

National 4 Practical Woodworking Course Support Notes



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

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Introduction

These support notes are not mandatory. They provide advice and guidance on approaches to delivering and assessing the National 4 Practical Woodworking 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*, the *Added Value Unit Specification*, and the Unit Specifications for the Units in the Course.

General guidance on the Course

Aims

The aims of the Course, as stated in the *Course Specification*, are to enable learners to develop:

- ◆ skills in woodworking techniques
- ◆ skills in measuring and marking out timber sections and sheet materials
- ◆ safe working practices in workshop environments
- ◆ practical creativity and problem solving skills
- ◆ an understanding of sustainability issues in a practical woodworking context

This Course will also give learners the opportunity to develop thinking skills and skills in numeracy, employability, enterprise and citizenship.

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 any of the following, while not mandatory, are likely to be helpful as a basis for further learning for this Course.

Other SQA Qualifications

- ◆ National 3 Practical Craft Skills Course or relevant Units
- ◆ National 3 Design and Technology Course or relevant Units

Experiences and outcomes

National Courses have been designed to draw on and build on the curriculum experiences and outcomes as appropriate. Qualifications developed for the senior phase of secondary education are benchmarked against SCQF levels. SCQF level 4 and the curriculum level 4 are broadly equivalent in terms of level of demand although qualifications at SCQF level 4 will be more specific to allow for more specialist study of subjects.

Learners who have completed Curriculum for Excellence experiences and outcomes will find these an appropriate basis for doing the Course.

In this Course, any of the following may be relevant.

- ◆ I can confidently apply preparation techniques and processes to manufacture items using specialist skills, materials, tools, software in my place of learning, at home or in the world of work. (TCH 4-13b)
- ◆ Showing creativity and innovation, I can design, plan, and produce increasingly complex items which satisfy the user at home or in the world of work. (TCH 4-14a)
- ◆ I can explore properties and functionality of materials, tools, software or control technology to establish their suitability for a task at home or in the world of work. (TCH 4-14c)
- ◆ By examining and discussing the features of everyday products, I am gaining awareness of the factors influencing design and can evaluate how these products meet the needs of users. (TCH – 4-14d)

Other experience

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

Skills, knowledge and understanding covered in this Course

This section provides further advice and guidance about skills, knowledge and understanding that could be included in the Course.

Note: teachers and lecturers should refer to the *Added Value Unit Specification* for mandatory information about the skills, knowledge and understanding to be covered in this Course.

The mandatory skills may be developed throughout the Course. The table below shows where there are significant opportunities to develop these in individual Units.

Mandatory skills and knowledge	Flat-Frame Construction	Carcass Construction	Machining and Finishing	Added value
Using, with guidance, a range of woodworking tools, equipment and materials safely and correctly for straightforward and familiar woodworking tasks	✓	✓	✓	✓
Reading and interpreting simple drawings and diagrams in familiar contexts	✓	✓	✓	✓
Measuring and marking out timber sections and sheet materials in preparation for straightforward cutting and shaping tasks	✓	✓	✓	✓
Practical creativity in the context of simple and familiar woodworking tasks			✓	✓
Following, with guidance, given stages of a practical problem-solving approach to woodworking tasks	✓	✓	✓	✓
Applying knowledge and understanding of safe working practices in a workshop environment	✓	✓	✓	✓

Knowledge of the basic properties and uses of common woodworking materials	✓	✓	✓	
Knowledge of sustainability issues in a practical woodworking context	✓	✓	✓	

Progression from this Course

This Course or its components may provide progression to:

- ◆ National 5 Practical Woodworking Course or relevant Units
- ◆ National Certificate Group Awards (NCGAs)
- ◆ a range of other practical technological Courses at National 4
- ◆ Skills for Work and sector-specific SQA Courses

and ultimately, for some to employment, apprenticeships and/or training in practical technology and related fields including:

- ◆ crafts
- ◆ construction
- ◆ manufacturing
- ◆ engineering
- ◆ theatre
- ◆ visual arts

Hierarchies

Hierarchy is the term used to describe Courses and Units which form a structured sequence involving two or more SCQF levels.

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.

This Course is designed in hierarchy with the corresponding Course at National 5, and has the same structure of three Units with corresponding titles.

There is no direct hierarchy between National 4 Practical Woodworking Course and the National 3 Practical Craft Skills, but there is a fall back arrangement in place. This means that a learner who gains all three Units of the National 4 Practical Woodworking Course, 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	

Appendix 2 contains a table showing the relationship between the mandatory knowledge and understanding at National 4 and National 5. This may be useful for:

- ◆ designing and planning learning activities for multi-level groups including National 4 and National 5 learners
- ◆ ensuring seamless progression between levels
- ◆ identifying important prior learning for learners at National 5

Teachers should also refer to the Outcomes and Assessment Standards for each level when planning delivery.

Approaches to learning and teaching

Practical Woodworking, 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 focused 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.

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. Where possible, visits to relevant local industrial/workshop environments should be undertaken. The use of video and online resources may also provide valuable resources.

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.

When delivering the Units, reference should be made to the appropriate content statements within the 'Further mandatory information on Course coverage' section of the *Added Value Unit Specification* to ensure the required breadth of knowledge is covered. A range of approaches to learning and teaching is appropriate to the delivery of the Course.

Assessment activities, used to support learning, may usefully be blended with learning activities throughout the Course, for example, by:

- ◆ 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.

Working towards Units and Course

Learning and teaching activities should be designed to develop both:

- ◆ skills and knowledge to the standard required by each Unit and to the level defined by the associated Outcomes and Assessment Standards
- ◆ the ability to apply the breadth of knowledge, understanding and skills required to complete the Added Value Unit successfully

Meeting the needs of all learners

Within any class, each learner has individual strengths and areas for improvement. For example, within a National 4 class, there may be learners capable of achieving National 5 standards in some aspects of the Course. Where possible, they should be given the opportunity to do so.

Teachers need to consider both the Outcomes and Assessment Standards, and the content tables in Appendix 2, to identify opportunities where learners may achieve National 5 standards.

When delivering this Course to a group of learners, with some working towards National 4 and others towards National 5, it may be useful for teachers to identify activities covering common knowledge and skills for all learners, and additional activities required for National 5 learners. This is particularly appropriate where the National 5 learners have come directly from the broad general education without doing National 4.

However, where National 5 learners have studied National 4 in a previous year, it is important to provide them with new and different contexts for learning to avoid demotivation.

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.

Sequence of delivery of Units

The sequence of delivery of the Units within the Course is a matter of professional judgement and is at the discretion of the centre. This decision may well be influenced by local factors such as resource or staffing allocation, staff expertise and timetable structure.

Whether the decision is taken to deliver the Units sequentially or in parallel, it is recommended that, where possible, the initial part of the *Flat-Frame Construction* Unit should be delivered before commencing other Units so that learners can develop their initial skills in reading drawings and basic marking out.

It would be good practice to complete all Units before attempting the Added Value practical activity: *Making a Finished Product from Wood*. This approach will give learners the opportunity to develop the skills and knowledge to enable them to successfully attempt the practical activity for Course assessment.

Fitting the Added Value Unit into a Course plan

As the Added Value Unit is intended to build on knowledge, understanding and skills developed through the other Units, it will normally be delivered at the end of the Course. However, it may be possible to begin work on the Added Value Unit at an earlier stage, but only where it is clear that learners have already gained the required skills and knowledge.

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 of the centre. Each Unit is likely to require an approximately equal time allocation, although this may depend on the learners' prior knowledge and experiences in the different topic areas.

Within the time allocated for the Added Value Unit, time will be required for:

- ◆ preparation for the practical activity, which could include considering exemplars and practising the application and integration of skills
- ◆ carrying out the stages of the practical activity with teacher guidance and support
- ◆ maintaining a progress diary

Resources

Centres are likely to find that current workshop and classroom resources provide all that is required to deliver the Course. In addition, where knowledge is being consolidated, centres may use digital resources to support learning.

Teaching and learning materials

Centres may also be able to adapt existing activities and resources to support and consolidate learning such as online interactive quizzes and activities currently well utilised in centres.

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

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

Added value

Courses from National 4 to Advanced Higher include assessment of added value. At National 4, the added value will be assessed in the Added Value Unit.

Information given in the *Course Specification* and the *Added Value Unit Specification* about the assessment of added value is mandatory.

Full details of assessment of the practical activity are included in the *Added Value Unit Specification*.

The Added Value Unit will assess the application of skills and knowledge which learners will have developed through the other Units. Evidence for this Unit will be generated through a practical activity in which learners will be required to make a finished product in wood.

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 4 Practical Woodworking Course is focused on delivering different, but interrelated, skills, knowledge and understanding. When Units are taken as part of the Course, there will 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 and which Assessment Standards it evidences.

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. This is for both candidates and centres to consider.

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](#)

Appendix 2: Comparison between National 4 and National 5

The table below shows the relationship between the mandatory National 4 and National 5 skills, knowledge, understanding, and may be useful for:

- ◆ designing and planning learning activities for multi-level classes
- ◆ ensuring seamless progression between levels
- ◆ identifying important prior learning for learners at National 5

Teachers should also refer to the Outcomes and Assessment Standards for each level when planning delivery.

NB: Where similar topics, tools, equipment, materials and processes are used at both levels, the Outcomes, Assessment Standards and Evidence Requirements distinguish the level of treatment.

Identification and use of the following tools and processes:		
Topic	National 4	National 5
Measuring and marking out	Rule, tape measure, try-square, marking gauge, templates, marking knife, outside calipers Units of measurement	As at National 4, plus: Mortise gauge, cutting gauge, sliding bevel, dove-tail template
Reading and interpreting drawings and documents	Working drawings, pictorial drawings, diagrams, cutting lists Knowledge and understanding of orthographic projection scale, dimensioning (linear, radial and diameter) and basic drawing conventions including: line types, centre lines, and hidden detail	
Materials	Softwoods (white and red pine, cedar and larch) Hardwoods (ash, oak, beech, mahogany/meranti) Manufactured boards and veneered manufactured boards (chipboard, plywood, MDF and blockboard)	
Bench work	<ul style="list-style-type: none"> ◆ saws (tenon and coping) ◆ chisels (bevelled edge, mortise and firmer) ◆ mallet ◆ hammers ◆ pincers ◆ planes (jack , smoothing, plough, bull-nose, rebate, combination) ◆ hand drills and braces ◆ screwdrivers ◆ sawing board/bench hook ◆ hand router ◆ bradawl ◆ other common bench tools 	As at National 4, plus: <ul style="list-style-type: none"> ◆ saws (tenon, coping, ripsaw, cross-cut and panel) ◆ spoke shave

	Basic knowledge and understanding of tool care and maintenance: reporting faults, setting a plane honing a chisel	Knowledge and understanding of tool care and maintenance: reporting faults, setting a plane, honing a chisel, honing a plane iron
Cramping	<ul style="list-style-type: none"> ◆ cramps (sash, G, quick release) 	As at National 4, plus: <ul style="list-style-type: none"> ◆ cramps (sash, G, quick release, mitre, band) ◆ string and block ◆ other cramping devices
Flat-frame jointing techniques	<p>Flat-frame joints:</p> <ul style="list-style-type: none"> ◆ butt ◆ corner lap ◆ various 'T' ◆ cross-halving ◆ mortise and tenon (stub and through, no haunch) ◆ dowel 	<p>As at National 4, plus:</p> <p>Flat-frame joints:</p> <ul style="list-style-type: none"> ◆ various corner (including mitre) ◆ various halving joints (including cross) ◆ mortise and tenon (stub, through and haunched) ◆ bridle <p>Selecting appropriate joint types for given scenarios</p>
Carcase jointing techniques	<p>Carcase joints:</p> <ul style="list-style-type: none"> ◆ butt ◆ corner rebates ◆ through housing ◆ dowel 	<p>As at National 4, plus:</p> <ul style="list-style-type: none"> ◆ stopped housing joints ◆ through dove-tail joints <p>Selecting appropriate joint types for given scenarios</p>
Mechanical fixing and adhesive bonding	<p>Common nails (round and oval brad), pins, screws (roundhead and countersunk)</p> <p>Proprietary flat-frame fixings</p> <p>Proprietary carcase construction fixings</p> <p>Knock-down fixings</p> <p>Proprietary wood adhesives and glues (interior and exterior)</p>	
Machining and finishing	<p>Machine tools:</p> <ul style="list-style-type: none"> ◆ woodwork lathes ◆ lathe tools — forked/butterfly centre, dead centre, revolving centre, gouge, scraper, parting chisel ◆ parts of the lathe — bed, tailstock, tool rest, 	As at National 4, plus: <ul style="list-style-type: none"> ◆ woodwork lathes (face plate turning and between centres) ◆ lathe tools — face plate ◆ mortising machine

	headstock ♦ belt or disc sander ♦ pedestal drill	
	Power tools: ♦ hand-held drills ♦ sanders ♦ screwdrivers	As at National 4, plus: ♦ pyrography tool (if available and appropriate)
	Basic knowledge and understanding of tool care and maintenance: ♦ reporting faults and fault reporting systems ♦ inspection of cables, tool holding, guards ♦ confirmation of dust extraction operations	Knowledge and understanding of tool care and maintenance including those for National 4
Surface preparation and finishing	Wood preparation techniques: planing, sanding, stopping and filling	As at National 4, plus: ♦ scraping
	Finishing techniques: ♦ varnishing ♦ staining ♦ wax finishing ♦ oiling (Danish, linseed, vegetable oils)	
Safe working practices	Good practices and safe systems for general workshop and individual activities as appropriate. Personal protective equipment	
Recycling and sustainability	Best practice in selecting materials appropriate for use	
	Understanding and following workshop recycling practices and processes	

Administrative information

Published: June 2014 (version 1.2)

History of changes to Course Support Notes

Course details	Version	Description of change	Authorised by	Date
	1.1	Changes to comparison table in Course Support Notes; minor changes to learning and teaching information in Unit Support Notes.	Qualifications Development Manager	July 2013
	1.2	Page 11 — Appendix 2 — amendment made re the type of saw.	Qualifications Manager	June 2014

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Unit Support Notes — Practical Woodworking: Flat-frame Construction (National 4)



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Introduction

These support notes are not mandatory. They provide advice and guidance on approaches to delivering and assessing the Practical Woodworking: Flat Frame Construction (National 4) 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 *Added Value Unit Specification*
- ◆ the *Course Support Notes*
- ◆ appropriate assessment support materials

General guidance on the Unit

Aims

The main aim of this Unit, as stated in the *Unit Specification*, is for learners to develop practical skills in the use of woodworking tools and the production of basic flat-frame woodworking joints and assemblies. Learners will learn to read and follow simple woodworking drawings or diagrams. Learners will also develop their knowledge and understanding of woodworking materials, recycling and sustainability issues, as well as an appreciation of safe working practices in the workshop.

This Unit will also give learners the opportunity to develop thinking skills and skills in numeracy, employability, enterprise and citizenship.

This Unit can be delivered as:

- ◆ a stand-alone Unit
- ◆ part of the National 4 Practical Woodworking Course

Progression into this Unit

Entry into this Course is at the discretion of the centre. However, learners would normally be expected to have attained useful skills, knowledge and understanding from prior learning, such as:

- ◆ National 3 Practical Craft Skills Course or relevant Units
- ◆ National 3 Design and Technology Course or relevant Units

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 Practical Woodworking (National 4) *Course Support Notes*.

If the Unit is being delivered as part of the Practical Woodworking (National 4) Course, the teacher should refer to the 'Further mandatory information on Course coverage' section within the *Added Value Unit Specification* for detailed content.

If the Unit is being delivered on a free-standing basis, 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:

- ◆ other Practical Woodworking (National 4) Units: *Carcase Construction*; and *Machining and Finishing*
- ◆ Practical Metalworking (National 4) Units
- ◆ National Certificate Group Awards in a range of practical technology Courses
- ◆ 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 advice

The Unit is designed to provide flexibility and choice for both the learner and the teacher.

The National 4 Practical Woodworking *Course Support Notes* provide broad guidance on approaches to learning and teaching which may apply to all Units of the Course.

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. Learning should be supported by appropriate practical activities, so that skills are developed simultaneously with knowledge and understanding.

When delivering the Unit as part of the National 4 Practical Woodworking Course, reference should be made to the appropriate content statements within the 'Further mandatory information on Course coverage' section of the *Added Value Unit Specification* to ensure the required breadth of knowledge is covered.

Health and safety

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, through observation of learners' working procedures, responsible use of tools, conversations, simple question and answer, and other opportunities to providing evidence.

Proper care of tools and recognition of the dangers of tool defects with regard to quality of work and possible hazards will be a recurrent theme in the Course, and the topic should be raised in this Unit.

Advice specific to delivery of this Unit

Learning and teaching approaches for this Unit will take a variety of forms. Teaching will certainly include whole class demonstration and instruction as well as follow up sessions with individual learners or small groups. Learners may demonstrate a range of preferences for learning and these will be teased out over the period of the Course.

Practical demonstrations of woodworking techniques can be followed up by close supervision and one-to-one assistance, where required.

For each practical exercise, learners should be shown a completed example of the work to be undertaken, enabling them to see the standard of work they are expected to produce. It would assist learners at this level if orthographic and pictorial views were provided together to allow for easier visualisation of an item.

Knowledge and understanding

Knowledge and understanding should not be taught in isolation from other aspects of the Course. Practical examples should be used where possible, for example, when learning which tools and materials are associated with different jointing techniques, this should be related to other work being undertaken in the Unit.

Preparing for flat-frame woodworking tasks

Outcome 1 is about preparing for a workshop session, setting up, selecting the appropriate woodworking tools and materials and tidying up after completion. The learner should take time to learn the terminology associated with different tools and materials and understand their purpose before practical activities. It might be useful to introduce 'families' of similar tools and items of equipment when they have common characteristics or uses.

Learning the names and uses of types of timber and of manufactured boards can also be accomplished in an integrative fashion as part of practical activities. A similar approach can be used to help learners develop knowledge and understanding of the purpose and uses of the range of fixings and adhesives commonly associated with woodworking and the fitting and fixing of component parts.

Construct a range of basic flat-frame woodwork joints

In **Outcome 2**, learners must produce a range of six basic joint types as outlined in the Evidence Requirements. All of these jointing techniques may be covered by learners producing test pieces rather than complete items, in order to gain the confidence and skills required prior to working on a final product.

Assemble a flat-frame woodwork assembly with four or more joints

In **Outcome 3**, learners must produce a flat-frame woodwork assembly with four or more joints using one or more of the basic joint types from the list in the Evidence Requirements. One or two items could be produced to incorporate most of the skills required for this Unit, providing an opportunity to revisit skills from other areas of the Course as required.

At this stage it will be necessary to cover all stages of manufacture by demonstration and to supervise activities.

Emphasis should be given to the desire for accuracy and quality in manufacturing an item. If a component is produced that is not of an acceptable standard then the learner should be given the chance to replace it.

Reading drawings and diagrams and use of cutting lists

Learners should develop their ability to read and interpret orthographic and pictorial drawings and understand the use of cutting lists. It is expected that the drawings will be fairly straightforward in nature and detail. Where British Standard conventions are used as part of a drawing, these should be explained to the learner. For example, learners can be helped to develop drawing-reading skills by referring to well laid-out drawings alongside scale physical models of the item drawn. The various faces of the item could be coloured in to match colour-coding

of the given drawings so that learners can learn to appreciate the different projections commonly used in woodworking drawings. This is a simple technique already familiar to centres.

Cutting lists can be introduced early in the Unit by the teacher simply checking off given materials against the supplied cutting list and ultimately the completed product.

Recycling and sustainability

Integrating sustainability concepts such as the sourcing and cost of materials, waste and cutting allowances, recycling and re-use can be introduced into lessons whenever it occurs naturally. Discussion in general workshop learning and teaching activities, through site visits, audio or video, and/or online resources, is also useful. Learners should be helped to understand what they can do as individuals and a class group in terms of practical sustainability.

Sequence of delivery of Outcomes

The sequence of delivery of the Outcomes is a matter of professional judgement and is entirely at the discretion of the centre. However, it is suggested that the most effective way is by combining Outcomes 1 and 2 together and allowing Outcome 3 to flow from one dedicated activity; alternatively it might be effective to deliver Outcomes 1, 2 and 3 together in order to provide an integrated approach to the Unit, but other possibilities exist.

For learners undertaking the complete Course, time will need to be allowed for the completion of the work required for the practical activity that forms the Added Value Unit. More details of this aspect of the Course are given in *the Added Value Unit Specification*.

Meeting the needs of all learners

When delivering this Unit to a group of learners, with some working towards National 4 and others towards National 5, it may be useful for teachers to identify activities covering common knowledge and skills for all learners, and additional activities required for National 5 learners. Consideration should also be given to structure, content and materials selections. Where National 5 learners have studied National 4 in a previous year, it is important to provide them with new and different contexts for learning to avoid demotivation.

Specific differences between the National 4 Unit and the National 5 Unit relate to precision of work. Typically the National 4 Unit asks for accuracy to within 2 mm, whereas the National 5 Unit demands 1 mm accuracy.

Learners at National 4 may be afforded regular guidance and supervision to ensure that correct techniques are being followed in accordance with safe working procedures. In a multi-level class, National 4 learners will be working for the most part with guidance to achieve their summative assessment.

In line with the underlying principles of Curriculum for Excellence, learners should be encouraged, and expected, to take an active role in their own learning. Where Course activities and materials allow them to progress in an independent manner, this will allow teaching of the two groups to happen most effectively.

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.

Site visits

Site visits to building sites, manufacturing joinery businesses, timber-framed house factories, sawmills and builders' merchants can be a valuable learning experience. In addition, learners may find it encouraging visiting local FE colleges to see the work being carried out by apprentices.

Video clips and online resources

The internet provides a valuable source of video clips of practical woodworking techniques. It also provides short films of joinery work such as the erection of timber frame houses and larger buildings. 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
- ◆ 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 *Practical Woodworking: Flat Frame Construction* (National 4) 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 sustainability and recycling. Measuring, marking out and checking against tolerances.
4 Employability, enterprise and citizenship	
4.3 Working with others	Workshop practice involves sharing tools, equipment and materials with others and working together to balance individual tasks and time. Assisting other learners to carry out tasks.
5 Thinking skills	
5.2 Understanding	Correctly identifying the purpose of various tools and equipment and explaining the correct use in a given context
5.5 Creating	Creating assemblies based on given drawings and diagrams and applying their own interpretation where necessary.

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. Assessment in this Unit is not graded.

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 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 certain performances are being monitored constantly and recorded on an observation checklist, and that finished items will be tested against the stated criteria for accuracy and quality. 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 should be provided.

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
- ◆ film or photographic evidence

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.

Evidence may be gathered using different assessments and more than one context for each Outcome or it may be gathered for the Unit as a whole through one assessment and a single context. If the latter approach is used, it must be clear how the evidence covers each Outcome.

For example, aspects of Outcome 1 (Prepare for flat-frame woodworking tasks) may be demonstrated through all other practical activities. Aspects of Outcome 2

(Construct a range of basic flat-frame construction joints) may be demonstrated in the manufacturing activity of Outcome 3. However, the assembly for Outcome 3 does not include the number of joints required for Outcome 2 and so it is recommended that separate assessment tasks are devised for both Outcomes 2 and 3.

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 practical woodworking tools, equipment, materials and processes
- ◆ practical skills in flat-frame woodworking
- ◆ knowledge and understanding of sustainability issues and good practice in recycling in practical woodworking activities and environments
- ◆ the ability to work in accordance with recognised procedures and safe working practices

Notes on assessment of Outcome 1

This Outcome is about preparing for practical activities. Evidence is required of knowledge and understanding of a range of practical tools and equipment for marking out, bench work and cramping and common woodworking materials including softwoods, hardwoods, manufactured boards, adhesives and sundry fixings.

It is recommended that evidence of knowledge and understanding is gathered, where possible, as a natural part of the learning and teaching process. There should be ample opportunity throughout the delivery of the Unit to gather evidence for all the Assessment Standards to meet the Outcome.

Assessment may be written or oral. Some evidence might be gathered through short tests that involve hands-on identification of tools, equipment and materials; others might take the form of a closed-book paper-based or electronic test which could be comprised of multiple choice, and sentence completion and short answer-type questions.

Where appropriate, centres should share marking criteria for any summative assessments designed for Outcome 1 and ensure these are valid and reliable.

Notes on assessment of Outcome 2

The work for Outcome 2 requires the learner to produce a range of six basic flat-frame construction joints. The number of joints cannot be overcome in a four-joint flat-frame assembly (Outcome 3).

Therefore, it may be best to gather evidence in a series of joint-making tasks. These tasks may be a part of the natural learning and teaching process or they may be specifically designed as summative assessment events. Centres may also wish to use a formative approach to assessing learners' progress in this Outcome. Where this is the case, centres should share the

criteria for success with all learners at the beginning of the Unit/Outcome and use peer- and/or self-assessment approaches to monitor learners' progress.

There may be some crossover from Outcome 3 to Outcome 2 but it would be best to plan for discrete and separate assessments.

Notes on assessment of Outcome 3

For Outcome 3, learners must produce a woodworking assembly with four or more joints, using one or more of the basic joint types from the Evidence Requirements list in the *Unit Specification*.

It is recommended that the evidence for Outcome 3 is gathered in a distinct flat-frame assembly activity.

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. The requirement to develop practical skills may present barriers for learners with physical challenges and visual impairment. This is for both candidates and centres to consider.

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 where the alternative approaches to assessment will, in fact, generate the necessary evidence of achievement.

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 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](#)
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- ◆ [Guide to Assessment \(June 2008\)](#)
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- ◆ *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](#)
- ◆ 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: June 2014 (version 1.1)

Superclass: WK

History of changes to Unit Support Notes

Course details	Version	Description of change	Authorised by	Date
	1.1	Changes to comparison table in Course Support Notes; minor changes to learning and teaching information in Unit Support Notes.	Qualifications Development Manager	July 2013

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Unit Support Notes — Practical Woodworking: Carcase Construction (National 4)



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

Introduction

These support notes are not mandatory. They provide advice and guidance on approaches to delivering and assessing the Practical Woodworking: Carcase Construction (National 4) 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 *Added Value Unit 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 the use of woodworking tools and the production of a range of basic joints and assemblies commonly used in carcase construction. Learners will also develop their knowledge and understanding of woodworking materials, recycling and sustainability issues, as well as an appreciation of safe working practices in the workshop.

This Unit will also give learners the opportunity to develop thinking skills and skills in numeracy, employability, enterprise and citizenship.

This Unit can be delivered as:

- ◆ a stand-alone Unit
- ◆ as part of the National 4 Practical Woodworking Course

Progression into this Unit

Entry into this Course is at the discretion of the centre. However, learners would normally be expected to have attained useful skills, knowledge and understanding from prior learning, such as:

- ◆ National 3 Practical Craft Skills Course or relevant Units.

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 4 Practical Woodworking *Course Support Notes*.

If the Unit is being delivered as part of the National 4 Practical Woodworking Course, the teacher should refer to 'Further mandatory information on Course coverage' section within the *Added Value Unit Specification* for detailed content.

If the Unit is being delivered on a free-standing basis, 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 an appropriate progression pathway for learners:

- ◆ other Practical Woodworking (National 4) Units: *Flat-Frame Construction*; and *Machining and Finishing*
- ◆ Practical Metalworking (National 4) Units
- ◆ National Certificate Group Awards in a range of practical technology Courses
- ◆ 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 advice

The Unit is designed to provide flexibility and choice for both the learner and the teacher.

The National 4 Practical Woodworking *Course Support Notes* provide broad guidance on approaches to learning and teaching which may apply to all Units of the Course.

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. Learning should be supported by appropriate practical activities, so that skills are developed simultaneously with knowledge and understanding.

When delivering the Unit as part of the National 4 Practical Woodworking Course, reference should be made to the appropriate content statements within the 'Further mandatory information on Course coverage' section of the *Added Value Unit Specification* to ensure the required breadth of knowledge is covered.

Health and safety

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 through observation of learners' working procedures, responsible use of tools, conversations, simple question and answer, and other opportunities for providing evidence.

Proper care of tools and recognition of the dangers of tool defects with regard to quality of work and possible hazards will be a recurrent theme, and the topic should be raised in this Unit.

Advice specific to delivery of this Unit

Learning and teaching approaches for this Unit will likely take a variety of forms. Teaching will certainly include whole class demonstration and instruction as well as follow up sessions with individual learners or small groups. Learners may demonstrate a range of preferences for learning and these will be teased out over the period of the Course.

Alternative approaches to teaching are suggested in the *Course Support Notes*.

Practical demonstrations of woodworking techniques can be followed up by close supervision and one-to-one assistance where required.

For each practical exercise, learners should be shown a completed example of the work to be undertaken, enabling them to see the standard of work they are expected to produce. It would assist learners at this level if orthographic and pictorial views were provided together to allow for easier visualisation of an item.

Knowledge and understanding

Knowledge and understanding should not be taught in isolation from other aspects of the Course. Practical examples should be used where possible to help pupils to identify tools, equipment, materials and processes. For example, when learning which tools and materials are associated with different carcass construction techniques, this should be related to other work being undertaken in the Unit.

Preparing for carcass construction woodworking tasks

Outcome 1 is about preparing for a workshop session, setting up, selecting the appropriate woodworking tools and materials and tidying up after completion. The learner should take time to learn the terminology associated with different tools and materials and understand their purpose before practical activities. It might be useful to introduce 'families' of similar tools and items of equipment when they have common characteristics or uses.

Learning the names and uses of types of timber and of manufactured boards can also be accomplished in an integrative fashion as part of practical activities. A similar approach can be used to help learners develop knowledge and understanding of the purpose and uses of the range of fixings and adhesives commonly associated with woodworking and the fitting and fixing of component parts.

Construct a range of basic woodwork joints used in carcass construction

In **Outcome 2**, learners must produce a range of three basic joint types as outlined in the Evidence Requirements. All of these jointing techniques may be covered by learners producing test pieces rather than complete items, in order to gain the confidence and skills required prior to working on a final product.

Assemble a carcass with four or more joints

In **Outcome 3**, learners must produce a carcass construction woodwork assembly with four or more joints using one or more of the basic joint types from the list in the Evidence Requirements. One or two items could be produced to incorporate most of the skills required for this Unit, providing an opportunity to revisit skills from other areas of the Course as required.

At this stage it will be necessary to cover all stages of manufacture by demonstration and to supervise activities. Emphasis should be given to the desire for accuracy and quality in manufacturing an item. If a component is produced that is not of an acceptable standard then the learner should be given the chance to replace it.

Reading drawings and diagrams and use of cutting lists

Learners should develop their ability to read and interpret orthographic and pictorial drawings and understand the use of cutting lists. It is expected that the drawings will be fairly straightforward in nature and detail. Where British Standard conventions are used as part of a drawing these should be explained to the

learner. For example, learners can be helped to develop drawing-reading skills by seeing well laid-out drawings alongside scale physical models of the item drawn. The various faces of the item could be coloured in to match colour-coding of the given drawings so that learners can learn to appreciate the different projections commonly used in woodworking drawings. These are simple techniques already familiar to centres.

Cutting lists can be introduced early in the Unit by the teacher simply checking off given materials against the supplied cutting list and ultimately the completed product.

Recycling and sustainability

Integrating sustainability concepts such as the sourcing and cost of materials, waste and cutting allowances, recycling and re-use can be introduced into lessons whenever it occurs naturally. Discussion in general workshop learning and teaching activities, through site visits, audio or video, and/or online resources, is also useful. Learners should be helped to understand what they can do as individuals and a class group in terms of practical sustainability.

Sequence of delivery of Outcomes

The sequence of delivery of the Outcomes is a matter of professional judgement and is entirely at the discretion of the centre. However, it is suggested that the most effective way is by combining Outcomes 1 and 2 together and allowing Outcome 3 to flow from one dedicated activity; alternatively it might be effective to deliver Outcomes 1, 2 and 3 together in order to provide an integrated approach to the Unit, but other possibilities exist.

For learners undertaking the complete Course, time will need to be allowed for the completion of the work required for the practical activity that forms the Added Value Unit. More details of this aspect of the Course are given in *the Course Support Notes*.

Advice on the 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.

For learners undertaking the complete Course, time will need to be allowed for the completion of the work required for the practical activity that forms the Course assessment. More details of this aspect of the Course are given in *Added Value Unit Specification*.

Meeting the needs of all learners

When delivering this Unit to a group of learners, with some working towards National 4 and others towards National 5, it may be useful for teachers to identify activities covering common knowledge and skills for all learners, and additional activities required for National 5 learners. Consideration should also be given to structure, content and materials selections. Where National 5 learners have studied National 4 in a previous year, it is important to provide them with new and different contexts for learning to avoid demotivation.

Specific differences between the National 4 Unit and the National 5 Unit relate to precision of work. Typically the National 4 Unit asks for accuracy to within 2 mm, whereas the National 5 Unit demands 1 mm accuracy.

Learners at National 4 may be afforded regular guidance and supervision to ensure that correct techniques are being followed in accordance with safe working procedures. In a multi-level class, National 4 learners will be working for the most part with guidance to allow them to meet the Assessment Standard.

In line with the underlying principles of Curriculum for Excellence, learners should be encouraged, and expected, to take an active role in their own learning. Where Course activities and materials allow them to progress in an independent manner, this will allow teaching of the two groups to happen most effectively.

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.

Site visits

Site visits to building sites, manufacturing joinery businesses, timber-framed house factories, sawmills and builders' merchants can be a valuable learning experience. In addition, learners may find it encouraging to visit local Further Education (FE) colleges to see the work being carried out by apprentices.

Video clips and online resources

The internet provides a valuable source of video clips of practical woodworking techniques. It also provides short films of joinery work such as the erection of timber frame houses and larger buildings. Learners may find these both informative and interesting in class and for self-study.

Online resources:

- ◆ YouTube
- ◆ Focus Educational
- ◆ Technology Student
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- ◆ STEM Central on Education Scotland
- ◆ Khan Academy
- ◆ Scottish Government
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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 *Practical Woodworking: Carcase Construction* (National 4) 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	<p>Measuring and marking out materials in accordance with working drawings.</p> <p>Interpreting and calculating dimensions and scale in drawings/diagrams/orthographic projections and applying them to work pieces.</p> <p>Checking the accuracy of completed components and assemblies against drawings and cutting lists.</p> <p>Manufacturing items to strict measurements of tolerances and accuracy.</p> <p>Discussion re: costs in sustainability and recycling.</p> <p>Measuring, marking out and checking against tolerances.</p>
4 Employability, enterprise and citizenship	
4.3 Working with others	<p>Workshop practice involves sharing tools, equipment and materials with others and working together to balance individual tasks and time.</p> <p>Assisting other learners to carry out tasks.</p>
5 Thinking skills	
5.2 Understanding	Correctly identifying the purpose of various tools and equipment and explaining the correct use in a given context
5.5 Creating	Creating assemblies based on given drawings and diagrams and applying their own interpretation where necessary.

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. Assessment in this Unit is not graded.

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 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 certain performances are being monitored constantly and recorded on an observation checklist, and that finished items will be tested against the stated criteria for accuracy and quality. 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 should be provided.

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
- ◆ film or photographic evidence

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.

Evidence may be gathered using different assessments and more than one context for each Outcome or it may be gathered for the Unit as a whole through one assessment and a single context. If the latter approach is used, it must be clear how the evidence covers each Outcome.

For example, aspects of Outcome 1 (Preparing for carcass construction woodworking tasks) may be demonstrated through all other practical activities.

Aspects of Outcome 2 (Construct a range of basic carcass construction woodwork joints) may be demonstrated in the manufacturing activity of Outcome 3. However, the assembly for Outcome 3 does not include the number of joints required for Outcome 2 and so it is recommended that separate assessment tasks are devised for both Outcomes 2 and 3.

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 practical woodworking tools, equipment, materials and processes
- ◆ practical skills in carcass construction woodworking
- ◆ knowledge and understanding of sustainability issues and good practice in recycling in practical woodworking activities and environments
- ◆ the ability to work in accordance with recognised procedures and safe working practices

Notes on assessment of Outcome 1

This Outcome is about preparing for practical activities. Evidence is required of knowledge and understanding of a range of practical tools and equipment for marking out, bench work and cramping and common woodworking materials including softwoods, hardwoods, manufactured boards, adhesives and sundry fixings.

It is recommended that evidence of knowledge and understanding is gathered, where possible, as a natural part of the learning and teaching process. There should be ample opportunity throughout the delivery of the Unit to gather evidence for all the Assessment Standards to meet the Outcome.

Assessment may be written or oral. Some evidence might be gathered through short tests that involve hands-on identification of tools, equipment and materials; others might take the form of a closed book paper-based or electronic test which could be comprised of multiple choice, sentence completion and short answer-type questions.

Where appropriate, centres should share marking criteria for any summative assessments designed for Outcome 1 and ensure these are valid and reliable.

Notes on assessment of Outcome 2

The work for Outcome 2 requires the learner to produce a range of three woodwork joints used in basic carcass construction. The number of joints cannot be overcome in a four-joint carcass assembly (Outcome 3). Therefore, it may be best to gather evidence in a series of joint-making tasks. These tasks may be a part of the natural learning and teaching process or they may be specifically designed as summative assessment events.

Centres may also wish to use a formative approach to assessing learners' progress in this Outcome. Where this is the case, centres should share the

criteria for success with all learners at the beginning of the Unit/Outcome and use peer- and/or self-assessment approaches to monitor learners' progress.

There may be some crossover from Outcome 3 to Outcome 2 but it would be best to plan for discrete and separate assessments.

Notes on assessment of Outcome 3

For Outcome 3, learners must produce a carcass construction woodwork assembly with four joints, using one or more of the basic joint types from the Evidence Requirements list in the *Unit Specification*.

It is recommended that the evidence for Outcome 3 is gathered in a distinct carcass assembly activity.

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. This is for both candidates and centres to consider.

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.

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- ◆ SQA Guidelines on Online Assessment for Further Education
- ◆ SQA e-assessment web page: www.sqa.org.uk/sqa/5606.html

Administrative information

Published: June 2014 (version 1.2)

Superclass: WK

History of changes to Unit Support Notes

Course details	Version	Description of change	Authorised by	Date
	1.1	Changes to comparison table in Course Support Notes; minor changes to learning and teaching information in Unit Support Notes.	Qualifications Development Manager	July 2013
	1.2	Page 39 — Approaches to assessment and gathering evidence section — amendment made re the type of construction.	Qualifications Manager	June 2014

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Unit Support Notes — Practical Woodworking: Machining and Finishing (National 4)



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

Introduction

These support notes are not mandatory. They provide advice and guidance on approaches to delivering and assessing the *Practical Woodworking: Machining and Finishing* (National 4) 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 *Added Value Unit 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 common woodworking machines and power tools and in a variety of simple surface preparation and finishing techniques. Learners will develop their knowledge and understanding of woodworking materials, recycling and sustainability issues, as well as an appreciation of safe working practices in a workshop context.

This Unit will also give learners the opportunity to develop thinking skills and skills in numeracy, employability, enterprise and citizenship.

This Unit can be delivered as:

- ◆ a stand-alone Unit
- ◆ as part of the National 4 Practical Woodworking Course

Progression into this Unit

Entry into 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, such as:

- ◆ National 3 Practical Craft Skills Course or relevant Units.
- ◆ National 3 Design and Technology Course or relevant Units

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 4 Practical Woodworking *Course Support Notes*.

If the Unit is being delivered as part of the National 4 Practical Woodworking Course, the teacher should refer to the 'Further mandatory information on Course coverage' section within the *Added Value Unit Specification* for detailed content.

If the Unit is being delivered on a free-standing basis, 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:

- ◆ other Practical Woodworking (National 4) Units: *Flat-Frame Construction*; and *Carcase Construction*
- ◆ Practical Metalworking (National 4) Units
- ◆ National Certificate Group Awards in a range of practical technology Courses
- ◆ 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 advice

The Unit is designed to provide flexibility and choice for both the learner and the teacher.

The National 4 Practical Woodworking *Course Support Notes* provide broad guidance on approaches to learning and teaching which may apply to all Units of the Course.

Learning and teaching activities should be designed to stimulate learners' interest, and to develop skills and knowledge to the standard required by the three Outcomes, and to the level defined by the associated Assessment Standards. Learning should be supported by appropriate practical activities, so that skills are developed simultaneously with knowledge and understanding.

When delivering the Unit as part of the National 4 Practical Woodworking Course, reference should be made to the appropriate content statements within the 'Further mandatory information on Course coverage' section of the *Added Value Unit Specification* to ensure the required breadth of knowledge is covered.

Health and safety

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 through observation of learners' working procedures, responsible use of tools, conversations, simple question and answer, and other opportunities to providing evidence.

Proper care of tools and recognition of the dangers of tool defects with regard to quality of work and possible hazards will be a recurrent theme in the Course, and the topic should be raised in this Unit.

Advice specific to delivery of this Unit

Learning and teaching approaches for this Unit will take a variety of forms. Teaching will certainly include whole class demonstration and instruction as well as follow up sessions with individual learners or small groups. Learners may demonstrate a range of preferences for learning and these will be teased out over the period of the Course.

Alternative approaches to teaching are suggested in the *Course Support Notes*.

Practical demonstrations of woodworking techniques can be followed up by close supervision and one-to-one assistance where required.

For each practical exercise, learners should be shown a completed example of the work to be undertaken, enabling them to see the standard of work they are expected to produce. It would assist learners at this level if orthographic and pictorial views were provided together to allow for easier visualisation of an item.

Knowledge and understanding

Knowledge and understanding should not be taught in isolation from other aspects of the Course. The learner must take time to understand the purpose and uses of each of the tools and materials before using them in a practical way. When learning which power tools and materials are associated with different processes and woodworking techniques, this should be related to other work being undertaken in the Unit.

Prepare for, and use, a range of practical woodworking machining and finishing techniques

Outcome 1 is about preparing for a workshop session, setting up, selecting the appropriate woodworking tools and materials and being aware of tool condition before, during and after use. The learner should take time to learn the terminology associated with different machine and power tools and understand their purpose before practical activities. For example, power and machine tools might be introduced separately followed by a practical session in each. It might also be useful to introduce 'families' of similar tools and items of equipment when they have common characteristics or uses.

Apply a range of finishes to timber and manufactured board

For **Outcome 2**, learners must produce evidence of competence in preparing and finishing timbers and manufactured boards. With guidance, learners are required to be able to select materials and finishes which are appropriate to the task in hand. Evidence is required of at least two different finishes to both timber and manufactured boards. Surface preparations will include planing, sanding, stopping and filling, as required to a high standard without blemish. Surface finishes will include staining, varnishing, oiling or application of wax finish, as appropriate, and be free of blemish.

All learners should be given opportunity to try out several different basic preparatory and finishing techniques. It makes sense to practise various timber finishing techniques discretely in the first instance. Each finish has its own techniques and method. It would be best to only apply finishing techniques to actual products once the learner has become proficient in applying them to a reasonable degree.

Assemble a woodworking product comprising four or more components with the aid of machine and power tools

For **Outcome 3**, learners must produce evidence of competence in manufacturing a timber product comprising four or more components. The working drawings for the item will require the use of a woodworking lathe (between centres) and the product must be made using one machine tool and two power tools. The product does not need to be finished.

At this stage it will be necessary to cover all stages of manufacture by demonstration and to supervise activities. Emphasis should be given to the desire for accuracy and quality in manufacturing an item. If a component is produced that is not of an acceptable standard then the learner should be given the chance to replace it.

Recycling and sustainability

Integrating sustainability concepts such as the sourcing and cost of materials, waste and cutting allowances, recycling and re-use can be introduced into lessons whenever it occurs naturally. Discussion in general workshop learning and teaching activities, through site visits, audio or video, and/or online resources, is also useful. Learners should be helped to understand what they can do as individuals and a class group in terms of practical sustainability.

Sequence of delivery of Outcomes

The sequence of delivery of the Outcomes is a matter of professional judgement and is entirely at the discretion of the centre. However, it is suggested that by combining Outcome 1 (preparation) with each of the other Outcomes, more time can be allocated to practical activities.

For learners undertaking the complete Course, time will need to be allowed for the completion of the work required for the practical activity that forms the Course assessment. More details of this aspect of the Course are given in *the Added Value Unit Specification*

Meeting the needs of all learners

When delivering this Unit to a group of learners, with some working towards National 4 and others towards National 5, it may be useful for teachers to identify activities covering common knowledge and skills for all learners, and additional activities required for National 5 learners. Consideration should also be given to structure, content and materials selections. Where National 5 learners have studied National 4 in a previous year, it is important to provide them with new and different contexts for learning to avoid demotivation.

Specific differences between the National 4 Unit and the National 5 Unit relate to precision of work. Typically the National 4 Unit asks for accuracy to within 2 mm whereas the National 5 Unit demands 1 mm accuracy.

Learners at National 4 may be afforded regular guidance and supervision to ensure that correct techniques are being followed in accordance with safe working procedures. In a bi-level class, National 4 learners will be working for the most part with guidance to achieve their summative assessment.

In line with the underlying principles of Curriculum for Excellence, learners should be encouraged, and expected, to take an active role in their own learning. Where Course activities and materials allow them to progress in an independent manner, this will allow teaching of the two groups to happen most effectively.

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.

Site visits

Site visits to building sites, manufacturing joinery businesses, timber-framed house factories, sawmills and builders' merchants can be a valuable learning experience. In addition, learners may find it encouraging visiting local FE colleges to see the work being carried out by apprentices.

Video clips and online resources

The internet provides a valuable source of video clips of practical woodworking techniques. It also provides short films of joinery work such as the erection of timber frame houses and larger buildings. 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

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 *Practical Woodworking: Machining and Finishing* (National 4) 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	<p>Measuring and marking out materials in accordance with working drawings.</p> <p>Interpreting and calculating dimensions and scale in drawings/diagrams/orthographic projections and applying them to work pieces.</p> <p>Checking the accuracy of completed components and assemblies against drawings and cutting lists.</p> <p>Manufacturing items to strict measurements of tolerances and accuracy.</p> <p>Discussion re: costs in sustainability and recycling.</p> <p>Measuring, marking out and checking against tolerances.</p>
4 Employability, enterprise and citizenship	
4.3 Working with others	<p>Workshop practice involves sharing tools, equipment and materials with others and working together to balance individual tasks and time.</p> <p>Assisting other learners to carry out tasks.</p>
5 Thinking skills	
5.2 Understanding	Correctly identifying the purpose of various tools and equipment and explaining the correct use in a given context
5.5 Creating	Creating assemblies based on given drawings and diagrams and applying their own interpretation where necessary.

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 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 certain performances are being monitored constantly and recorded on an observation checklist, and that finished items will be tested against the stated criteria for accuracy and quality. 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 should be provided.

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
- ◆ film or photographic evidence

Combining assessment within the Unit

There are many ways in which the assessment requirements of the Unit can be generated.

Evidence may be gathered using different assessment and more than one context for each Outcome. However, a single activity assessment approach is **not** recommended for this Unit.

There is scope, however for combining assessment across some of the Outcomes but this will depend upon the approaches taken by the centre in terms of integrating the learning experiences.

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 practical woodworking machines and power tools, equipment, processes and finishes
- ◆ practical skills in machine and power tools for woodworking
- ◆ knowledge and understanding of sustainability issues and good practice in recycling in practical woodworking activities and environments
- ◆ the ability to work in accordance with recognised procedures and safe working practices

Notes on assessment of Outcome 1

This Outcome is about preparing for practical activities. Evidence is required of knowledge and understanding of a range of woodworking machine and power tools and equipment, including those for turning, drilling, cutting, sanding and fixing.

It is recommended that evidence of knowledge and understanding is gathered, where possible, as a natural part of the learning and teaching process. There should be ample opportunity throughout the delivery of the Unit to gather evidence for all the Assessment Standards to meet the Outcome.

Assessment may be written or oral. Some evidence might be gathered through short tests that involve hands-on identification of tools, equipment and materials; others might take the form of a closed-book paper-based or electronic test which could be comprised of multiple choice, sentence completion and short answer-type questions.

Where appropriate, centres should share marking criteria for any summative assessments designed for Outcome 1 and ensure these are valid and reliable.

Notes on assessment of Outcome 2

Outcome 2 is about applying a range of finishes to timber. It makes sense for the evidence to be gathered as part of a pre-planned session or number of sessions where everyone is involved in woodworking finishing activities in terms of logistics, method and safety requirements. This would have the added benefit of allowing the learner to complete this activity in isolation from the manufacture of a product in Outcome 3.

Evidence of skills in finishing techniques for Outcome 3 could be gathered from a series of small tests that are specific to each finish. These might be carried out on suitably sized timber sections or pieces of manufactured board. Two samples might be:

- ◆ a softwood (timber), sanding and then varnished
- ◆ a plywood (or manufactured), stopped and filled and stained

It is recommended that for timber sections the minimum length of timber for finishing exercises is no less than 200 mm and ideally about twice that size. Planing exercises on pieces smaller than this could be awkward. The section of the timber must be sufficiently robust to permit retention in a vice or other holding device.

Planing exercises would be best carried out on timber that is off the saw. Alternatively sections of CLS may prove useful as these are already dressed but are of sufficient section to allow for planing down.

The use of moulded sections such as skirting and architraves for timber is acceptable for sanding exercises or for stopping and filling.

For finish applied to pieces of manufactured board, the minimum size should be 300x300 mm or thereabouts, and ideally around 400x600 mm. It would be sensible to use longer pieces where available in order to allow fuller brush strokes.

Notes on assessment of Outcome 3

For Outcome 3, learners must manufacture a timber artefact comprising four or more components with the aid of machine and power tools to the tolerances specified in the Evidence Requirements.

It is recommended that the evidence for Outcome 3 be gathered in a distinct product-making activity. It is assumed that the product used as the assessment vehicle for Outcome 3 will be portable. There is scope for personalisation and choice in allowing the learner to choose the type of woodworking models and products they might make.

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. This is for both candidates and centres to consider.

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.

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 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](#)
- ◆ *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*](#)
- ◆ 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: WK

History of changes to Unit Support Notes

Course details	Version	Description of change	Authorised by	Date
	1.1	Changes to comparison table in Course Support Notes; minor changes to learning and teaching information in Unit Support Notes.	Qualifications Development Manager	July 2013
	1.2	Page 54 — Approaches to assessment and gathering evidence section — changes to the minimum length of timber.	Qualifications Manager	June 2014

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