

National 5 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 5 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 *Course Assessment 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 4 Practical Woodworking Course or relevant Units

Experiences and outcomes

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

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 *Course Assessment 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	Course Assessment
Using a range of woodworking tools, equipment and materials safely and correctly for woodworking tasks with some complex features	✓	✓	✓	✓
Adjusting tools where necessary, following safe practices	✓		✓	✓
Reading and interpreting drawings and diagrams in familiar and some unfamiliar contexts	✓	✓	✓	✓
Measuring and marking out timber sections and sheet materials in preparation for straightforward cutting and shaping tasks with some complex features	✓	✓	✓	✓
Practical creativity in the context of simple and familiar woodworking tasks with some complex features			✓	✓
Following, with autonomy, given stages of a practical problem-solving approach to woodworking tasks	✓	✓	✓	✓
Applying knowledge and understanding of safe working practices in a workshop environment	✓	✓	✓	✓
Knowledge and understanding of the properties and uses of a range of wood in common use	✓	✓	✓	
Knowledge and understanding of sustainability issues in a practical woodworking context	✓	✓	✓	

Progression from this Course

This Course or its Units may provide progression to:

- ◆ National Certificate Group Awards (NCGAs)
- ◆ a range of other practical technological Courses at National 5
- ◆ Skills for Work and sector-specific SQA qualifications

For some, the Course may ultimately provide progression 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 4. The Practical Woodworking Course at both levels has the same structure of three Units with corresponding titles.

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 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 *Course Assessment Specification* to ensure the required breadth of knowledge is covered.

Assessment activities, used to support learning, may be usefully 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 and understanding listed in the *Course Assessment Specification*, as required to complete the Course Assessment successfully

Meeting the needs of all learners

Within any class, each learner has individual strengths and areas for improvement. For example, within a National 5 class, there may be learners working at National 4. Carefully constructed tasks should allow both groups of learners to work closely together on similar activities.

Teachers need to consider both the Outcomes and Assessment Standards, and the content tables in Appendix 2 of these notes, to identify the differences between National 4 and National 5.

In some aspects of the Course, the difference between National 4 and National 5 is defined in terms of a higher level of skill or additional knowledge. In other aspects of the Course, the difference between National 4 and National 5 is defined by tolerances and/or complexity.

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 previously studying 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 and 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 Course assessment. 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.

Advice on distribution of time

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

Time should be allocated for preparation for the Course assessment (practical activity).

Resources

Centres may find that existing equipment within the workshop areas provides all that is required to deliver the Course. In addition, where knowledge is being consolidated, centres may use digital resources to support that.

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.

Fitting the Course assessment into a Course plan

As the Course assessment 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 Course assessment at an earlier stage, but only where it is clear that learners have already gained the required skills and knowledge.

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 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 5, the added value will be assessed in the Course Assessment.

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

Full details of assessment of added value are included in the *Course Assessment Specification*.

The Course Assessment (Practical Activity) will assess the application of skills and knowledge which learners will have developed through the other Units.

Units are designed so that much of the evidence will be obtained naturally during the learning and teaching activities of the Units. In many cases the evidence may be observational; in such cases, the teacher should keep a record of standards reached by each learner. Further exemplification is provided in the *Unit Support Notes*.

Preparation for Course assessment

Each Course has additional time which may be used at the discretion of the teacher or lecturer to enable learners to prepare for Course assessment. This time may be used near the start of the Course and at various points throughout the Course for consolidation and support. It may also be used for preparation for Unit assessment, and towards the end of the Course, for further integration, revision and preparation and/or gathering evidence for Course assessment.

Within the notional time for the Course assessment, 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
- ◆ assessing the process and completed solution
- ◆ providing opportunities for re-assessment if required
- ◆ consolidation of learning
- ◆ maintaining a progress diary

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 5 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 and 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 	As at National 4, plus: <ul style="list-style-type: none"> ◆ saws (tenon, coping, ripsaw, cross-cut and panel) ◆ spoke shave

	<ul style="list-style-type: none"> ◆ hand router ◆ bradawl ◆ other common bench tools 	
	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) 	<p>As at National 4, plus:</p> <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 joints (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, 	<p>As at National 4, plus:</p> <ul style="list-style-type: none"> ◆ woodwork lathes (face plate turning and between centres)

	<p>dead centre, revolving centre, gouge, scraper, parting chisel</p> <ul style="list-style-type: none"> ◆ parts of the lathe — bed, tailstock, tool rest, headstock ◆ belt or disc sander ◆ pedestal drill 	<ul style="list-style-type: none"> ◆ lathe tools — face plate ◆ mortising machine
	<p>Power tools:</p> <ul style="list-style-type: none"> ◆ hand-held drills ◆ sanders ◆ screwdrivers 	<p>As at National 4, plus:</p> <ul style="list-style-type: none"> ◆ pyrography tool (if available and appropriate)
	<p>Basic knowledge and understanding of tool care and maintenance:</p> <ul style="list-style-type: none"> ◆ reporting faults and fault reporting systems ◆ inspection of cables, tool holding, guards ◆ confirmation of dust extraction operations 	<p>Knowledge and understanding of tool care and maintenance including those for National 4</p>
Surface preparation and finishing	<p>Wood preparation techniques: planing, sanding, stopping and filling</p>	<p>As at National 4, plus:</p> <ul style="list-style-type: none"> ◆ scraping
	<p>Finishing techniques:</p> <ul style="list-style-type: none"> ◆ varnishing ◆ staining ◆ wax finishing ◆ oiling (Danish, linseed, vegetable oils) 	
Safe working practices	<p>Good practices and safe systems for general workshop and individual activities as appropriate.</p> <p>Personal protective equipment</p>	
Recycling and sustainability	<p>Best practice in selecting materials appropriate for use</p> <p>Understanding and following workshop recycling practices and processes.</p>	

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 3 — Mandatory skills and knowledge table — amended. Page 13 — 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 5)



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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 5) Unit. They are intended for teachers and lecturers who are delivering this Unit. They should be read in conjunction with:

- ◆ the *Unit Specification*
- ◆ the *Course Specification*
- ◆ the *Course Assessment 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 flat-frame woodworking joints and assemblies. The ability to read and interpret drawings and diagrams is developed in this Unit. 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 5 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 4 Practical Woodworking Course or relevant component 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 5 Practical Woodworking *Course Support Notes*.

If the Unit is being delivered as part of the National 5 Practical Woodworking Course, the teacher should refer to the 'Further mandatory information on Course coverage' section within the *Course Assessment 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 5) Units: *Carcase Construction* and *Machining and Finishing*
- ◆ Practical Metalworking (National 5) 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
- ◆ employment, apprenticeships and/or training in practical technology and related fields

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 5 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 5 Practical Woodworking Course, reference should be made to the appropriate content statements within the 'Further mandatory information on Course coverage' section to ensure the required breadth of knowledge is covered.

Delivering the Unit within the Practical Woodworking Course

It is recommended that, where this Unit is being delivered as part of the National 5 Practical Woodworking Course, learners should first complete the initial part of the *Flat-Frame Construction* Unit in order to gain the basic skills in reading drawings and marking out work pieces necessary to complete this Unit.

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.

As an initial introduction to the Unit, learners should be given a thorough introduction to the work required and aspects of safe working practices. Appropriate videos or interactive computer programs could be used as necessary to introduce woodworking processes and safety aspects relating the work of the Unit to that of the industrial world.

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 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 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. 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

In **Outcome 1**, it is expected that learners will be able to set up before a workshop session, select appropriate woodworking tools and materials, and tidy up after completion. The learner should take time to learn the terminology associated with different tools, their purpose before and during practical activities. 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.

Similar approaches 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. It should be assumed that the adhesives referred to include common wood glues. The fixings would reasonably include nails, pins and wood screws as well as proprietary screws for manufactured board purposes.

Construct a range of flat-frame woodwork joints

In **Outcome 2**, learners must produce a range of eight basic joint types: the three mandatory joint types plus five others 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 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 using cutting lists

Learners should be given the opportunity to practice reading and interpreting orthographic and pictorial drawings and cutting lists. It is expected that the drawings will use a variety of line types and conventions. Where British Standard conventions are used as part of a drawing, these should be explained to the learner. Dimensioning should be for the most part linear, though it will be necessary to also include diameters and radii as appropriate to the item being made. Cutting lists of given materials can be supplied, checked off by teacher or lecturer and then reviewed against finished 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. One effective way might be to combine Outcomes 1 and 2 together, 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.

Advice on distribution of time

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

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 *Course Support Notes*.

It may be worthwhile including a brief reminder of these skills as they naturally come into focus at the start of practical sessions. It is important to stress to learners how valuable these will be in the wider world. It is very useful to give specific examples of their usefulness — perhaps by means of case studies.

Meeting the needs of all learners

When delivering this Unit to a group of learners, with some learners working towards National 4 and others towards National 5, it may be useful for teacher to identify activities covering common knowledge and skills for all learners, and additional activities 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. It is particularly important that learners do not feel that they are simply doing the same work over again, albeit at a deeper level.

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.

The other differences can be categorised as being matters of autonomy and responsibility. The National 5 Unit asks learners to plan work activities in terms of tools, equipment and material needs. That suggests the compilation of a plan including a cutting list.

The National 5 Unit also differs from the National 4 equivalent in that it asks learners to adjust tools where necessary. This work has to be done in accordance with safe working practices.

There are a number of ways in which the National 5 Unit can be made challenging and enriching for learners who have previously taken the National 4 Unit:

- ◆ granting learners more responsibility for their own work and learning (within the boundaries of safe methods and systems of work)
- ◆ granting learners, where appropriate, more independence and autonomy in workshop activities (again within the boundaries of safe methods and systems of work)
- ◆ granting more ownership of tasks to learners by getting them more involved in checking their work as they proceed, and in the quality assurance process

- ◆ use of more challenging joint types and assemblies
- ◆ use of more challenging drawings and diagrams
- ◆ use of different timbers and manufactured boards

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 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
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- ◆ 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: Flat Frame Construction* (National 5) 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>
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	
5.3 Applying	<p>Learning new techniques and processes and applying them in practical tasks and making an item.</p> <p>Planning and organising tools, equipment and materials in preparation for a practical activity.</p> <p>Applying practical skills to solve a problem in a given drawing or specification</p>
5.5 Creating	<p>Creating assemblies based on given drawings and diagrams and applying their own interpretation where necessary.</p>

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

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 flat frame 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 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, 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 number of different flat-frame construction joints. The number of joints cannot be overcome in a four-joint flat-frame assembly. Evidence should be gathered 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 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 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. 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 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](#)
- ◆ *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

Unit 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 5)



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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).

Introduction

These support notes are not mandatory. They provide advice and guidance on approaches to delivering and assessing the Practical Woodworking: Carcase Construction (National 5) Unit. They are intended for teachers who are delivering this Unit. They should be read in conjunction with:

- ◆ the *Unit Specification*
- ◆ the *Course Specification*
- ◆ the *Course Assessment 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 to help learners develop practical skills in using woodworking tools and in the production of a range of woodworking joints and assemblies commonly used in carcass 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 a workshop environment.

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 5 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 4 Practical Woodworking Course or relevant component 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 5 Practical Woodworking *Course Support Notes*.

If the Unit is being delivered as part of the National 5 Practical Woodworking Course, the teacher should refer to the 'Further mandatory information on Course coverage' section within the *Course Assessment 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 5) Units: *Flat Frame Construction* and *Machining and Finishing*
- ◆ Practical Metalworking (National 5) Units
- ◆ National Certificate Group Awards in a range of practical technology courses
- ◆ Skills for Work Course and sector-specific SQA qualifications
- ◆ a range of other stand-alone Units in practical technologies contexts
- ◆ employment, apprenticeships and/or training in practical technology and related fields

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 5 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 5 Practical Woodworking Course, reference should be made to the appropriate content statements within the 'Further mandatory information on Course coverage' section of the *Course Assessment Specification* to ensure the required breadth of knowledge is covered.

Delivering the Unit within the Practical Woodworking Course

It is recommended that, where this Unit is being delivered as part of the National 5 Practical Woodworking Course, learners should first complete the initial part of the *Flat-Frame Construction* Unit in order to gain the basic skills in reading drawings and marking out work pieces necessary to complete this Unit.

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.

As an initial introduction to the Unit, learners should be given a thorough induction to the work required and aspects of safe working practices. This applies

to use of tools and equipment, use of finishing materials and use of timbers and manufactured boards; it applies to setting out activities and clearing away tools, equipment and surplus materials. Appropriate videos or interactive computer programs could be used as necessary to introduce the processes and safety aspects relating the work of the Unit to that of the world of industry.

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 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.

Learners will be expected to produce good practical work. The items produced should have personal appeal to the client group, but must provide challenge and stimulation.

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. 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 carcass construction woodworking tasks

In **Outcome 1**, it is expected that learners will be able to set up before a workshop session, select the appropriate woodworking tools and materials, and tidy up after completion. The learner should take time to learn the terminology associated with different tools and their purpose before and during practical activities. Learning the names and uses of types of saws, timber and manufactured boards can also be accomplished in an integrative fashion as part of practical activities.

Similar approaches 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. It should be assumed that the adhesives referred to include common wood glues. The fixings would reasonably include nails, pins and wood screws, as well as proprietary screws for manufactured board purposes.

Construct a range of woodwork joints used in carcass construction

In **Outcome 2**, learners must produce a range of three basic joint types using nails, screw fixings and adhesives as required, as outlined in the Evidence Requirements in the *Unit Specification*. 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 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 have practice at reading and interpreting orthographic and pictorial drawings and cutting lists. It is expected that the drawings will use a variety of line types and conventions. Where British Standard conventions are used as part of a drawing, these should be explained to the learner. Dimensioning should be for the most part linear, though it will be necessary to also include diameters and radii as appropriate to the item being made. Cutting lists of given materials can be supplied, checked off by the tutor and then reviewed against the finished product. Learners can also be helped to develop drawing-reading skills by the use of well laid out drawings alongside scale physical models of the items drawn. When learners are familiar with the format and content of cutting lists, they can try preparing their own using given templates.

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 with each of the other Outcomes, more time can be allocated to practical activities. Combining Outcomes 1 and 2 together and allowing Outcome 3 to flow from one dedicated activity could also be effective, or if an integrated approach is desired, Outcomes 1, 2 and 3 can be combined.

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 *the Course Support Notes*.

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.

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The other differences can be categorised as being matters of autonomy and responsibility. The National 5 Unit also differs from the National 4 equivalent in that it asks learners to adjust tools where necessary. This work has to be done in accordance with safe working practices.

There are a number of ways in which the National 5 Unit can be made challenging and enriching for learners who have previously taken the National 4 Unit:

- ◆ granting learners more responsibility for their own work and learning (within the boundaries of safe methods and systems of work)
- ◆ granting learners, where appropriate, more independence and autonomy in workshop activities (again within the boundaries of safe methods and systems of work)
- ◆ granting more ownership of tasks to learners by getting them more involved in checking their work as they go along and in the quality assurance process
- ◆ use of more challenging joint types and assemblies

- ◆ use of more challenging drawings and diagrams
- ◆ use of different timbers and manufactured boards

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.

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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>
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5.3 Applying	<p>Learning new techniques and processes and applying them in practical tasks and making an item.</p> <p>Planning and organising tools, equipment and materials in preparation for a practical activity.</p> <p>Applying practical skills to solve a problem in a given drawing or specification.</p>
5.5 Creating	<p>Creating assemblies based on given drawings and diagrams and applying their own interpretation where necessary.</p>

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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.

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All evidence should be gathered under supervised conditions.

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- ◆ 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

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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 woodworking joints used in carcass construction) may be demonstrated in the manufacturing activity of Outcome 3. However, the assembly for Outcome 3 would not sensibly include any more than two different joint types (for symmetry) and so it is recommended that a separate assessment task is devised for each of 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
- ◆ 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 number of different basic carcass construction joints. The number of joints could, in theory, be overcome in a four-joint carcass assembly for Outcome 3. Some or all of them might therefore be able to contribute evidence for Outcome 2. However, this is not recommended here as it could result in a hybrid assembly of different joint types lacking symmetry and form. Rather, evidence for Outcome 2 should be gathered in a series of joint-making tasks. These tasks may be a part of the natural learning and teaching process, or they could be specifically designed as summative assessment events.

Centres may 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.

Notes on assessment of Outcome 3

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

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

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 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](#)
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- ◆ 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

Unit 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: Machining and Finishing (National 5)



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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).

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 5) Unit. They are intended for teachers and lecturers who are delivering this Unit. They should be read in conjunction with:

- ◆ the *Unit Specification*
- ◆ the *Course Specification*
- ◆ the *Course Assessment 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 machine and power tools and in a variety of 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 their thinking skills as well as their skills in numeracy, employability, enterprise and citizenship.

This Unit can be delivered as:

- ◆ a stand-alone Unit
- ◆ as part of the National 5 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 4 Practical Woodworking Course or relevant component 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 5 Practical Woodworking *Course Support Notes*.

If the Unit is being delivered as part of the National 5 Practical Woodworking Course, the teacher should refer to the 'Further mandatory information on Course coverage' section within the *Course Assessment 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 5) Units: *Carcase Construction* and *Flat Frame Construction*
- ◆ Practical Metalworking (National 5) Units
- ◆ National Certificate Group Awards in a range of practical technology courses
- ◆ Skills for Work Course and sector-specific SQA qualifications
- ◆ a range of other stand-alone Units in practical technologies contexts
- ◆ employment, apprenticeships and/or training in practical technology and related fields

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 5 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 5 Practical Woodworking Course, reference should be made to the appropriate content statements within the 'Further mandatory information on Course coverage' section 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.

As an initial introduction to the Unit, learners should be given a thorough introduction to the work required and aspects of safe working practices. Appropriate videos or interactive computer programs could be used, as necessary, to introduce woodworking processes and safety aspects relating the work of the Unit to that of the industrial world.

It may be worthwhile including a brief reminder of these skills as they naturally come into focus at the start of practical sessions. It is important to stress to learners how valuable these will be in the wider world. It is very useful to give specific examples of their usefulness — perhaps by means of case studies.

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.

Learners will be expected to produce good practical work.

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

In **Outcome 1**, it is expected that learners will be able to set up before a workshop session, select the appropriate woodworking power and machine tools and materials and tidy up after completion. It would be good practice to introduce each of the power tools and machine tools separately and to plan practical sessions for the use of each one. Alternatively, it might be useful to introduce 'families' of similar tools and items of equipment when they have common characteristics or uses.

The learner should take time to learn the terminology associated with different tools and their purpose before and during these practical activities. Learning the names and uses of types of woodworking machine and power tools and equipment, including those for turning, drilling, cutting, sanding and fixing, can also be accomplished in an integrative fashion as part of practical activities.

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. Evidence is required of at least two different finishes to both timbers 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 the 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. Learners may wish to apply gloss paint finishes to their products, but if the finish obscures the work underneath it will be unacceptable in a summative assessment scenario.

It is important to gain evidence of this Outcome separately as Outcome 3 does not require the product be finished in any way.

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) 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 with each of the other Outcomes, more time can be allocated to practical activities.

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 *the Course Support Notes*.

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.

The other differences can be categorised as being matters of autonomy and responsibility. The National 5 Unit also differs from the National 4 equivalent in that it asks learners to adjust tools where necessary. This work has to be done in accordance with safe working practices.

There are a number of ways in which the National 5 Unit can be made challenging and enriching for learners who have previously taken the National 4 Unit:

- ◆ granting learners more responsibility for their own work and learning (within the boundaries of safe methods and systems of work)
- ◆ granting learners, where appropriate, more independence and autonomy in workshop activities (again within the boundaries of safe methods and systems of work)
- ◆ granting more personalisation and choice when choosing models for products
- ◆ use of more challenging models for products
- ◆ use of more challenging drawings and diagrams
- ◆ use of different timbers and manufactured boards
- ◆ use of different machine and power tools

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 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 5) 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>
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	
5.3 Applying	<p>Learning new techniques and processes and applying them in practical tasks and making an item.</p> <p>Planning and organising tools, equipment and materials in preparation for a practical activity.</p> <p>Applying practical skills to solve a problem in a given drawing or specification.</p>
5.5 Creating	<p>Creating assemblies based on given drawings and diagrams and applying their own interpretation where necessary.</p>

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

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. However, a single activity assessment approach is **not** recommended for this Unit.

There is scope, however, for combining assessment across some of the Outcomes. For example, aspects of Outcome 1 (Prepare for, and use, a range of practical woodworking machining and finishing techniques) may be demonstrated through all other practical activities, and the use of power tools and machine tools may be demonstrated in the product manufacturing activity of Outcome 3. Aspects of Outcome 2 (Apply a range of finishes to timber and manufactured board) may be demonstrated in the work of Outcome 3 (although the product for Outcome 3 does not need to be finished).

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
- ◆ knowledge and understanding of sustainability issues in practical woodworking
- ◆ practical skills in the use of machine and power tools
- ◆ 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 and using a range of woodworking tools to complete machining and finishing techniques.

The work for Outcome 1 requires the learner to use a range of common machine and power tools. Evidence for this could be gathered by observation of day-to-day practical sessions or in pre-planned workshop sessions of learners as they prepare for activities. These tasks may be a part of the natural learning and teaching process, or they could be specifically designed as summative assessment events.

Evidence is also required of knowledge and understanding of a range of woodworking machine and power tools and equipment 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.

Centres may wish to use summative approaches to assessing learners' knowledge and understanding in this 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 3 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 2 could be gathered from a series of small tasks 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), sanded 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 long 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 finished applied to pieces of manufactured board, the minimum size should be 300 x 300 mm or thereabouts and ideally around 400 x 600 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 woodworking product 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.

The assessor should allow plenty of time for formative assessment in product-making and so too for remediation of the summative task.

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

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Administrative information

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History of changes to Unit Support Notes

Unit 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 61 — Approaches to assessment and gathering evidence section — changes to the minimum length of timber.	Qualifications Manager	June 2014

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