Unit 10: Understand the Principles of Tree Felling and Chainsaw Use

Unit code: K/600/9837

QCF Level 3: BTEC National

Credit value: 10

Guided learning hours: 60

● Aim and purpose

This unit aims to provide learners with an understanding of a range of petrol-driven chainsaws and felling techniques currently used within the industry, to develop efficient chainsaw maintenance skills and to carry out basic repairs and troubleshooting. This unit is primarily aimed at learners within a centre-based setting looking to progress into the sector or to further education and training.

● Unit introduction

The use of chainsaws is important in many of the land-based industries. It is vital that chainsaw operators can maintain and use their chainsaw within the manufacturers' guidelines. The need for the operator to be competent, safe and efficient at using a chainsaw is paramount for any employer.

This unit focuses on developing learners' skills to undertake basic chainsaw maintenance required for subsequent safe and efficient operation. Learners will learn to identify common problems and carry out routine maintenance. They will undertake basic felling and cross cutting of small diameter trees. They will also carry out practical stump removal and investigate and evaluate a range of felling, brushchipping and stump removal methods which are appropriate to a range of circumstances.

On completion of the unit, learners will be able to appropriately risk assess their work environment, carry out routine maintenance and basic repairs on a chainsaw and identify signs of wear. In addition, they will be able to select and use appropriate methods to fell and process the waste products in a safe and appropriate manner.

● Learning outcomes

On completion of this unit a learner should:

1   Be able to correctly maintain chainsaws to manufacturers' recommendations

2   Be able to safely fell and cross cut small diameter trees

3   Be able to safely use stump and brushchipping removal methods

4   Understand commonly used stump and brushchipping removal and tree felling methods.

Unit content

1 Be able to correctly maintain chainsaws to manufacturer's recommendations

Chainsaws and personal protective equipment (PPE): major manufacturers; current models of main manufacturers; use of appropriate engine size and guide bar length for task; two stroke engines; main components; safety features; PPE; health and safety considerations; environmental considerations

Inspection and identification of problems: chain: tension, height of depth gauge, condition of cutting edge; guidebar: straightness, wear of channel, condition of sprocket; air filter: clogging or damage; spark plug: colour of electrode, reasons for blackening or whitening of electrode, use of feeler gauge to check gap; recoil: signs of wear; check chainbrake and on/off switch

Routine servicing and maintenance: use of manufacturers' or suppliers' manuals; identification of routine maintenance tasks; recognition of incorrect operation or adjustments; identification of faults; replacement and adjustment of operator serviceable components; appropriate tools for maintenance; chain sharpening and tensioning; guide bar maintenance; cleaning of air filter; fuel and oil filling; adjusting tick-over; correct tensioning of recoil

Legal requirements: provisions under current relevant legislation eg Health and Safety at Work Act 1974, Provision and Use of Work Equipment Regulations 1998 (PUWER), Control of Substances Hazardous to Health 2002 (COSHH)

2 Be able to safely fell and cross cut small diameter trees

Site and tree inspection: risk assessment; condition of site and tree; direction of fall; work planning; surroundings; site access; escape routes; environmental considerations

Work positioning and starting saw: equipment and fuel storage; pre-start checks; cold and warm starts; ground conditions; health and safety; risk assessment; PPE; environmental considerations

Felling and cross cutting: position of cuts (felling, over cross-cutting and under cross-cutting); use of felling aids; delimbing; movement between work positions; tree condition; ground conditions; ancillary equipment; safe handling of products and arisings; health and safety; risk assessment; PPE

Waste disposal: methods eg timber stacks, ecopiles, dead hedges, chipping, burning; relevant current legislation and codes of practice

3 Be able to safely use stump and brushchipping removal methods

Method selection and set up: suitability of method to task; stump and brushwood size and condition; species; site conditions; surroundings; disposal of arisings; access to site; identification of site hazards and risks; environmental considerations

Safe and effective equipment operation: use of manufacturers' manuals; adherence to relevant current legislation and industry safety guidance; PPE; monitoring of outputs; maintenance of product or task specifications; effective communication; awareness of public and work colleagues; terrain eg topography, operational parameters, public access, highways and footpaths, risk zones, power lines and underground services; efficiency and operational adjustments; establishment of safety zones; refuelling points; environmental considerations

4 Understand commonly used stump and brushchipping removal and tree felling methods

Problem trees: hung-up trees; leaning trees; diseased or hollow trees; multi-stem trees; windblown trees; branches under tension

Environmental issues: impacts on wildlife eg bat roosts, badger setts, cavity-nesting birds; saproxylic species, importance of deadwood in woodland ecosystems; statutory designations eg Sites of Special Scientific Interest (SSSIs), Tree Preservation Orders (TPOs); current legislation and guidelines.

Methods for stump and brushwood removal: grinders; chemicals; heavy plant; winching systems; jacks; saws; fire; hand digging; chippers; health and safety; risk assessment; safe working distances; PPE; relevant current legislation and codes of practice; environmental considerations

Methods for felling problem trees: felling methods; risk assessment; PPE; site conditions; escape routes; use of felling aids eg felling levers, wedges, winches, round slings, strops and ropes; safe working distance, relevant current legislation and codes of practice; environmental considerations

Legal requirements: provisions under current relevant legislation eg Health and Safety at Work Act 1974, Provision and Use of Work Equipment Regulations 1998 (PUWER), Control of Substances Hazardous to Health 2002 (COSHH), Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR); waste disposal and transport; task and site specific risk assessments; PPE; pre-operation checks, safety devices; noise and vibration levels

Assessment and grading criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria for a pass grade describe the level of achievement required to pass this unit.

Assessment grading criteria		
To achieve a pass grade the evidence must show that the learner is able to:	To achieve a merit grade the evidence must show that, in addition to the pass criteria, the learner is able to:	To achieve a distinction grade the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
P1 safely carry out maintenance operations on selected chainsaws in accordance with manufacturers' recommendations and health and safety guidelines [IE]	**M1** explain the importance of carrying out routine chainsaw maintenance and pre-start checks	**D1** produce a schedule of work for an area of woodland which requires some felling work
P2 identify common faults in chainsaws [IE]		
P3 assess risks prior to felling and cross cutting operations [CT]	**M2** evaluate own use of chainsaw, felling and cross cutting techniques	
P4 safely fell and cross cut selected small diameter trees to meet given objectives [TW, SM]		
P5 dispose of waste appropriately		
P6 select appropriate stump and brushchipping removal methods and equipment [EP]	**M3** complete a risk assessment of the area, task and equipment to be used	**D2** evaluate the environmental impacts of stump and brushchipping removal.
P7 safely use appropriate stump and brushchipping removal methods [TW, SM]		
P8 identify environmental impacts of removal method used [CT]		

Assessment grading criteria

To achieve a pass grade the evidence must show that the learner is able to:	To achieve a merit grade the evidence must show that, in addition to the pass criteria, the learner is able to:	To achieve a distinction grade the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
P9 evaluate commonly used stump and brushchipping removal methods [RL]	**M4** carry out a site and tree condition survey for a selected area of trees identifying any problem, hung up or windblown trees.	
P10 assess different problem trees [IE]		
P11 evaluate methods for felling problem trees [IE]		
P12 explain the uses of chainsaws		
P13 assess tree felling activities carried out		
P14 explain the maintenance of chainsaws.		

PLTS: This summary references where applicable in the pass criteria, in the square brackets, the elements of the personal, learning and thinking skills. It identifies opportunities for learners to demonstrate effective application of the referenced elements of the skills.

Key	IE – independent enquirers	RL – reflective learners	SM – self-managers
	CT – creative thinkers	TW – team workers	EP – effective participators

Essential guidance for tutors

Delivery

Delivery of this unit will involve practical assessments, written assessment, visits to suitable collections and will have links to industrial experience placements.

Tutors delivering this unit have opportunities to use as wide a range of techniques as possible. Lectures, discussions, seminar presentations, site visits, supervised practicals, internet and/or library-based research and personal and/or industrial experience would all be suitable. Whatever delivery methods are used, delivery should stimulate, motivate, educate and enthuse learners.

Industry placements should be monitored regularly to ensure the quality of the learning experience. It would be beneficial if learners and supervisors were made aware of the requirements of this unit prior to any work-related activities so that naturally occurring evidence can be collected at the time. For example, learners may have the opportunity to fell and cross cut small diameter trees, or use, operate, maintain or repair relevant forestry or arboricultural machinery and they should be encouraged to ask for observation records and/or witness statements to be provided as evidence of this. Guidance on the use of observation records and witness statements is provided on the Edexcel website.

Tutors should consider integrating the delivery, private study and assessment for this unit with other relevant units and assessment instruments learners are taking as part of their programme of study.

Practical working techniques should be taught initially by demonstration and then by closely supervised practical sessions. Tutors must be able to show current industry best practices. Group size must not exceed recommended guidelines, where applicable, for the specified machinery and operations. Learners would benefit from access to tree felling opportunities in realistic industrial settings, although the work sites available and the objectives may influence the range of activities that may be undertaken. Any legal permission required to fell trees must be obtained and any equipment/machinery used must comply with current legal requirements.

As learners develop their skills and confidence they should be encouraged to take more responsibility for their work, but practical operations must not take place without appropriate supervision. Learners are likely to develop their skills at varied rates and close monitoring of progress should be maintained and allowance made for extra support for the less experienced while allowing the more experienced to further develop and extend their skills.

Learning outcome 1 requires learners to correctly maintain chainsaws to manufacturers' recommendations. Delivery is likely to be in the form of initial demonstrations, followed by supervised practical sessions and independent learner research where appropriate. It is essential that learners are given access to appropriate workshop facilities, and manufacturers' manuals are available to undertake this work. Learners should be able to service and maintain chainsaws in a realistic industrial environment. Learners should also be encouraged to experience a range of chainsaw makes and models as well as to obtain and review manufacturers' information.

Learning outcome 2 requires learners to safely fell and cross cut small diameter trees. Delivery of this outcome is likely to be in the form of initial demonstrations, followed by supervised practical sessions. The trees to be felled should have a diameter at felling height between 200 mm and 380 mm, and the maximum recommended guide bar length is 380 mm. Learners must not be required to fell trees on a windthrown or other high risk work site where the level of risk is unacceptable.

Learning outcome 3 requires learners to safely use stump and brushwood chipping removal methods. Delivery of this outcome is likely to be in the form of initial demonstrations, followed by supervised practical sessions and is likely to be undertaken in conjunction with learning outcome 2. Learners are required to use

two methods of stump removal in addition to brushwood chipping. Learners must not be required to use methods of work on a site which are not appropriate or where the level of risk is unacceptable.

Learning outcome 4 requires learners to understand commonly used stump and brushwood chipping removal and tree felling methods. This learning outcome has links to learning outcomes 2 and 3 and should be delivered in conjunction with them. It could be delivered through formal lecture, group discussion and independent learner research. Visits to work sites and or industry trade shows, such as the Association of Professional Foresters exhibition and the Arboriculture Association annual show, would be of particular benefit to the delivery of this outcome.

Learners should be encouraged to establish links with specialist machinery suppliers and dealers to find out about the range of machinery available. Using resources such as video, CD ROM, machinery catalogues, trade magazines, internet and manufacturers' information, learners will be able to gain an understanding of the range and complexity of tree felling and ancillary machinery commonly used within the forestry and arboricultural sectors.

Health and safety issues must be appropriately addressed before learners use equipment or undertake any practical work and reinforced regularly. Adequate PPE must be provided and worn following the production of suitable risk assessments.

Visiting expert speakers could add to the relevance of the subject for learners. For example, a machinery operator or dealer could talk about their work, the situations they face and the methods they use.

Outline learning plan

The outline learning plan has been included in this unit as guidance and can be used in conjunction with the programme of suggested assignments.

The outline learning plan gives **an indication of the volume of learning it would take the average learner** to achieve the learning outcomes. It is **indicative and is one way of achieving the credit value.**

Learning time should address all learning (including assessment) relevant to the learning outcomes, regardless of where, when and how the learning has taken place.

Topic and suggested assignments/activities and/assessment
Introduction and overview of the unit.
Assignment 1; Chainsaw Maintenance (P1, P2, M1) Tutor introduces assignment brief.
Practical sessions: tutor introduces chainsaws, main manufacturers and common models, main components, uses of saws, two stroke engines, choice of appropriate size of saw for task, PPE.
Practical sessions: tutor introduces learners to handling saws, identifying areas that require regular inspection, identifying signs of wear and tear, importance of regular inspection and maintenance.
Practical sessions: stripping and cleaning of appropriate components, maintenance of chain, guide bar, air filter. Learners gaining competence in carrying out maintenance tasks, cold start and warm start.
Assignment 2: Felling and Cross Cutting of Small Diameter Trees (P3, P4, P5, M2) Tutor introduces assignment brief.
Practical sessions: site visit to identify potential site hazards, direction of felling, escape routes, environmental considerations.
Practical sessions: position of cuts, importance of correct placing of cuts, use of felling aids, methods of waste disposal.
Practical sessions: felling of trees showing attention to health and safety, appropriate waste disposal of arisings.

Topic and suggested assignments/activities and/assessment
Assignment 3: Stump Removal Methods (P6, P7, P8, M3) Tutor launches assessment.
Theory session: presentation on methods of stump removal available and current legislation and guidelines. Discussion on appropriate methods to variety of stump types, risk assessment, PPE.
Practical sessions: identify and carry out appropriate method of stump removal for selected stumps.
Assignment 4: Tree Felling Issues (P9, P10, P11, P12, P13, P14, M4, D1, D2) Tutor introduces assignment.
Site visits: methods of felling problem trees, extra consideration of health and safety, methods of bringing down hung-up trees.
Theory session: presentation and film footage of use of felling aids, choice of appropriate aids.
Theory session: species, designations and other environmental issues.
Independent learning.
Unit review.

Assessment

For P1, learners are required to safely carry out maintenance operations on selected chainsaws in accordance with manufacturers' recommendations and health and safety guidelines. Where possible, to ensure fairness of assessment the size and complexity of the tasks should be the same for all learners. This must include correct sharpening and chain replacement, knowledge of safety features and parts of the chainsaw, bar maintenance, air filter cleaning and replacement, sprocket types and methods of replacement, and chain brake band maintenance and replacement. This criterion could be assessed directly by the tutor during practical activities. If this format is used, then suitable evidence from guided activities would be observation records completed by learners and the tutor or appropriate work logs or other relevant learner notes. If assessed during a placement, witness statements should be provided by a suitable representative and verified by the tutor.

For P2, learners are required to identify common faults such as faulty spark plugs, cracked ceramic of spark plugs, signs of wear on guidebar, chainbrake mechanism, and recoil. The effects of poor maintenance and chain tensioning on efficient operation must be understood and commented on. This criterion could be assessed directly by the tutor during practical activities and evidence could be in the same format as for P1 and undertaken at the same time.

For P3, learners are required to assess risks prior to felling and cross cutting operations. For felling this should include access points, safe working distances, direction of felling and escape routes. For cross cutting learners should consider slope of ground, suitable space to work, stance, and keeping the area clear of debris. Evidence could be in the same form as for P1.

For P4, learners are required to safely fell and cross cut selected small diameter trees to meet given objectives. Tutors should identify the trees and the objectives or agree them through discussion with learners. Where possible, to ensure fairness of assessment the size and complexity of the tasks should be the same for all learners. Learners should carry out the tasks with due regard to the species of tree, showing correct sink cuts in proportion to the tree felled and correct hinge and back cuts. It is expected that, as a minimum, learners will provide evidence for at least four trees. Evidence could be in the same form as for P1 and undertaken in conjunction with P3.

For P5, learners will dispose of the brash in a method that is appropriate to the site. This criterion could be assessed in conjunction with P4 and evidence could be in the same form as for P1.

For P6 and P7, learners must select and use appropriate removal methods on selected stumps and brushwood. Tutors should identify the stumps to be removed and the wood to be chipped, or agree them through discussion with learners. Where possible, to ensure fairness of assessment the size and complexity of the tasks should be the same for all learners. These criteria could be assessed together and evidence could be in the same form as for P1.

For P8, learners need to identify the environmental impacts of the removal methods used in criteria P6 and P7. Evidence could be in the same form as for P1, or completed as a presentation, case study, a portfolio or as a report on a site assessment in the field.

For P9, P10, P11, P12, P13 and P14, learners must identify problem trees, assess issues relating to felling them and select appropriate methods and suitable equipment. Evidence for these criteria could be collectively completed as a presentation, case study, a portfolio or as a report on a site assessment in the field.

For M1, learners must explain the importance of carrying out routine chainsaw maintenance and pre-start checks. Assessment for this criterion could be carried out at the same time as for P1, with learners explaining to their tutor, while they are carrying out maintenance tasks, the importance of each task and the implications of not inspecting and maintaining the saw to a high standard. Evidence could be in the same form as for P1.

For M2, learners must evaluate their own use of chainsaw, felling and cross cutting techniques, explaining any areas for improvement and covering their confidence, stance, quality of cuts, and adherence to health and safety. It would be appropriate to carry this out following the felling and cross cutting carried out for P4 and evidence could be a written report or verbal discussion with the tutor.

For M3, learners are expected to complete a detailed risk assessment for the removal of a stump and must exhibit a clear understanding of the possible dangers involved in the task. Evidence could be in the form of a completed risk assessment pro forma or as a report on a site assessment in the field and link to criteria P6 and P7.

For M4, learners are expected to carry out a survey to identify any problem trees such as hung-up or windblown, leaning, hollow or diseased trees. This must include identification of any environmental considerations which would affect felling operations. Where possible, to ensure fairness of assessment the size and complexity of the tasks should be the same for all learners. Evidence could be in the form of an annotated map, written report or verbal discussion with the tutor.

For D1, learners need to produce a schedule of work for a section of woodland which requires some felling work. Learners should choose appropriate fuelling points, agree where equipment and first aid kits are stored, decide on the specifications that the felled timber should be cut to (depending on the end use) and choose an appropriate area for stacking. Evidence could be in the form of an annotated map, written report or verbal discussion with the tutor.

For D2, learners must evaluate the environmental impacts of stump and brushchipping removal. These may relate to the location of badger setts, cavities in trees which may be hosts to bats or cavity nesting birds, management of fires, benefits of ecopiles and log piles from felling, as well as designations. Evidence could be in the form of an annotated map, written report or verbal discussion with the tutor.

Programme of suggested assignments

The following table shows a programme of suggested assignments that cover the pass, merit and distinction criteria in the grading grid. This is for guidance and it is recommended that centres either write their own assignments or adapt any Edexcel assignments to meet local needs and resources.

Criteria covered	Assignment title	Scenario	Assessment method
P1,P2, M1	Chainsaw Maintenance	Demonstrate an ability to maintain chainsaws to the manufacturers' recommendations. Carry out routine maintenance as well as inspection of the chainsaw for wear and tear. Remove, check and replace the chain, guidebar and spark plug, sharpen the chain, check the chainbrake and on/off switch, remove, check and clean the air filter and fuel and oil the chainsaw correctly.	Practical observation and verbal assessment.
P3, P4, P5, M2	Tree Felling and Cross Cutting of Small Diameter Trees	Carry out a risk assessment for the felling of trees which are identified to you. Safely fell a minimum of four trees with a diameter of 200 mm to 380 mm demonstrating good sink-cuts. Cross cut the felled tree and dispose of the waste in an appropriate manner. Evaluate your own use of the saw, consider your levels of confidence, your stance and the quality of your cuts. Organise a schedule of works for the felling and cross cutting for a selected area of woodland. You must decide on the fuelling points, where the equipment will be stored, the size that the timber should be cross cut to where it will be stored and how the brash will be disposed of.	Practical observation and verbal assessment.
P6, P7, P8, M3	Stump Removal and Brushchipping Methods	Assess two stumps and select an appropriate method of removal and the correct equipment and identify the environmental impacts of the removal method chosen. Safely remove a minimum of two stumps. Complete a risk assessment for all aspects of methods to be used.	Practical observation and verbal assessment. Risk assessment Pro forma.
P9, P10, P11, P12, P13, P14, M4, D1, D2	Tree Felling Issues	Produce a presentation on how to identify and fell different problem trees such as hung-up trees, diseased or hollow trees, windblown or leaning trees. You should include identification of environmental issues that might restrict felling operations. Carry out a survey to assess any problem trees or environment issues on the site. Assess the environmental impacts of felling operations for a given area of woodland.	PowerPoint presentation, annotated map, or written report.

Links to National Occupational Standards, other BTEC units, other BTEC qualifications and other relevant units and qualifications

This unit forms part of the BTEC land-based sector suite. This unit has particular links with:

Level 2	Level 3
Undertake Tree Felling Operations	TW10 Fell small trees using a chainsaw
Undertake Tree Climbing and Pruning Operations	Understand and Carry Out Tree Planting, Aftercare and Protection
	Undertaking Woodland Habitat Management

Essential resources

Learners will need supervised access to a range of appropriate worksites and opportunities to undertake felling in an industrial context and appreciate the range of stump removal and brushwood chipping options. This is particularly important for those options that the centre may not have in its resource fleet. Learners must also have access to practical resources, such as chainsaws, felling levers, hi-lift wedges, sledge hammers, winches and strops. In addition, access to sufficient trees of a diameter between 200 mm and 380 mm for felling and cross cutting must also be available. While the range of machinery and methods used may reflect the industry locally or regionally important to learners, this should not restrict learners' appreciation of the range of methods commonly used.

Access to the internet and a library with multiple copies of specialist texts is essential. There is also a need for adequate classroom and workshop facilities including video and computer-based presentation equipment. Textbooks, magazines and e-learning resources will provide and underpin learners' knowledge of machinery. There should also be adequate washing and welfare facilities available at the centre and on worksites in addition to personal protective equipment (PPE) and first-aid facilities.

Employer engagement and vocational contexts

This unit has a very practical focus and in this respect, employer engagement and well thought out and relevant vocational content will provide the modern context into which skills can be placed. Centres are encouraged to develop links with woodland owners to ensure that there are suitable sites for the felling to take place.

Good employer links will also give learners access to machinery and equipment that may not be available to the centre. Industry placement opportunities should be actively sought alongside visits by experienced practitioners to illustrate current equipment, trends and practice in deployment, operation, maintenance and repair situations. Learners should be encouraged to develop links with employers and arrange visits and demonstrations.

The industry also provides excellent facilities both nationally and internationally in its range of trade shows, exhibitions and demonstrations and these should not be overlooked as a learning environment as they provide an insight into new design and innovation.

Indicative reading for learners

Textbooks

Ireland D – *Winching Operations in Forestry* (Forestry Commision, 2004) ISBN 9280855386382

Kestel B – *Chainsaw Operator's Manual: The Safe Use of Chainsaws* (Landlinks Press, 2005)
ISBN 9280643090282

Shetterly R and Blair D – *Arborist Equipment: A Guide to the Tools and Equipment of Tree Maintenance and Removal* (International Society of Arboriculture, 1995) ISBN 9281881956136

Journals

Arboricultural Journal – Arboricultural Association

Essential Arb

FCA News

Forest Machine Journal

Forestry Journal

Profi

Total Arb

Other useful publications

Arboriculture and Forestry Advisory Group (AFAG) Safety Guides

Websites

www.trees.org.uk   Arboricultural Association

www.fcauk.com   Forestry Contractors Association

www.forestry.gov.uk   Forestry Commission

www.hse.gov.uk   Health and Safety Executive

Delivery of personal, learning and thinking skills (PLTS)

The following table identifies the PLTS opportunities that have been included within the assessment criteria of this unit:

Skill	When learners are ...
Independent enquirers	identifying faults with chainsaws considering the environmental impacts of felling or stump removal justifying their method choices for the removal of problem trees assessing problem trees
Creative thinkers	assessing the environmental impacts of felling or stump removal assessing risks for felling and stump removal operations
Reflective learners	evaluating their own use of a chainsaw and their felling and cross cutting technique
Team workers	managing the felling site carrying out felling and stump removal operations
Self-managers	organising the felling site risk assessing felling or stump removal methods
Effective participators	improving their chainsaw technique and evaluating their own chainsaw skills selecting an appropriate method of stump removal carrying out tree condition surveys.

Although PLTS opportunities are identified within this unit as an inherent part of the assessment criteria, there are further opportunities to develop a range of PLTS through various approaches to teaching and learning.

Skill	When learners are ...
Independent enquirers	investigating tree conditions and environmental impacts
Creative thinkers	applying techniques to maintenance tasks
Reflective learners	evaluating own performance action planning and target setting
Team workers	helping and supporting their peers during practical tasks
Self-managers	completing risk assessments
Effective participators	participating in maintenance tasks discussing appropriate methods of felling, stump removal or environmental management of site.

Functional Skills – Level 2

Skill	When learners are …
ICT – Use ICT systems	
Select, interact with and use ICT systems independently for a complex task to meet a variety of needs	designing a risk assessment pro forma designing an illustrated map
Use ICT to effectively plan work and evaluate the effectiveness of the ICT system they have used	
Manage information storage to enable efficient retrieval	
Follow and understand the need for safety and security practices	
ICT – Find and select information	
Select and use a variety of sources of information independently for a complex task	researching issues affecting tree felling
Access, search for, select and use ICT-based information and evaluate its fitness for purpose	
ICT – Develop, present and communicate information	
Enter, develop and format information independently to suit its meaning and purpose including: • text and tables • images • numbers • records	designing a presentation on issues relating to felling trees
Bring together information to suit content and purpose	
Present information in ways that are fit for purpose and audience	
Select and use ICT to communicate and exchange information safely, responsibly and effectively including storage of messages and contact lists	
Mathematics	
Understand routine and non-routine problems in a wide range of familiar and unfamiliar contexts and situations	
Identify the situation or problem and the mathematical methods needed to tackle it	
Select and apply a range of skills to find solutions	calculating correct placing and positioning of cuts

Skill	When learners are ...
Use appropriate checking procedures and evaluate their effectiveness at each stage	
Draw conclusions and provide mathematical justifications	
English	
Speaking and listening – make a range of contributions to discussions and make effective presentations in a wide range of contexts	presenting information on issues arising from tree felling discussing problem trees and appropriate felling aids
Reading – compare, select, read and understand texts and use them to gather information, ideas, arguments and opinions	
Writing – write documents, including extended writing pieces, communicating information, ideas and opinions, effectively and persuasively	producing a report on the environmental impacts of felling operations.