade boundary and statistical information:

Statistical information: update on courses

Number of resulted entries in 2022	1620
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Statistical information: performance of candidates

Distribution of course awards including grade boundaries

A	Percentage	44.1	Cumulative percentage	44.1	Number of candidates	715	Minimum mark required	49
B	Percentage	25.6	Cumulative percentage	69.7	Number of candidates	415	Minimum mark required	42
C	Percentage	18.3	Cumulative percentage	88.0	Number of candidates	295	Minimum mark required	35
D	Percentage	5.9	Cumulative percentage	93.9	Number of candidates	95	Minimum mark required	28
No award	Percentage	6.1	Cumulative percentage	N/A	Number of candidates	100	Minimum mark required	N/A

You can read the general commentary on grade boundaries in appendix 1 of this report.

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 page of [SQA's website](#).

Section 1: comments on the assessment

Question paper

The requirement to complete the question paper was removed for session 2021–22.

Practical activity

The practical activity is internally assessed by centres and externally verified by SQA. As expected, the practical activity garden lantern assessment task performed appropriately. It provided the opportunity for candidates to demonstrate different levels of performance across the full range of marks available. Candidates were well prepared, demonstrating that centres had covered the majority of course content suitably.

Section 2: comments on candidate performance

Practical activity

Log book

Candidates tended to gain full marks or very few marks in 'Machine Care and Maintenance' and 'Tool Care and Maintenance'. The candidates who did not perform well did not complete their log books with accurate and relevant information, perhaps because they ran out of time.

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'. Assessor commentary confirmed that candidates were able to carry out these tasks appropriately and within tolerance.

Most candidates did not gain full marks for 'Cutting, shaping and forming — not machined parts'. This was because they did not keep within their marking out lines. The candidates who did not achieve full marks removed too much material from the components. Most candidates did not achieve the correct tolerances for the 'Handle Support' component.

Machining

Most candidates' lathe work was good, with the best work displaying linear dimension accuracy after facing off, especially on the overall length of the legs, overall length of the handle and overall length of the feet. Most candidates who completed the knurling did so to a good standard. Very few candidates deformed the knurl by closing it too forcefully in a vice or chuck.

Some candidates had difficulty with 'Lathe work — quality of work'. They found it difficult to reproduce good quality work, for example turning the tapers on the garden lantern handle.

Most candidates showed good skills in machine drilling on the centre lathe, especially when positioning and aligning the holes. Some candidates were not able to machine-drill holes accurately using the pillar/pedestal drill. A few candidates did not gain marks because they were out of tolerance with holes on the lid, base and handle supports. Most candidates did not deburr the machine-drilled holes.

Fabrication

Candidate performance improved slightly this year. Improved skills were most obvious in 'Mechanical Joints' and 'Fusion Joints'. Welding is a more demanding aspect of the assessment, and it was more consistent this year. The fold joints on the tray showed good evidence of being crease free, consistent, and parallel, which was an improvement for this year. Where candidates used aluminium feet, there was more of a tendency for the external threads to be uneven and misshapen.

Finishing

Most candidates' standard of finishing was poor to very poor. For example, most candidates did not use an emery cloth or polish the lid, base plate, or handle supports.

Overall assembly

Candidates who completed the assessment assembled the garden lanterns excellently. 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

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.

Teachers and lecturers should refer to the exemplar log book on SQA's website and the practical activity exemplar videos on the Understanding Standards website.

Candidates should complete the log book throughout the course and not just while they are working on the practical activity assessment task.

If a centre is selected for visiting verification, they must ensure that candidates do not apply any finish that obscures their work, such as paint or dip coating. (If this occurs verification cannot proceed and a 'not accepted' outcome is the result.) Candidates can, instead, apply a clear lacquer to the artefact.

Centres should use the information on the Understanding Standards website for National 5 Practical Metalworking. We recommend watching the videos and referring to the marking instructions at the same time. Candidates should also use this information to prepare for the practical activity.

Before the practical activity assessment takes place, centres should advise candidates of the standard of finish required at National 5 level, for example deburring, and polishing component parts to remove scratches and process marks. Many candidates did not gain marks here as they did not prepare components for assembly. Centres should ensure that candidates know that work-holding to complete a component or assembly can damage finished work by deforming the work or adding blemishes or scratches. Candidates should be planning and problem solving to ensure they know how to manufacture or assemble components from start to finish.

Centres should advise candidates to always take great care with their components, and to ensure that tools are set correctly, have no defects, and are of the correct quality to complete the task. The majority of unnecessary blemishes or scratches on components this year were likely caused by tooling issues, care of components, or lack of time spent finishing the components to an appropriate level. It is the candidate's responsibility to recognise when tools or equipment need to be adapted or rectified, even if they do not carry out this procedure by themselves.

Appendix 1: 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 including assessment modifications and revision support, was introduced to support candidates as they returned to formal national exams and other forms of external assessment. This was designed to address the ongoing disruption to learning and teaching that young people have experienced as a result of the COVID-19 pandemic. In addition, SQA adopted a more generous approach to grading for National 5, Higher and Advanced Higher courses than it would do in a normal exam year, to help ensure fairness for candidates while maintaining standards. This is in recognition of the fact that those preparing for and sitting exams have done so in very different circumstances from those who sat exams in 2019.

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 2022. 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 revision support.

The grade boundaries used in 2022 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 2022 Awarding—Methodology Report](#).