Course Support Notes

National 3 Practical Craft Skills Course Support Notes

Please refer to the note of changes at the end of this document for details of changes from previous version (where applicable).

April 2012, version 1.0

Contents

Introduction

These support notes are not mandatory. They provide advice and guidance on approaches to delivering and assessing the National 3 Practical Craft Skills Course. They are intended for teachers and lecturers who are delivering the Course and its Units. They should be read in conjunction with the *Course Specification* and the Unit Specifications for the Units in the Course.

General guidance on the Course

Aims

As stated in the *Course Specification*, the aims of the Course are to enable learners to:

- develop skills in reading and interpreting drawings and diagrams
- identify, select and use a range of workshop tools and equipment
- develop basic skills in measuring and marking out of materials
- develop basic skills in cutting, shaping, fixing and joining materials
- apply safe working practices in a workshop or similar environment
- take account of good practice regarding sustainability and recycling

This Course will also give learners the opportunity to develop numeracy and thinking skills.

Progression into this Course

Entry to this Course is at the discretion of the centre. However, learners would normally be expected to have attained some relevant skills and knowledge through prior experience. Skills and knowledge developed through the following, while not mandatory, are likely to be helpful as a basis for further learning in this Course.

SQA qualifications

- National 2 Practical Craft Skills

Other experience

Learners may also have relevant skills and knowledge gained through other education systems or from their own interests and informal learning.

Skills, knowledge and understanding covered in this Course

This section provides further advice and guidance about the skills, knowledge and understanding that could be included in the Course. The table below shows where there are significant opportunities to develop these in the individual Units.

Skills and knowledge	Working with Tools	Working with Materials	Making an Item
Following, with guidance, simple working drawings and diagrams			✓
Selecting, and using safely, a range of common workshop tools, equipment and materials	✓	✓	
Basic skills in measuring and marking out of materials	✓		✓
Basic skills in cutting, shaping, fixing and joining materials	✓	✓	✓
Basic skills in applying appropriate finishing techniques			✓
Reviewing completed item against working drawings			✓
Application of safe working practices in a workshop environment	✓	✓	✓
An appreciation of sustainability issues and recycling in a practical craft context		✓	✓

Progression from this Course

This Course or its Units may provide progression to:

- National 4 Practical Woodworking or relevant Units
- National 4 Practical Metalworking or relevant Units
- Skills for Work and Sector Specific SQA Courses
- a range of other practical technological Courses at National 3

and ultimately, for some, to:

- National Certificate Group Awards (NCGA) in related areas
- employment, apprenticeships and/or training in crafts, construction, engineering and related fields
- National 5 Courses in practical technological subjects

Hierarchies

Hierarchy is the term used to describe Courses and Units which form a structured sequence involving two or more SCQF levels. Although there is no direct hierarchy between National 3 Practical Craft Skills and any single National 4 Course, there is a fall back arrangement in place with National 4 Practical Woodworking and National 4 Practical Metalworking Courses. This means that a learner who gains all 3 Units of either of these National 4 Courses, but fails the Added Value Unit, may be awarded the National 3 Practical Craft Skills Course, provided they have been entered for the National 3 Course.

National 4	Practical Woodworking	Practical Metalworking
National 3	Practical Craft Skills	

It is important that any content in a Course and/or Unit at one particular SCQF level is not repeated if a learner progresses to the next level of the hierarchy. The skills and knowledge should be able to be applied to new content and contexts to enrich the learning experience. This is for centres to manage.

Approaches to learning and teaching

Practical Craft Skills, like all new and revised National Courses, has been developed to reflect Curriculum for Excellence values, purposes and principles. The approach to learning and teaching developed by individual centres should reflect these principles.

Learning in this Course should be primarily practical, hands-on and experiential in nature.

Learning and teaching activities should be designed to stimulate learners' interest, and to develop skills and knowledge to the standard required by the three Units. Learning should be focussed on appropriate practical activities so that practical skills are developed simultaneously with knowledge and understanding and to allow evidence for assessment to be naturally occurring during hands-on experiential learning.

Teaching is likely to involve a range of strategies including demonstration, discussion, problem-solving, exploration and perhaps simple experimentation (particularly with materials) in building learner competence and confidence.

Co-operative and collaborative learning approaches support and encourage learners to achieve their full potential. Unlike individual learning, learners engaged in these strategies capitalise on one another's resources and skills – asking one another for information, evaluating one another's ideas and monitoring the group's work. While "working in a group" is not specifically identified as one of the skills for life, learning and work for this Course, and therefore not assessed, it is a fundamental aspect of working in practical technologies and so should be encouraged and developed by teachers.

Assessment activities, used to support learning, may usefully be blended with learning activities throughout the Course.

For example:

- sharing learning intentions/success criteria
- using assessment information to set learning targets and next steps
- adapting teaching and learning activities based on assessment information
- boosting learners' confidence by providing supportive feedback

Self- and peer-assessment techniques should be encouraged wherever appropriate.

Learning about Scotland and Scottish culture will enrich the learners' learning experience and help them to develop the skills for learning, life and work they will need to prepare them for taking their place in a diverse, inclusive and participative Scotland and beyond. Where there are opportunities to contextualise approaches to learning and teaching to Scottish contexts, teachers and lecturers should consider this.

A range of learning and teaching approaches appropriate to the delivery of the Course has been further described at individual Unit level.

Catering for individual needs
In every class, learners will have individual strengths and areas for improvement.

Carefully planned assessment strategies allow teachers to cater for individual needs by supporting and building upon each individual learner's knowledge, skills and confidence and identifying their next steps.

It is also possible to support individual learning needs by providing a range of differentiated materials with examples and problem-solving tasks which progress from the simple to the complex, from the familiar to the unfamiliar.

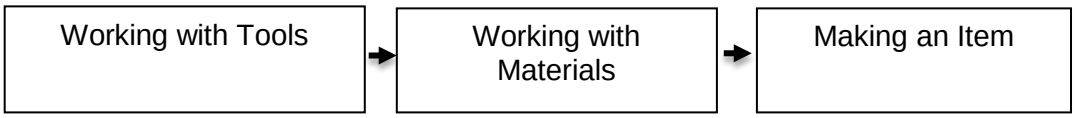
Self- and peer-assessment techniques should be encouraged wherever appropriate.

Assessment Evidence may be produced in a variety of formats including presentations, web pages, digital photographs, digital video, podcasts and blogs, and these can be stored by the learner (or teacher) within a proprietary e-portfolio, or simply by storing them in a secure folder.

Sequence of delivery of Units

The sequence of delivery of the Units within the National 3 Practical Craft Skills Course is a matter of professional judgement and is at the discretion of the centre. The two models suggested below exemplify possible approaches which may be developed to suit individual circumstances and resources.

Model 1: Sequential delivery of the Units

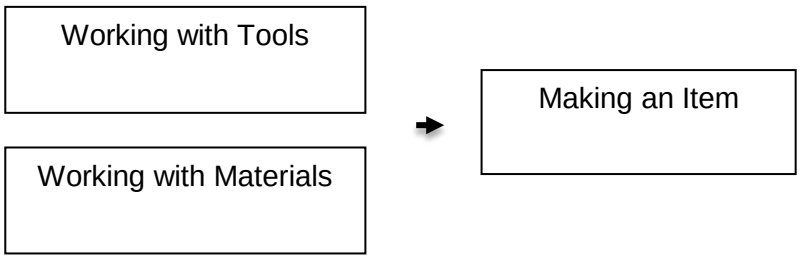


In this example the centre has decided to explore the delivery of the Units in a specific order beginning with the Working with Tools Unit. Here the learners will be developing knowledge, understanding and experiences in the use of tools and associated processes. It is likely that learners will be developing these through specific exercises and tasks on a limited range of materials. Through this learners will begin to appreciate the function and use of common tools across a range of applications. Motor skills will be developed as well as learner confidence. Exercises in marking out, use of units of measurement, appreciation of the need for accuracy and safe use of measuring and marking tools will be developed generally throughout this Unit.

It is likely that these skills will develop quickly and to a stage where learners will be ready to tackle small tasks (rather than projects) to build proficiencies in cutting and shaping, recognising the approaches and techniques and becoming more confident. As learners progress, they will become more aware of the permeating importance of health and safety in their practices and in recognising faults and problems with tools.

It is not logical for the Working with Materials Unit to be undertaken first as learners would need at least some skills and knowledge of tools to allow them to manipulate, cut, shape or form materials.

Example 2: Parallel delivery of selected Units



In this semi-parallel model, both the Working with Tools and the Working with Materials Units are run in parallel, followed naturally by the Making an Item Unit. In many centres this is likely to be the preferred model.

Integrating these first Units will provide a rich experience for learners and possibly allow a much more connected range of activities to be undertaken. By exploring both materials and the use of tools as they support manipulation, cutting, shaping and forming of those materials, the learner is more likely to gain a deeper and working understanding of the connections between the two. It is likely that a series of short projects (rather than tasks) will blend the learning of both Units. Small tasks may nonetheless be used to develop skills proficiencies or develop knowledge and understanding when required for example in learning about sources of materials, simple characteristics of materials, learning about cutting lists, as well as those required for tools as shown in model 1. Additionally, in this model there may be opportunities for learners to explore ways of combining materials in simple projects as preparation for Unit 3.

Learners who can work within their own interests are likely to not only perform better but to enjoy the process of learning. This may, in particular, influence the types of items chosen for the Making an Item Unit.

Throughout all the Units learners need to be mindful of the choices and decision that are being taken in regard to their effects on the environment — this is a permeating aspect.

Working towards Units and Course
Learning and teaching activities should be designed to develop skills and knowledge to the standard required by **each Unit** and to the level defined by the associated Outcomes and assessment standards.

Advice on distribution of time
The distribution of time between the various Units is a matter for professional judgement and is entirely at the discretion the centre. Each Unit is likely to require an approximately equal time allocation, although this may depend on the learners' prior learning in the different topic areas.

Further details on Unit learning and teaching are given in the *Unit Support Notes*

Developing skills for learning, skills for life and skills for work

Guidance on the development of skills for life, skills for learning and skills for work is to be found in the support notes for each of the component Units.

Approaches to assessment

To gain the award of the Course, the learner must pass all the Units. All Units are internally assessed against the requirements shown in each Unit Specification, with further details supplied in the individual *Unit Support Notes.*

Units are assessed on a pass/fail basis within centres. SQA will provide rigorous external quality assurance, including external verification, to ensure assessment judgments are consistent and meet national standards.

See the *Unit Support Notes* for guidance on approaches to assessment of the Units of the Course.

Combining assessment across Units

A holistic approach to assessment will enrich the assessment process for the learner, avoid duplication of assessment, provide more time for learning and teaching and allow Centres to manage the assessment process more efficiently.

Each of the Units in the National 3 Practical Craft Skills Course is focused on delivering different, but interrelated, skills, knowledge and understanding. When Units are taken as part of the Course, there will therefore be opportunities to combine assessment across the Units. This has been outlined, where possible, in individual Unit Support Notes. If assessment across Units is combined, then it must be clear where such evidence has been taken from. An integrated delivery model is more likely to produce evidence which can support his approach. Carefully selected small projects will demonstrate skills, knowledge and understanding across potentially across all Units. At National 3 level, is in unlikely and not advised to rely on one project to cover all.

Equality and inclusion

The requirement to develop practical skills involving the use of equipment and tools may present challenges for learners with physical or visual impairment. In such cases, reasonable adjustments may be appropriate, including (for example) the use of adapted equipment or alternative assistive technologies. In particular, centres may wish to make use of jigs and non-standard clamping or material restraining arrangements to assist specific learners.

It is recognised that centres have their own duties under equality and other legislation and policy initiatives. The guidance given in these Course Support Notes is designed to sit alongside these duties but is specific to the delivery and assessment of the Course.

It is important that centres are aware of and understand SQA's assessment arrangements for disabled learners, and those with additional support needs, when making requests for adjustments to published assessment arrangements. Centres will find more guidance on this in the series of publications on Assessment Arrangements on SQA's website: www.sqa.org.uk/sqa//14977.html.

Appendix 1: Reference documents

The following reference documents will provide useful information and background.

- Assessment Arrangements (for disabled candidates and/or those with additional support needs) — various publications are available on SQA's website at: www.sqa.org.uk/sqa//14977.html.
- *Building the Curriculum 4: Skills for learning, skills for life and skills for work*
- *Building the Curriculum 5: A framework for assessment*
- Course Specifications
- Design Principles for National Courses
- *Guide to Assessment* (June 2008)
- Overview of Qualification Reports
- Principles and practice papers for curriculum areas
- *SCQF Handbook: User Guide* (published 2009) and SCQF level descriptors (to be reviewed during 2011 to 2012): www.sqa.org.uk/sqa/4595.html
- *SQA Skills Framework: Skills for Learning, Skills for Life and Skills for Work*
- *Skills for Learning, Skills for Life and Skills for Work: Using the Curriculum Tool*

Administrative information

Published: April 2012 (version 1.0)

Superclass: to be advised

History of changes to Course Support Notes

Course details	Version	Description of change	Authorised by	Date

Unit Support Notes

Unit Support Notes — Working with Tools (National 3)

Please refer to the note of changes at the end of this document for details of changes from previous version (where applicable).

Introduction

These support notes are not mandatory. They provide advice and guidance to support the delivery of the Working with Tools (National 3) Unit. They are intended for teachers and lecturers who are delivering this Unit. They should be read in conjunction with:

- the Unit Specification
- the Course Specification
- the Course Support Notes
- appropriate assessment support materials

General guidance on the Unit

Aims

The general aim of this Unit, as stated in the *Unit Specification*, is for learners to develop knowledge and skills in using a range of common tools and equipment used in woodworking and/or metalworking. The learner will develop skills for measuring and marking out and for preliminary cutting and shaping of materials. Through these activities, learners will also learn safe working practices in a practical craft workshop environment.

This Unit will also give learners the opportunity to develop their numeracy and thinking skills.

The Unit can be delivered as:

- a stand-alone Unit
- part of the National 3 Practical Craft Skills Course

Progression into this Unit

Entry to this Unit is at the discretion of the centre. However, learners would normally be expected to have attained useful skills, knowledge and understanding from prior learning within their broad general education.

Learners may have also gained relevant skills and knowledge through other prior learning, life and work experiences.

Skills, knowledge and understanding covered in this Unit

Information about skills, knowledge and understanding is given in the National 3 Practical Craft Skills *Course Support Notes*.

Teachers are free to select the skills, knowledge, understanding and contexts which are most appropriate for delivery in their centres.

Progression from this Unit

On successful completion of this Unit, the following Units and Courses provide a selection of progression pathways available to learners:

- Working with Materials (National 3) Unit
- Making an Item (National 3) Unit
- National 4 Practical Woodworking Course or relevant Units
- National 4 Practical Metalworking Course or relevant Units
- National Progression Awards in a range of practical technology subjects
- Skills for Work Courses and sector specific SQA qualifications
- a range of other stand-alone Units in practical technologies contexts

Approaches to learning and teaching

General guidance
The Unit is designed to provide flexibility and choice for both the learner and the teacher and as such approaches taken by centres will be varied according to their needs, resources and local contexts.

Learning and teaching activities should be designed to stimulate learners' interest, and to develop skills and knowledge to the standard required by the Outcomes and to the level defined by the associated assessment standards.

Tasks and activities throughout the Unit should be linked to relevant contexts. The Unit and Course Specifications define the skills and knowledge required, but leaves complete freedom to the teacher or learner to select interesting contexts in which to develop these.

The National 3 Practical Craft Skills Course Support Notes provide broad guidance on approaches to learning, teaching and assessment which may apply to all Units of the Course, and should be read before delivering this Unit.

Delivering the Unit within the Practical Craft Skills Course
If centres are delivering this Unit as part of the National 3 Practical Craft Skills Course then it is likely that development of knowledge, principles of use and familiarity and confidence with tools may be the starting point. As such it is possible that this Unit will be the first that is approached or that it is taught in parallel with the Working with Materials Unit, to build learner confidence in using tools in an appropriate context.

Sequence of delivery of Outcomes within the Unit

The sequence of delivery of the Outcomes and the distribution of time between the Outcomes is a matter for professional judgement and is entirely at the discretion of the centre. Possible approaches are suggested, but other possibilities exist.

It is important to ensure adequate time for learning activities designed to develop learners' skills and knowledge before asking learners to produce evidence that they have achieved the required standards

There are two Outcomes in this Unit:

1 Use a selected range of tools, as appropriate, for marking out and measuring
2 Use a selected range of tools, as appropriate, for preliminary shaping and cutting of materials

Outcome 1
The learner will:

1 Use a selected range of tools, as appropriate, for marking out and measuring by:

1.1 Selecting, with guidance, correct tools for the task
1.2 Using tools, with guidance, to mark out and measure a range of supplied components or work pieces in accordance with the task
1.3 Using tools in accordance with safe working practices

Notes on Outcome 1

1.1 Selecting, with guidance, correct tools for the task

A fundamental skill is in the ability to select an appropriate tool to carry out a task effectively and safely. It is important that learners begin to develop or extend their vocabulary when identifying the tools. This helps to consolidate understanding of the families of tools as they support specific types of tasks and how they are appropriate to materials. It is not necessary to assess this standard using complex tools or tool names. Common everyday tools are appropriate for this task. Generic names and not trade marked names should be used, eg a 'craft' knife and not a 'Stanley' knife.

Evidence for this might be observational, pictorial, aural, oral or written if desired.

1.2 Using tools, with guidance, to mark out and measure a range of supplied components or work pieces in accordance with the task

In this Outcome, learners will be using common marking out tools and demonstrating their capabilities in process, accuracy and approach. Careful, clear and systematic instruction should provide the recognised techniques which produce accurate markings. Learners may take some time to develop the motor skills to undertake some of the more complicated marking methods and time should be allowed for practice and building confidence. With younger learners, adaptations may have to be made to support some of the more cumbersome tools — using vises, jigs or clamps to hold materials if required. Careful selection of tasks could avoid this. Whilst it is traditional to mark in mm as units, some learners may need centimetre conversions with limitations, eg 12.5 cm and not 12.7 cm for ease of readability.

1.3 Using tools in accordance with safe working practices

Each centre already has its statutory obligations and local advice on health and safety practice. In addition it is likely that centres will have policies and approaches to learning and teaching which support best practice in the workshop environment. Learners should be reminded of the importance and expectations of responsible working and the care and welfare of self and others. In addition most learners will already be aware and have previous experience of workshop and practical environments and there will be opportunities to visit these responsibilities throughout the Unit. Centres are likely to consider the learners positive attitudes to safety, care and attention, observation of learners' working procedures, responsible use of tools, conversations, simple question and answer, and other opportunities as providing evidence of this standard. This standard will be read alongside Standard 2.4.

Outcome 2
The learner will:

2 Use a selected range of tools, as appropriate, for preliminary cutting and shaping of materials by:

2.1 Selecting, with guidance, correct tools for the task
2.2 Identifying whether tools and equipment are in good condition and safe working order
2.3 Using tools, with guidance, to complete preliminary cutting and shaping of a supplied range of materials in accordance with the task
2.4 Using tools in accordance with recognised procedures and safe working practices

Notes on Outcome 2

2.1 Selecting, with guidance, correct tools for the task

With time, the learners should be able to identify and select the correct tools for a process or task.

In early stages considerable guidance may be required according to the learner's experience – it is a developmental process. Where the Unit is being delivered as part of the Course, this evidence may be obtained at a later stage if it not overtaken within this Unit. The key aspect is that learners understand the applicability of the tool to the material, the task, the proposed process and the tool availability within the centre. Evidence is likely to be a mixture of observational, pictorial, conversational or written if desired.

2.2 Identifying whether tools and equipment are in good condition and safe working order

There are likely to be two types of activity which support this standard:

1 Planned activity
2 Naturally occurring events

Planning tasks for learners to identify and comment on the condition of tools will prepare them for naturally occurring events. Caution should be applied when planning activities and they might take an investigative or a demonstrative approach. Learners are likely to be made aware of common faults, eg loose handles, chipped blades, blunt teeth, trip hazards near equipment, vises left open, tools scattered, broken or missing guards, torn sanding discs to name a few. Such simple and safe preparatory tasks will make learners aware of how to approach naturally occurring events – where they have selected a damaged tool, can recognise an issue, and report it.

2.3 Using tools, with guidance, to complete preliminary cutting and shaping of a supplied range of materials in accordance with the task

Similar to 1.2, learners' confidence and competence will develop with time. Where sufficient evidence cannot be obtained from this Unit and where the learner is undertaking the Course, evidence may be found in other areas. Centres should look for evidence of how the tools are being used, techniques and practice as they apply to a range of materials.

2.4 Using tools in accordance with recognised procedures and safe working practices

This standard shall be read alongside standard 1.3

Approaches to delivery

In developing an approach to learning and teaching activities, centres may wish to use a number of small simple project items which build skills, confidence and the capacity to undertake more complex tasks.

By using a simple introductory item first; learners can establish some of the basic skills, knowledge, safe working practises and expectations associated with the workshop environment. It may simply be a shaped item without complexity.

Additional items might reinforce and develop these skills in context of a simple assembled Item. Where this Unit is being undertaken as part of the Course this may provide a link to other Unit activities. Centres may wish to use short or small proficiency tasks to enable learners to develop the requisite skills prior undertaking a more complex item.

It is important that learners can see the bigger picture and for each practical exercise, learners might be shown a completed example of the work to be undertaken, enabling them to visualise the object or item, understand the complexities, and observe the standard of work they are aiming for.

Centres will be familiar with and practised in staging demonstrations but may wish to draw upon additional reference material available on the Web or other audio visual resources. Centres should remember that this is a practical course with focus on the experiential and practical rather than the theoretical.

Advice specific to delivery of this Unit

Knowledge and understanding

Knowledge and understanding should not be taught in isolation from other aspects of the Unit. Practical examples should be used where possible to help learners to identify hand tools, machine tools, measuring tools, marking out tools, equipment and processes. In most workshop environments much of this will be undertaken during conversations and less formal input, directions, suggestions – it is nonetheless valuable to take some time to focus on these aspects in isolation.

Tooling

Depending on material, the following provides the typical tooling that will support measuring and marking out might include: rule, engineer's square, tri-square, marking gauge, scriber, odd-leg callipers, marking (or engineer's)-blue, centre punch, dividers.

Centres may have other, appropriate or more contemporary tools which they commonly employ for similar tasks — these are acceptable.

Advice on distribution of time

The distribution of time between the various Outcomes is a matter for professional judgement and is entirely at the discretion of the centre. As each

Unit carries equal SCQF points, it is logical that the time will be evenly spread - although this is not mandatory and local conditions may apply.

Support
At National 3, learners are likely to require a reasonable level of guidance.

Meeting the needs of all learners
When delivering this Unit in a multi-level situation, with some learners working towards National 3 and others towards National 4 Woodworking or Metalworking, consideration should be given to structure, content and materials selections.

This Unit is not in direct hierarchy with any other Units at National 2 or National 4; however it may be used as a fall-back option for learners in a National 4 Practical Woodworking or Practical Metalworking class who do not achieve the standards requirements for that Course. Please see the *Course Support Notes* for further advice.

Useful resources
Where possible, centres should source or produce exemplars of completed work to enhance learners' ability to contextualise the Unit material. This may take the form of pre-built assemblies or work pieces that the learners can use directly or in combination with the assemblies or items they create.

Video clips and online resources
The internet provides a valuable source of video clips and films of practical woodworking and metalworking techniques, processes and practices. Learners may find these both informative and interesting in class and for self-study.

Suggested online resources:

- YouTube
- Focus Educational
- Technology Student
- Teaching Education Scotland
- STEM Central on Education Scotland
- Khan Academy
- Scottish Government
- Machine/tool manufacturers' websites

Developing skills for learning, skills for life and skills for work

Learners are expected to develop broad generic skills as an integral part of their learning experience. The *Unit Specification* lists the skills for learning, skills for life and skills for work that learners should develop through this Unit. These are based on SQA's *Skills Framework: Skills for Learning, Skills for Life and Skills for Work* and must be built into the Unit where there are appropriate opportunities. The level of these skills will be appropriate to the level of the Unit.

This Working with Tools (National 3) Unit offers opportunities to acquire and develop a number of the broad generic skills described in the SQA's *Skills Framework: Skills for Learning, Skills for Life and Skills for Work.* These opportunities will arise, for the most part, as a natural part of the learning and teaching process.

2 Numeracy	
2.2 Money, time and measurement	Measuring and marking out materials in accordance with working drawings. Interpreting and calculating dimensions and scale in drawings/diagrams/orthographic projections and applying them to work pieces. Checking the accuracy of completed components and assemblies against drawings and cutting lists. Manufacturing items to strict measurements of tolerances and accuracy. Discussion re costs in recycling.

5 Thinking skills	
5.2 Understanding	Understanding the purpose and function of various tools and equipment and explaining the correct use in a given context. Understanding of sustainability issues.
5.3 Applying	Learning new techniques and processes and applying them in practical tasks and making items. Planning and organising tools, equipment and materials in preparation for a practical activity. Applying practical skills to solve a problem in a given drawing or specification.

Approaches to assessment and gathering evidence

The learner must demonstrate attainment of all of the Outcomes and their associated assessment standards to pass the Unit. Assessment must be valid, reliable and fit for purpose.

SQA does not specify the methods of assessment to be used; assessors should use their professional judgement, subject knowledge and experience, and understanding of their learners, to determine the most appropriate ways to generate evidence and the conditions and contexts in which they are used. In many cases, evidence will be gathered during normal classroom activities, rather than through formal assessment instruments. Whenever possible, the practical nature of this Unit should not be compromised up by placing too much emphasis on the assessment of the learner than is necessary for the successful completion of the individual Outcomes.

The learner should be made aware that assessment is an ongoing process. Learners should also be kept informed of their progress and areas that they need to improve upon to meet the standards — remembering that this Unit is at National 3. Centres may wish to provide physical exemplification of what meets the standard. Lengthy written tests are not required for tool, process or equipment recognition and use. Short-answer, sentence completion or multiple choice tests that are mainly of a visual nature might be used.

Centres are expected to maintain a detailed record of evidence, including photographic, oral or observational evidence. Evidence in written or presentation format should be retained by the centre.

All evidence should be gathered under supervised conditions.

In order to ensure that the learner's work is their own, the following strategies are suggested:

- personal interviews with learners where teachers can ask additional questions about the completed work
- asking learners to orally present on their work, recording the class pupil could be used as evidence
- using checklists to record the authentication activity

Combining assessment within the Unit

It may be possible to develop learning/assessment activities which provide evidence that learners have achieved the standards for more than one Outcome within the Unit, thereby reducing the assessment burden on learners. Combining assessment of Outcomes (or parts of Outcomes) in this way is perfectly acceptable, but needs to be carefully managed to ensure that all assessment standards and Outcomes for the Unit are covered. This is particularly true if evidence is gathered for the Unit as a whole through one assessment and a single context. If this approach is used, it must be clear how the evidence covers each Outcome.

A holistic approach to assessment will enrich the assessment process for the learner, avoid duplication of assessment, provide more time for learning and teaching, and allow centres to manage the assessment process more efficiently. In some instances work carried out for other Units can be used as evidence of the learner's performance in this Unit. If this is done it must be clear where such evidence has been taken from.

For this Unit, learners will be required to provide evidence of:

- knowledge of a selected range of practical woodworking and/or metalworking hand tools, machine tools, equipment and processes
- the ability to use tools to mark out components from simple working drawings
- the ability to use tools to complete preliminary cutting and shaping of a range of materials (metal and/or wood)
- the ability to work in accordance with recognised procedures and safe working practices

Where learners have produced a practice item of a better quality this may be used as evidence that the required skill has been achieved. Alternatively in some instances learners could undertake additional small practical exercises that will allow for reassessment in individual skills.

Some learners may require additional support and help to ensure success in the use of tools and equipment, but learners must also be aware that the overall Unit and Course assessments takes into account the amount of assistance given by the teacher, and that ultimately a degree of independence is expected from the learner.

Exemplification of assessment for this Unit is provided in the *National Assessment Resource*.

Equality and inclusion

The requirement to develop practical skills involving the use of equipment and tools may present challenges for learners with physical or visual impairment. In such cases, reasonable adjustments may be appropriate, including (for example) the use of adapted equipment or alternative assistive technologies, materials restraining jigs or assemblies.

It is recognised that centres have their own duties under equality and other legislation and policy initiatives. The guidance given in these *Unit Support Notes* is designed to sit alongside these duties but is specific to the delivery and assessment of the Unit.

Alternative approaches to Unit assessment to take account of the specific needs of learners can be used. However, the centre must be satisfied that the integrity of the assessment is maintained and that the alternative approach to assessment will, in fact, generate the necessary evidence of achievement

For more information on assessment arrangements and when centres should seek SQA approval for alternative assessment arrangements, go to www.sqa.org.uk/14976.html.

Appendix 1: Reference documents

The following reference documents will provide useful information and background.

- Assessment Arrangements (for disabled learners and/or those with additional support needs) — various publications on SQA's website: http://www.sqa.org.uk/sqa/14976.html
- *Building the Curriculum 4: Skills for learning, skills for life and skills for work*
- *Building the Curriculum 5: A framework for assessment*
- Course Specifications
- Design Principles for National Courses
- *Guide to Assessment* (June 2008)
- Overview of Qualification Reports
- *Overview of Qualification Reports*
- *Principles and practice papers for curriculum areas*
- *Research Report 4 — Less is More: Good Practice in Reducing Assessment Time*
- *Coursework Authenticity — a Guide for Teachers and Lecturers*
- *SCQF Handbook: User Guide (published 2009)* and SCQF level descriptors (to be reviewed during 2011 to 2012): www.sqa.org.uk/sqa/4595.html
- *SQA Skills Framework: Skills for Learning, Skills for Life and Skills for Work*
- *Skills for Learning, Skills for Life and Skills for Work: Using the Curriculum Tool*
- *Template and Guidance for Unit Assessment Exemplification*
- SQA Guidelines on e-assessment for Schools
- SQA Guidelines on Online Assessment for Further Education
- SQA e-assessment web page: www.sqa.org.uk/sqa/5606.html

Administrative information

Published: April 2012 (version 1.0)

Superclass: to be advised

History of changes to Unit Support Notes

Course details	Version	Description of change	Authorised by	Date

Unit Support Notes

Unit Support Notes — Working with Materials (National 3)

Please refer to the note of changes at the end of this document for details of changes from previous version (where applicable).

Introduction

These support notes are not mandatory. They provide advice and guidance to support the delivery of the Working with Materials (National 3) Unit. They are intended for teachers and lecturers who are delivering this Unit. They should be read in conjunction with the:

- the Unit Specification
- the Course Specification
- the Course Support Notes
- appropriate assessment support materials

General guidance on the Unit

Aims

The general aim of this Unit, as stated in the *Unit Specification*, is for learners to develop skills in working with different woodworking and/or metalworking materials. Learners will develop skills in cutting, shaping, fixing and joining materials, using a variety of appropriate craft techniques. Through these activities, learners also gain an understanding of good practice in sustainability and recycling, as well as an appreciation of safe working practices in a workshop context.

This Unit will also give learners the opportunity to develop their numeracy and thinking skills.

The Unit can be delivered as:

- a stand-alone Unit
- part of the National 3 Practical Craft Skills Course

Progression into this Unit

Entry to this Unit is at the discretion of the centre. However, learners would normally be expected to have attained useful skills, knowledge and understanding from prior learning within their broad general education.

Learners may have also gained relevant skills and knowledge through other prior learning, life and work experiences.

Skills, knowledge and understanding covered in this Unit

Information about skills, knowledge and understanding is given in the National 3 Practical Craft Skills *Course Support Notes.*

Teachers and lecturers are free to select the skills, knowledge, understanding and contexts which are most appropriate for delivery in their centres.

Progression from this Unit

On successful completion of this Unit, the following Units and Courses provide a selection of progression pathways available to learners:

- Making an Item (National 3) Unit
- National 4 Practical Woodworking Course or relevant Units
- National 4 Practical Metalworking Course or relevant Units
- National Progression Awards in a range of practical technology subjects
- Skills for Work Courses and sector specific SQA qualifications
- a range of other stand-alone Units in practical technologies contexts

Approaches to learning and teaching

General guidance
The Unit is designed to provide flexibility, personalisation and choice for both the learner and the teacher and as such approaches taken by centres will be varied according to their needs, resources and local contexts.

Learning and teaching activities should be designed to stimulate learners' interest, and to develop skills and knowledge to the standard required by the Outcomes and to the level defined by the associated assessment standards.

Tasks and activities throughout the Unit should be linked to relevant contexts. The Unit and Course Specifications define the skills and knowledge required, but leave complete freedom to the teacher or learner to select interesting contexts in which to develop these.

The National 3 Practical Craft Skills *Course Support Notes* provide broad guidance on approaches to learning, teaching and assessment which will provide common information in delivering the Units of the Course.

Delivering the Unit within the Practical Craft Skills Course

If centres are delivering this Unit as part of the National 3 Practical Craft Skills Course, then it is likely that this Unit will be delivered subsequent to, or in near parallel with the Working with Tools Unit. Learners will then be able to apply safe working practices and their experiences of working with tools as they are introduced to Working with Materials.

Sequence of delivery of Outcomes within the Unit
The sequence of delivery of the Outcomes and the distribution of time between the Outcomes is a matter for professional judgement and is entirely at the discretion of the centre. However it is suggested that the most effective way is by combining the Outcomes in order to provide an integrated approach to the Unit, and other possibilities exist.

It is important to ensure adequate time for learning activities designed to develop learners' skills and knowledge before asking learners to produce evidence that they have achieved the required standards

There are two Outcomes in this Unit:

1 Identify a variety of materials used in practical woodworking and/or metalworking
2 Work with a selected range of materials to complete basic woodworking and/or metalworking tasks

Outcome 1
The learner will:

1 Identify a variety of materials used in practical woodworking and/or metalworking by:

1.1 Identifying basic materials, using correct names and terminology
1.2 Selecting, with guidance, materials appropriate for the task
1.3 Describing good practice in sustainability and recycling

Notes on Outcome 1
1.1 Identifying basic materials, using correct names and terminology

Centres should be familiar with and have access to the typical range of woodworking and metalworking materials. Attention should be focused on the 'families' of woods and metals. It is not necessary to cover exotic hardwoods nor advanced alloys — merely the typical everyday materials that the learner can observe on a daily basis.

Woods will include softwoods, hardwoods and manufactured boards. Attention should be draw to the origin of these materials (coniferous, deciduous) and opportunities to observe them in local growing contexts may be possible. Metals will include both ferrous and non-ferrous metal. The idea of an alloy may be visited.

Common materials found in schools and colleges are sufficient. With time and experience, learners should be able to identify materials from their appearance or characteristics and use the correct vocabulary to name and describe them. Learning may address, in simple terms, the processes by which these materials arrive for use in the workshop – from raw materials to stock ready for working. There are a variety of online resources and popular television programmes which can be used to support this learning.

1.2 Selecting, with guidance, materials appropriate for the task

At National 3 there is an expectation the learners will receive reasonable guidance. In the selection of materials, learners will build upon and demonstrate their understanding of the simple characteristics and properties of common materials from 1.1, eg the stability of certain timbers, corrosion resistance of certain types of metal, malleability, availability, economics and sustainability considerations. It is likely that after the task is set, conversations and questions will naturally arise about which materials would be suitable for the task. This can be formalised if desired or take the form of a group investigation and informal presentations in which learners can demonstrate their research findings or justify their decisions in simple terms. A useful method is in the use of 'chooser charts'. (Nuffield Design and Technology) through which learners can explore and make decisions based upon information on the charts.

1.3 Describing good practice in sustainability and recycling

Learners should be able to describe in simple terms, the ways in which woods and metals can be recycled and the contribution they can make as part of the Practical Craft activities to support environmental awareness and sustainability.

Centres will develop their own approaches to promoting environmental stewardship and cultures for sustainability. Integrating sustainability concepts such as the sourcing and replenishment of materials, recycling and re-use could be introduced into lessons whenever it occurs naturally. Discussion during general workshop learning and teaching activities, site visits (where available and appropriate), audio or video, and online resources are all useful activities.

An important dimension of the Units is in developing, in the individual and the group, a culture of environmental stewardship and sustainability. Learners will follow where practice is exemplified. Where possible, visits to the scrap metal or wood bin to replace small parts will demonstrate a positive approach. Caution should always be applied – particularly in the case of scrap metal with edges and burrs.

Outcome 2
The learner will:

2 Work with a selected range of materials to complete basic woodworking and/or metalworking tasks by:

2.1 Selecting and preparing, with guidance, appropriate materials for the task
2.2 Cutting and shaping, with guidance, selected materials in accordance with the task
2.3 Using appropriate craft techniques, with guidance, to fix and join materials
2.4 Using tools and materials in accordance with recognised procedures and safe working practices

Notes on Outcome 2

2.1 Selecting and preparing, with guidance, appropriate materials for the task

In the selection of materials, learners should be made aware of common flaws in materials which can affect performance and workability. Not only will this assist in school or college, it will also help the learners select materials in DIY stores and other outlets for home projects and future life. For example, timbers could be checked for warp and twist, shakes and knots: metals for excessive corrosion or surface pitting. In terms of preparation learners should be made aware of how to ensure that material is square and true before marking out for project work — within the expectations of National 3.

2.2 Cutting and shaping, with guidance, selected materials in accordance with the task

Learners will be engaged in the activities of processing the materials using appropriate tools and equipment to meet the desired standard, safely, and using the care and attention the material requires.

Skills and understanding could be developed to understand the ways in which resistant materials respond to working. Many of these skills can be developed through tactile and experiential learning and achieving a feel for the materials – something which it is difficult to understand though talking or reading alone. For example the grain direction, required pressure on tooling, the speed of working and the subsequent effects.

2.3 Using appropriate craft techniques, with guidance, to fix and join materials

At National 3 level learners are likely to be using a basic range of joining, jointing and fixing techniques. Simple joints such as halving, T's or housings are likely to be the most commonly used and, in addition to gluing and pinning (simple principles of dovetail pinning would be useful) — drilling and screwing. In metalworking: riveting, spot welding, screws, nuts and bolts. Caution should be applied if using adhesive bonding for metal.

2.4 Using tools and materials in accordance with recognised procedures and safe working practices

Each centre already has its statutory obligations and local advice on health and safety practice. In addition it is likely that centres will have policies and approaches to learning and teaching which support best practice in the workshop environment.

Learners should be reminded of the importance and expectations of responsible working and the care and welfare of self and others. In addition most learners will already be aware and have previous experience of workshop and practical environments and there will be opportunities to visit these responsibilities throughout the Unit. Centres are likely to consider the learners positive attitudes to safety, care and attention, observation of learners' working procedures, responsible use of tools, conversations, simple question and answer, and other opportunities as providing evidence of this standard.

Approaches to delivery
In developing an approach to learning and teaching activities, centres may wish to use a number of small simple project items which build skills, confidence and the capacity to undertake more complex tasks.

By using a simple introductory item first; learners can establish some of the basic skills, knowledge, safe working practises and expectations associated with the workshop environment.

Additional items might reinforce and develop these skills in context of a simple assembled Item. Where this Unit is being undertaken as part of the Course this may provide a link to other Unit activities. Centres may wish to use short proficiency tasks to enable learners to develop the requisite skills prior to

undertaking the main item for example fixing techniques, gluing and pinning, screwing and preparatory drilling/countersinking.

It is important that learners can see the bigger picture and for each practical exercise, learners should be shown a completed example of the work to be undertaken, enabling them to visualise the object or item and observe the standard of work they are aiming for.

Centres will be familiar with, and practised in, staging demonstrations but may wish to draw upon additional reference material available on the Web or other audio visual resources. Centres should remember that this is a practical course with focus on the experiential and practical rather than the theoretical.

Advice specific to delivery of this Unit

Knowledge and understanding

Knowledge and understanding should not be taught in isolation from other aspects of the Unit. Practical examples should be used where possible to help learners to identify and select materials and in understanding good practice in recycling and sustainability. Developing knowledge and understanding through dialogue and practical application is a key aspect of this Course.

Tooling and materials

The following is indicative, but not mandatory, of the types of materials and tools which would support delivery of the Unit.

- **Marking tools** — rule, engineer's square, tri-square, marking gauge, scriber, odd-leg callipers, marking (or engineer's) — blue, centre punch, dividers. Centres may have other, appropriate or more contemporary tools which they commonly employ for similar tasks — these are acceptable.
- **Hand tools** — hand drill, brace, screw drivers, range of hammers, mallets, shears or snips, saws, folding bars, rivet set and snap, pop riveting gun — battery-powered alternatives may also be available for some tools.
- **Machine tools/mechanical tools** — pillar, bench or pedestal drill, box folder, powered fret saw, sander/band facer, spot welder.

Centres may use other tooling if desired for this Unit.

Materials — wood[1] and wood derivatives — pines, spruce, cedar, larch, oak, mahogany, sycamore, beech, birch, plywood, hardboard, MDF.

Advice on distribution of time

The distribution of time between the various Outcomes is a matter for professional judgement and is entirely at the discretion of the centre. As each Unit carries equal SCQF points, it is logical that the time will be evenly spread - although this is not mandatory and local conditions may apply.

Support

At National 3, learners are likely to require a reasonable level of guidance.

Meeting the needs of all learners

[1] Centres are unlikely to 'use' all these woods although learners may have knowledge of them. Caution should be applied when working or machining specific hardwoods and fibre boards with known respiratory effects. Specific woods will apply where outdoor projects are being undertaken.

When delivering this Unit in a multi-level situation, with some learners working towards National 3 and others towards National 4 Woodworking or Metalworking, consideration should be given to content and materials selections.
This Unit is not in direct hierarchy with any other Units at National 2 or National 4; however it may be used as a fall-back option for learners in a National 4 Practical Woodworking or Practical Metalworking class who do not achieve the standards requirements for that Course. Please see the *Course Support Notes* for further advice.

Useful resources
Where possible, centres should source or produce exemplars of completed work to enhance learners' ability to contextualise the Unit material. This may take the form of pre-built assemblies or workpieces that the learners can use directly or in combination with the assemblies or items they create.

Video clips and online resources
The Internet provides a valuable source of video clips and films of practical metalworking techniques, processes and practices. Learners may find these both informative and interesting in class and for self-study.

Online resources
- YouTube
- Focus Educational
- Technology Student
- Teaching Education Scotland
- STEM Central on Education Scotland
- Khan Academy
- Scottish Government
- Machine/tool manufacturers' websites

Developing skills for learning, skills for life and skills for work

Learners are expected to develop broad generic skills as an integral part of their learning experience. The *Unit Specification* lists the skills for learning, skills for life and skills for work that learners should develop through this Course. These are based on SQA's *Skills Framework: Skills for Learning, Skills for Life and Skills for Work* and must be built into the Unit where there are appropriate opportunities. The level of these skills will be appropriate to the level of the Unit.

The National 3 Working with Materials Unit holds opportunities to acquire and develop a number of the broad generic skills described in the SQA's *Skills Framework: Skills for Learning, Skills for Life and Skills for Work.* These opportunities will arise, for the most part, as a natural part of the learning and teaching process.

2 Numeracy	
2.2 Money, time and measurement	Measuring and marking out materials in accordance with working drawings. Interpreting and calculating dimensions and scale in drawings/diagrams/orthographic projections and applying them to work pieces. Checking the accuracy of completed components and assemblies against drawings and cutting lists. Manufacturing items to strict measurements of tolerances and accuracy. Discussion re costs in recycling.

5 Thinking skills	
5.2 Understanding	Understanding the purpose and function of various tools equipment and materials and explaining the correct use in a given context. Understanding of sustainability issues.
5.3 Applying	Learning new techniques and processes and applying them in practical tasks and making items. Planning and organising tools, equipment and materials in preparation for a practical activity. Applying practical skills to solve a problem in a given drawing or specification.

Approaches to assessment and gathering evidence

The learner must demonstrate attainment of all of the Outcomes and their associated assessment standards to pass the Unit. Assessment must be valid, reliable and fit for purpose.

SQA does not specify the methods of assessment to be used; assessors should use their professional judgement, subject knowledge and experience, and understanding of their learners, to determine the most appropriate ways to generate evidence and the conditions and contexts in which they are used. In many cases, evidence will be gathered during normal classroom activities, rather than through formal assessment instruments. Whenever possible, the practical nature of this Unit should not be compromised up by placing too much emphasis on the assessment of the learner than is strictly necessary for the successful completion of the individual Outcomes

The learner should be made aware that assessment is an ongoing process. Learners should also be kept informed of their progress and areas that they need to improve upon to meet the standards — remembering that this Course and Unit is at National 3. Centres may wish to provide physical exemplification of what meets the standard. Lengthy written tests are not required for tool, process or equipment recognition and use. Short-answer, sentence completion or multiple choice tests that are mainly of a visual nature might be used.

Centres are expected to maintain a detailed record of evidence, including photographic, oral or observational evidence. Evidence in written or presentation format should be retained by the centre.

All evidence should be gathered under supervised conditions.

In order to ensure that the learner's work is their own, the following strategies are recommended:

- personal interviews with learners where teachers can ask additional questions about the completed work
- asking learners to do an oral presentation on their work
- using checklists to record the authentication activity

Combining assessment within the Unit

It may be possible to develop learning/assessment activities which provide evidence that learners have achieved the standards for more than one Outcome within the Unit, thereby reducing the assessment burden on learners. Combining assessment of Outcomes (or parts of Outcomes) in this way is perfectly acceptable, but needs to be carefully managed to ensure that all assessment standards and Outcomes for the Unit are covered. This is particularly true if evidence is gathered for the Unit as a whole through one assessment and a single context. If this approach is used, it must be clear how the evidence covers each Outcome.

A holistic approach to assessment will enrich the assessment process for the learner, avoid duplication of assessment, provide more time for learning and teaching, and allow Centres to manage the assessment process more efficiently. In some instances work carried out for other Units can be used as evidence of the learner's performance in this Unit. If this is done it must be clear where such evidence has been taken from.

For this Unit, learners will be required to provide evidence of:

- knowledge and understanding of a variety of woodworking and/or metalworking materials
- the ability to cut, shape, fix and join a selected range of materials (metal and/or wood) using appropriate craft techniques
- knowledge and understanding of good practice in sustainability and recycling in a practical craft context
- the ability to work in accordance with recognised procedures and safe working practices

Where learners have produced a practice item of a better quality this may be used as evidence that the required skill has been achieved. Alternatively in some instances learners could undertake additional small practical exercises that will allow for reassessment in individual skills.

Some learners may require additional support and help to ensure success in the use of tools and equipment, but learners must also be aware that the overall Unit and Course assessments takes into account the amount of assistance given by the teacher/lecturer, and that ultimately a degree of independence is expected from the learner.

Exemplification of assessment for this Unit is provided in the *National Assessment Resource*.

Equality and inclusion

The requirement to develop practical skills involving the use of equipment and tools may present challenges for learners with physical or visual impairment. In such cases, reasonable adjustments may be appropriate, including (for example) the use of adapted equipment or alternative assistive technologies.
It is recognised that centres have their own duties under equality and other legislation and policy initiatives. The guidance given in this document is designed to sit alongside these duties but is specific to the delivery and assessment of the Unit.

It is recognised that centres have their own duties under equality and other legislation and policy initiatives. The guidance given in these *Unit Support Notes* is designed to sit alongside these duties but is specific to the delivery and assessment of the Unit.

Alternative approaches to Unit assessment to take account of the specific needs of learners can be used. However, the centre must be satisfied that the integrity of the assessment is maintained and that the alternative approach to assessment will, in fact, generate the necessary evidence of achievement

For more information on assessment arrangements and when centres should seek SQA approval for alternative assessment arrangements, go to www.sqa.org.uk/14976.html.

Appendix 1: Reference documents

The following reference documents will provide useful information and background.

- Assessment Arrangements (for disabled learners and/or those with additional support needs) — various publications on SQA's website: http://www.sqa.org.uk/sqa/14976.html
- *Building the Curriculum 4: Skills for learning, skills for life and skills for work*
- *Building the Curriculum 5: A framework for assessment*
- Course Specifications
- Design Principles for National Courses
- *Guide to Assessment* (June 2008)
- Overview of Qualification Reports
- *Overview of Qualification Reports*
- *Principles and practice papers for curriculum areas*
- *Research Report 4 — Less is More: Good Practice in Reducing Assessment Time*
- *Coursework Authenticity — a Guide for Teachers and Lecturers*
- *SCQF Handbook: User Guide (published 2009)* and SCQF level descriptors (to be reviewed during 2011 to 2012): www.sqa.org.uk/sqa/4595.html
- *SQA Skills Framework: Skills for Learning, Skills for Life and Skills for Work*
- *Skills for Learning, Skills for Life and Skills for Work: Using the Curriculum Tool*
- *Template and Guidance for Unit Assessment Exemplification*
- SQA Guidelines on e-assessment for Schools
- SQA Guidelines on Online Assessment for Further Education
- SQA e-assessment web page: www.sqa.org.uk/sqa/5606.html

Administrative information

Published: April 2012 (version 1.0)

Superclass: to be advised

History of changes to Unit Support Notes

Course details	Version	Description of change	Authorised by	Date

Unit Support Notes

Unit Support Notes — Making an Item (National 3)

Please refer to the note of changes at the end of this document for details of changes from previous version (where applicable).

Introduction

These support notes are not mandatory. They provide advice and guidance to support the delivery of the Making an Item (National 4) Unit. They are intended for teachers and lecturers who are delivering this Unit. They should be read in conjunction with the:

- the Unit Specification
- the Course Specification
- the Course Support Notes
- appropriate assessment support materials

General guidance on the Unit

Aims

The general aim of this Unit, as stated in the *Unit Specification*, is for learners to develop practical skills in using a range of basic tools and machines for woodworking and/or metalworking, along with surface preparation and finishing techniques. Learners will develop skills to manufacture an item from wood, metal, or a combination of these materials, following simple drawings. Through these activities, learners will also develop their knowledge of sustainability and recycling, as well as an appreciation of safe working practices in a workshop context.

This Unit will also give learners the opportunity to develop their numeracy and thinking skills.

The Unit can be delivered as:

- a stand-alone Unit
- part of the National 3 Practical Craft Skills Course

Progression into this Unit

Entry to this Unit is at the discretion of the centre. However, learners would normally be expected to have attained useful skills, knowledge and understanding from prior learning within their broad general education.

Learners may have also gained relevant skills and knowledge through other prior learning, life and work experiences.

Skills, knowledge and understanding covered in this Unit

Information about skills, knowledge and understanding is given in the National 3 Practical Craft Skills *Course Support Notes*.

Teachers and lecturers are free to select the skills, knowledge, understanding and contexts which are most appropriate for delivery in their centres.

Progression from this Unit

On successful completion of this Unit, the following Units and Courses provide a selection of progression pathways available to learners:

- National 4 Practical Woodworking Course or relevant Units
- National 4 Practical Metalworking Course or relevant Units
- National Progression Awards in a range of practical technology subjects
- Skills for Work Courses and sector specific SQA qualifications
- a range of other stand-alone Units in practical technologies contexts

Approaches to learning and teaching

General guidance
The Unit is designed to provide flexibility and choice for both the learner and the teacher and as such approaches taken by centres will be varied according to their needs, resources and local contexts.

Learning and teaching activities should be designed to stimulate learners' interest, and to develop skills and knowledge to the standard required by the Outcomes and to the level defined by the associated assessment standards.

Tasks and activities throughout the Unit should be linked to relevant contexts. The Unit and Course Specifications define the skills and knowledge required, but leave complete freedom to the teacher or learner to select interesting contexts in which to develop these.

The National 3 Practical Craft Skills Course Support Notes provide broad guidance on approaches to learning and teaching and assessment which will provide common information in delivering the Units of the course.

Delivering the Unit within the Practical Craft Skills Course
If centres are delivering this Unit as part of the National 3 Practical Craft Skills Course then it is likely that development of knowledge, principles of use and familiarity and confidence with tools and materials should be the starting point. As such it is recommended that this Unit should be the last that is approached allowing learners to build confidence in using tools, materials, equipment and processes in an appropriate context before learning to apply finishing techniques and making a complete item.

Sequence of delivery of Outcomes within the Unit

The sequence of delivery of the Outcomes and the distribution of time between the Outcomes is a matter for professional judgement and is entirely at the discretion of the centre. Possible approaches are suggested, but other possibilities exist.

It is important to ensure adequate time for learning activities designed to develop learners' skills and knowledge before asking learners to produce evidence that they have achieved the required standards

There are two Outcomes in this Unit:

1 Manufacture a wooden or metal item from working drawings
2 Apply appropriate finishes to a wooden or metal item

Outcome 1
The learner will:

1 Manufacture a wooden or metal item from working drawings by:

1.1 Checking, with guidance, materials supplied against a cutting list and/or working drawings
1.2 Marking out the parts in accordance with working drawings, with guidance
1.3 Assembling the parts, with guidance, such that join gaps do not exceed a reasonable size
1.4 Reviewing manufactured item against working drawings
1.5 Working in accordance with recognised procedures and safe working practices

Notes on Outcome 1

1.1 Checking, with guidance, materials supplied against a cutting list and/or working drawings

If undertaking this Unit as part of the Course, learners will already have developed competences in reading simple drawings and cutting or parts lists. In the Making an Item Unit, there is an expectation that the drawing and lists will have an increased demand as it attempts to pull together some of the skills and knowledge from the other Units — although it should be remembered that this level is National 3.

Learners might be posed with a set of materials with a shortfall in components and asked to identify what is missing. Alternatively, they may be given extra materials — say three components instead of two — and asked to identify and return the extra component. This could be undertaken in the form of short proficiency development tasks and later as a bigger exercise when preparing to make the item.

1.2 Marking out the parts in accordance with working drawings, with guidance

When presented with a working drawing, the learner might be given the opportunity to mark out as much of the work as possible without guidance. Where the learner struggles, guidance can be given. Where the Unit is being taken as part of the Course, learners will have developed proficiency in the Working with Tools Unit to support this activity. Where this Unit is being taken as a stand-alone, then time may be required to develop those proficiencies. At National 3, a reasonable standard of accuracy is required and centres should look to the learner's best work.

1.3 Assembling the parts, with guidance, such that join gaps do not exceed a reasonable size

In assembling parts or components it is good practice for the learner to appreciate the importance of a dry run for assembly. It will allow the learner to note where there are difficulties in assembling, where assistance will be required (an extra pair of hands), where pads may be needed and indeed if the parts need adjustment for size and fit — prior to gluing, fixing or assembling. This is the case in both metal and wood projects. Guidance and assistance may be given during assembly as the item may be awkward to assemble.

It is acceptable for learners to complete mixed materials projects — especially where the Unit has been taken as part of the Course and learners have experience of both materials. This is likely to make the experience more enjoyable – for example, a metal item fixed to a wooden mounting board or a wooden item mounted on metal legs or supports.

1.4 Reviewing manufactured item against working drawings

In reviewing, time should be taken to measure the finished item and compare it against the working drawing. Learners are likely to record the relative successes and comment upon any differences that they observe and the reasons behind them. Comments should be useful and suggest how errors may be overtaken in subsequent work. Centres are reminded that this is a reviewing activity and can be teacher led or teacher/learner partnership activity.

1.5 Working in accordance with recognised procedures and safe working practices

Each centre already has its statutory obligations and local advice on health and safety practice. In addition it is likely that centres will have policies and approaches to learning and teaching which support best practice in the workshop environment.

Learners should be reminded of the importance and expectations of responsible working and the care and welfare of self and others. In addition most learners will already be aware and have previous experience of workshop and practical environments and there will be opportunities to visit these responsibilities throughout the Unit. Centres are likely to consider the learners positive attitudes to safety, care and attention, observation of learners' working procedures, responsible use of equipment and materials, conversations, simple question and answer and other opportunities as providing evidence of this standard.

With particular reference to finishes, data sheets are available from manufacturers and sellers (if information is not on the product tin) which describes the hazards and precautionary measures for the product. In general they relate to ventilation, personal contact and disposal. It would be useful to read though these with learners and explain the reasons behind them. In addition it will assist learners when making product choices out of school or college.

Outcome 2
The learner will:

1 Apply appropriate finishes to a wooden or metal item by:

1.1 Preparing surfaces, with guidance, in accordance with instructions and good practice to a reasonable standard
1.2 Preparing and applying appropriate surface finishes, with guidance, and with minimal blemishes or marks, in accordance with instructions
1.3 Carrying out good practice in terms of sustainability and recycling

Notes on Outcome 2

2.1 Preparing surfaces, with guidance, in accordance with instructions and good practice to a reasonable standard

In this Standard the focus is on the preparation of materials prior to applying finishes. Where certain finishes are used, eg several coats of varnish, additional preparation will be required between coats to reveal a lustre or gloss. Guidance/instructions should be given to learners on the techniques used in preparation.

Where woods are being prepared learners are likely to use several grades of abrasive paper and raise the grain. All marking lines and glue marks should be removed prior to applying a finish. In most cases corners and edges are likely to be arrised to prevent thinning of the finish.

In preparation of metal, where ferrous metals are being painted, surface pitting, marks and areas of surface corrosion should be removed to allow the application to be even and minimise blemishes. Cleaning metal prior to blueing or plastic coating is recommended if it they are used as a finish. If painting materials, centres will decide on the number of coats and types of substrates, ie whether primers and undercoats are being used or top coats only and the necessary stages of preparation related to these.

In finishing non-ferrous metals learners are likely to apply increasing grades of abrasive paper, followed by pastes and polishes. At National 3 polishing is likely to be done by hand and not machine. Centres may decide if a lacquer finish is required and if so the metal will need pre-cleaned.

In preparing for all finishes, emphasis should be placed on the time needed to fully prepare, the approaches to cleanliness and detail.

It may be useful to show the effects aesthetic differences of well prepared and poorly prepared surfaces and the knock on effects after a finish is applied as they can often be difficult to visualise if they are just being described. The may allow for a range of useful resources to be made for learning and teaching

2.2 Preparing and applying appropriate surface finishes, with guidance, and with minimal blemishes or marks, in accordance with instructions

Learners do not often fully appreciate how important the finish is in relation to the quality and the impact of the item. It might be useful to allow learners to apply finishes to small surplus pieces of material as they practice and achieve a feel for applying finishes. Applying a quality finish requires practice, skill and patience. When painting or varnishing, learners should be encouraged to limit the amount of paint on the brush and be shown how to lay off the paint in vertical and horizontal layers finishing with a light upstroke to avoid runs. When applying wax, learners will observe the effects of the application of several coats in first sealing the grain and then providing lustre to the wood — sealer may be applied first if required. Where oils are to be used careful application and repeated feeding is important. Where the item supports food preparation, learners should be informed of the correct oil to use and that oil feeding is required after washing. Centres should be looking for the learner's best examples for assessment.
In the application of finishes to metals there are a range of appropriate finishes, paint, lacquer, dip coating, and bluing — some centres may even have small

anodising tanks. It is for the centre and learners to decide which is most appropriate in their own context.

Evidence is likely to be a mixture of observational, conversational and question and answer. Centres are well versed in what represents a quality finish.

2.3 Carrying out good practice in terms of sustainability and recycling

There are a variety of approaches that might be taken to explore sustainability, recycling and environmental issues – particularly when the learners are using and learning about finishes. Where practical, water or acrylic based finishes are more user and environmentally friendly than oil based alternatives. The disposal paragraph on most product containers will advise how the product should be cleaned from brushes or disposed of. For many of these finishes it is not appropriate to dispose of them into the water course. This might be an interesting topic to cover within teaching.

Learners should be helped to understand what they can do as individuals and a class group in terms of practical sustainability. An important dimension of the Unit is in developing, in the individual and the group, a culture of environmental stewardship and sustainability.

Approaches to delivery
Centres are free to deliver the Unit in a form which best suits their learners and their local context. It is likely that the item which is made is not overly complex and that the size is manageable for learner and centre. That aside, centres may wish to undertake projects which contribute in an enterprising way, to other areas of the centre — frames for Art and Design, stands for Music or Science, or to the environment in supporting wild-life projects.

Centres will be familiar with, and practised in, staging demonstrations but may wish to draw upon additional reference material available on the Web or other audio visual resources. Centres should remember that this is a practical course with focus on the experiential and practical rather than the theoretical.

Advice specific to delivery of this Unit

Knowledge and understanding
Knowledge and understanding should not be taught in isolation from other aspects of the Unit. Practical examples should be used where possible to help learners is to identify the tools, equipment and materials required. Developing knowledge and understanding through dialogue and practical application is a key aspect of this Course.

Manufacture a wooden or metal item from working drawings
The working drawings will give the learner the information required to complete the Item. They should be encouraged to work independently on the manufacture of the Item and depending on the prior experience of the learner; some initial practice work will normally be carried-out. This could take the form of simple introductory item that can be completed in a few lessons. This will help the learners understand a working drawing and give confidence and become a successful learner.

Applying an appropriate finish to a wooden or metal item
Learners should be introduced to the concept of preparing and applying finishes to wood or metal. On wood the learners will need to be introduced to a variety of

different qualities of sand paper/glass paper and how to use them correctly (direction of grain, coarseness of paper). The quality and type of finish will need to be taken into consideration depending on the Item. Learners could use a brush, spray, or cloth to apply the finish according to its type.

On metal, learners could use filing followed by emery and wet and dry paper to prepare for finishing. The finish is very dependent on the Item, a clear lacquer, gloss paint, dip-coating; blueing or polishes are all acceptable finishes.

Recycling and sustainability
Integrating sustainability concepts such as the sourcing and disposal of materials (and in this Unit especially, used finishes), recycling and re-use can be introduced into lessons whenever it occurs naturally.

Advice on distribution of time
The distribution of time between the various Outcomes is a matter for professional judgement and is entirely at the discretion of the centre. As each Unit carries equal SCQF points, it is logical that the time will be evenly spread - although this is not mandatory and local conditions may apply.

Support
At National 3, learners are likely to require a reasonable level of guidance.

Meeting the needs of all learners
When delivering this Unit in a multi-level situation, with some learners working towards National 3 and others towards National 4 Woodworking or Metalworking, consideration should be given to content and materials selections.

This Unit is not in direct hierarchy with any other Units at National 2 or National 4; however it may be used as a fall-back option for learners in a National 4 Practical Woodworking or Practical Metalworking class who do not achieve the standards requirements for that Course. Please see the *Course Support Notes* for further advice.

Useful resources
Where possible, centres should source or produce exemplars of completed work to enhance learners' ability to contextualise the Unit material. This may take the form of pre-built assemblies or workpieces that the learners can use directly or in combination with the assemblies or items they create.

Video clips and online resources
The internet provides a valuable source of video clips and films of practical metalworking techniques, processes and practices. Learners may find these both informative and interesting in class and for self-study.

Online resources:
- YouTube
- Focus Educational
- Technology Student
- Teaching Education Scotland
- STEM Central on Education Scotland
- Khan Academy
- Scottish Government
- Machine/tool manufacturers websites

Developing skills for learning, skills for life and skills for work

Learners are expected to develop broad generic skills as an integral part of their learning experience. The *Unit Specification* lists the skills for learning, skills for life and skills for work that learners should develop through this Course. These are based on SQA's *Skills Framework: Skills for Learning, Skills for Life and Skills for Work* and must be built into the Unit where there are appropriate opportunities. The level of these skills will be appropriate to the level of the Unit.

The Making and Item (National 3) Unit holds opportunities to acquire and develop a number of the broad generic skills described in the SQA's *Skills Framework: Skills for Learning, Skills for Life and Skills for Work.* These opportunities will arise, for the most part, as a natural part of the learning and teaching process.

2 Numeracy	
2.2 Money, time and measurement	Measuring and marking out materials in accordance with working drawings. Interpreting and calculating dimensions and scale in drawings/diagrams/ orthographic projections and applying them to work pieces. Checking the accuracy of completed components and assemblies against drawings and cutting lists. Manufacturing items to strict measurements of tolerances and accuracy. Discussion re costs in recycling.

5 Thinking skills	
5.2 Understanding	Understanding the purpose of various tools, equipment and materials and explaining the correct use in a given context. Understanding of sustainability issues.
5.3 Applying	Learning new techniques and processes and applying them in practical tasks and making an item. Planning and organising tools, equipment and materials in preparation for a practical activity. Applying practical skills to solve a problem in a given drawing or specification.

Approaches to assessment and gathering evidence

The learner must demonstrate attainment of all of the Outcomes and their associated assessment standards to pass the Unit. Assessment must be valid, reliable and fit for purpose.

SQA does not specify the methods of assessment to be used; assessors should use their professional judgement, subject knowledge and experience, and understanding of their learners, to determine the most appropriate ways to generate evidence and the conditions and contexts in which they are used. In many cases, evidence will be gathered during normal classroom activities, rather than through formal assessment instruments. Whenever possible, the practical nature of this Unit should not be compromised up by placing too much emphasis on the assessment of the learner than is strictly necessary for the successful completion of the individual Outcomes

The learner should be made aware that assessment is an ongoing process. Learners should also be kept informed of their progress and areas that they need to improve upon to meet the standards — remembering that this Unit is at National 3. Centres may wish to provide physical exemplification of what meets the standard. Lengthy written tests are not required for tool, process or equipment recognition and use. Short-answer, sentence completion or multiple choice tests that are mainly of a visual nature might be used.

Centres are expected to maintain a detailed record of evidence, including photographic, oral or observational evidence. Evidence in written or presentation format should be retained by the centre.

All evidence should be gathered under supervised conditions.

In order to ensure that the learner's work is their own, the following strategies are recommended:

- personal interviews with learners where teachers can ask additional questions about the completed work
- asking learners to do an oral presentation on their work
- using checklists to record the authentication activity

Combining assessment within the Unit

It may be possible to develop learning/assessment activities which provide evidence that learners have achieved the standards for more than one Outcome within the Unit, thereby reducing the assessment burden on learners. Combining assessment of Outcomes (or parts of Outcomes) in this way is perfectly acceptable, but needs to be carefully managed to ensure that all assessment standards and Outcomes for the Unit are covered. This is particularly true if evidence is gathered for the Unit as a whole through one assessment and a single context. If this approach is used, it must be clear how the evidence covers each Outcome.

A holistic approach to assessment will enrich the assessment process for the learner, provide more time for learning and teaching and allow Centres to manage the assessment process more efficiently. In some instances work carried out for other Units can be used as evidence of the learner's performance in this Unit. If this is done it must be clear where such evidence has been taken from.

For this Unit, learners will be required to provide evidence of:

- the ability to manufacture a wooden or metal item from working drawings
- knowledge of a variety of woodworking and/or metalworking finishing techniques
- knowledge and understanding of good practice in sustainability and recycling in a practical craft context
- the ability to work in accordance with recognised procedures and safe working practices

Where learners have produced a practice item of a better quality this may be used as evidence that the required skill has been achieved. Alternatively in some instances learners could undertake additional small practical exercises that will allow for reassessment in individual skills.

Some learners may require additional support and help to ensure success in the use of tools and equipment, but learners must also be aware that the overall Unit and Course assessments takes into account the amount of assistance given by the teacher/lecturer, and that ultimately a degree of independence is expected from the learner.

Exemplification of assessment for this Unit is provided in the *National Assessment Resource*.

Equality and inclusion

The requirement to develop practical skills involving the use of equipment and tools may present challenges for learners with physical or visual impairment. In such cases, reasonable adjustments may be appropriate, including (for example) the use of adapted equipment or alternative assistive technologies.

It is recognised that centres have their own duties under equality and other legislation and policy initiatives. The guidance given in this document is designed to sit alongside these duties but is specific to the delivery and assessment of the Unit.

Alternative approaches to Unit assessment to take account of the specific needs of learners can be used. However, the centre must be satisfied that the integrity of the assessment is maintained and that the alternative approach to assessment will, in fact, generate the necessary evidence of achievement

For more information on assessment arrangements and when centres should seek SQA approval for alternative assessment arrangements, go to www.sqa.org.uk/14976.html.

Appendix 1: Reference documents

The following reference documents will provide useful information and background.

- Assessment Arrangements (for disabled learners and/or those with additional support needs) — various publications on SQA's website: http://www.sqa.org.uk/sqa/14976.html
- *Building the Curriculum 4: Skills for learning, skills for life and skills for work*
- *Building the Curriculum 5: A framework for assessment*
- Course Specifications
- Design Principles for National Courses
- *Guide to Assessment* (June 2008)
- Overview of Qualification Reports
- *Overview of Qualification Reports*
- *Principles and practice papers for curriculum areas*
- *Research Report 4 — Less is More: Good Practice in Reducing Assessment Time*
- *Coursework Authenticity — a Guide for Teachers and Lecturers*
- *SCQF Handbook: User Guide (published 2009)* and SCQF level descriptors (to be reviewed during 2011 to 2012): www.sqa.org.uk/sqa/4595.html
- *SQA Skills Framework: Skills for Learning, Skills for Life and Skills for Work*
- *Skills for Learning, Skills for Life and Skills for Work: Using the Curriculum Tool*
- *Template and Guidance for Unit Assessment Exemplification*
- SQA Guidelines on e-assessment for Schools
- SQA Guidelines on Online Assessment for Further Education
- SQA e-assessment web page: www.sqa.org.uk/sqa/5606.html

Administrative information

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Superclass: to be advised

History of changes to Unit Support Notes

Course details	Version	Description of change	Authorised by	Date