Pearson BTEC

Pearson BTEC Level 3 National Foundation Diploma in Forestry and Arboriculture

Specification

First teaching from January 2019

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Issue 4

Pearson BTEC Level 3 National Foundation Diploma in Forestry and Arboriculture

Specification

First teaching September 2019

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Edexcel, BTEC and LCCI qualifications

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This specification is Issue 4. We will inform centres of any changes to this issue. The latest issue can be found on our website.

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Welcome

With a track record built over 30 years of learner success, BTEC Nationals are widely recognised by industry and higher education as the signature vocational qualification at Level 3. They provide progression to the workplace either directly or via study at a higher level. Proof comes from YouGov research, which shows that 62 per centof large companies have recruited employees with BTEC qualifications. What's more, well over 100,000 BTEC students apply to UK universities every year and their BTEC Nationals are accepted by over 150 UK universities and higher education institutes for relevant degree programmes either on their own or in combination with A Levels.

Why are BTECs so successful?

BTECs embody a fundamentally learner-centred approach to the curriculum, with a flexible, unit-based structure and knowledge applied in project-based assessments. They focus on the holistic development of the practical, interpersonal and thinking skills required to be able to succeed in employment and higher education.

When creating the BTEC Nationals in this suite, we worked with many employers, higher education providers, colleges and schools to ensure that their needs are met. Employers are looking for recruits with a thorough grounding in the latest industry requirements and work-ready skills such as teamwork. Higher education needs students who have experience of research, extended writing and meeting deadlines.

We have addressed these requirements with:

- a range of BTEC sizes, each with a clear purpose, so there is something to suit each learner's choice of study programme and progression plans
- refreshed content that is closely aligned with employers' and higher education needs for a skilled future workforce
- assessments and projects chosen to help learners progress to the next stage. This means some are set by you to meet local needs, while others are set and marked by Pearson so that there is a core of skills and understanding that is common to all learners. For example, a written test can be used to check that learners are confident in using technical knowledge to carry out a certain job.

We provide a wealth of support, both resources and people, to ensure that learners and their teachers have the best possible experience during their course. See *Section 10* for details of the support we offer.

A word to learners

Today's BTEC Nationals are demanding, as you would expect of the most respected applied learning qualification in the UK. You will have to choose and complete a range of units, be organised, take some assessments that we will set and mark and keep a portfolio of your assignments. But you can feel proud to achieve a BTEC because, whatever your plans in life – whether you decide to study further, go on to work or an Apprenticeship, or set up your own business – your BTEC National will be your passport to success in the next stage of your life.

Good luck, and we hope you enjoy your course.

Collaborative development

Learners completing their BTEC Nationals in Forestry and Arboriculture will be aiming to go on to employment, often via the stepping stone of higher education. It was, therefore, essential that we developed these qualifications in close collaboration with experts from professional bodies, businesses and universities, and with the providers who will be delivering the qualifications.
To ensure that the content meets providers' needs and provides high-quality preparation for progression, we engaged experts. We are very grateful to all the university and further education lecturers, teachers, employers, professional body representatives and other individuals who have generously shared their time and expertise to help us develop these new qualifications.

Employers, professional bodies and higher-education providers that have worked with us include:

- Myerscough College
- The Forestry Commission
- University of Central Lancashire
- University of West of England.

In addition, universities, professional bodies and businesses have provided letters of support confirming that these qualifications meet their entry requirements. These letters can be viewed on our website.

Summary of Pearson BTEC Level 3 National Foundation Diploma in Forestry and Arboriculture specification Issue 4 changes

Summary of changes made between the previous issue and this current issue	Page number
The last paragraph of the *Qualification and unit content* section has been amended to allow centres delivering the qualification above to alter the content to reflect the context of the country where it is being delivered.	Page 5

If you need further information on these changes or what they mean, contact us via our website at: qualifications.pearson.com/en/support/contact-us.html.

Contents

Introduction to BTEC National qualifications for the forestry and arboriculture sector

This specification contains the information you need to deliver the Pearson BTEC Level 3 National Foundation Diploma in Forestry and Arboriculture. The specification signposts you to additional handbooks and policies. It includes all the units for this qualification.

This qualification is the first of the planned suite of forestry and arboriculture qualifications offered by Pearson. In the suite there are qualifications that focus on different progression routes, allowing learners to choose the one best suited to their aspirations.

All qualifications in the suite share some common units and assessments, allowing learners some flexibility in moving between qualifications where they wish to select a more specific progression route. The qualification titles are given below.

Within this suite are BTEC National qualifications for post-16 learners who want to specialise in a specific industry, occupation or occupational group. The qualifications give learners specialist knowledge and technical skills, enabling entry to an Apprenticeship or other employment, or progression to related higher education courses. Learners taking these qualifications must have a significant level of employer involvement in their programmes.

In the forestry and arboriculture sector these are:

Pearson BTEC Level 3 National Foundation Diploma in Forestry and Arboriculture (603/1904/5)

Pearson BTEC Level 3 National Extended Diploma in Forestry and Arboriculture (603/2678/5).

The Foundation Diploma (540 GLH) is approved as an Tech Level qualification for 2020 performance measures by the DFE. The Extended Diploma (1080 GLH) is not currently recognised for performance measures. Please check our website for details of subsequent availability for future DFE performance measures.

This specification signposts all the other essential documents and support that you need as a centre in order to deliver, assess and administer the qualification, including the staff development required. A summary of all essential documents is given in *Section 7*. Information on how we can support you with this qualification is given in *Section 10*.

The information in this specification is correct at the time of publication.

Total Qualification Time

For all regulated qualifications, Pearson specifies a total number of hours that it is estimated learners will require to complete and show achievement for the qualification: this is the Total Qualification Time (TQT). Within TQT, Pearson identifies the number of Guided Learning Hours (GLH) that we estimate a centre delivering the qualification might provide. Guided learning means activities, such as lessons, tutorials, online instruction, supervised study and giving feedback on performance, that directly involve teachers and assessors in teaching, supervising and invigilating learners. Guided learning includes the time required for learners to complete external assessment under examination or supervised conditions.

In addition to guided learning, other required learning directed by teachers or assessors will include private study, preparation for assessment and undertaking assessment when not under supervision, such as preparatory reading, revision and independent research.

BTEC Nationals have been designed around the number of hours of guided learning expected. Each unit in the qualification has a GLH value of 60, 90 or 120. There is then a total GLH value for the qualification.

Each qualification has a TQT value. This may vary within sectors and across the suite, depending on the nature of the units in each qualification and the expected time for other required learning.

The following table show all the qualifications in this sector and their GLH and TQT values.

Qualifications, sizes and purposes at a glance

Title	Size and structure	Summary purpose
Pearson BTEC Level 3 National Foundation Diploma in Forestry and Arboriculture	540 GLH (850 TQT). Equivalent in size to 1.5 A Levels. Six units, of which five are mandatory and two are external. Mandatory content (89%) External assessment (44%).	This qualification is designed as a one-year, full-time course, or as part of a two-year, full-time study programme for learners who want to take it alongside another area of complementary study. It is intended as a Tech Level qualification and supports progression to careers in the forestry and arboriculture sector. This qualification is primarily for learners who are intending to gain employment directly, in roles such as trainee forester or forest worker, but can also be used to progress to an apprenticeship or a higher-education course in forestry and arboriculture.
Pearson BTEC Level 3 National Extended Diploma in Forestry and Arboriculture*	1080 GLH (1690 TQT) Equivalent in size to three A Levels. Fifteen units of which twelve are mandatory and three are external. Mandatory content (83%). External assessment (33%).	This qualification is a two-year, full-time course for post-16 learners and is intended as a Tech Level qualification. It is designed for learners who want to focus their studies on the forestry and arboriculture sector, with a firm intention of progressing to employment. Learners can select one of two pathways that focus on particular disciplines in either forestry or arboriculture, leading to roles such as a working arborist or forest worker. Progress could be either directly to employment in Level 3 job roles or via higher-education courses in this area.

Learners must not register on the BTEC Level 3 Nationals in Agriculture, Horticulture or Countryside Management at the same time as the BTEC Level 3 Nationals in Forestry and Arboriculture, due to the overlap of content and assessment.

***** This qualification is not currently recognised by DFE for performance measures.

Structures of the qualifications at a glance

This table shows all the units and the qualifications to which they contribute. The full structure for this Pearson BTEC Level 3 National in Forestry and Arboriculture is shown in *Section 2*. **You must refer to the full structure to select units and plan your programme.**

Key

	Unit assessed externally	M	Mandatory units	O	Optional units

Unit (number and title)	Unit size (GLH)	Foundation Diploma (540 GLH)	Extended Diploma* (1080 GLH)	
			ARBORICULTURE	FORESTRY
1 Professional Working Responsibilities	120	M	M	M
2 Plant and Soil Science	120	M	M	M
3 Contemporary Issues in Land-based Sectors	120		M	M
4 Work Experience in the Land-based Sectors	60	M	M	M
5 Estate Skills	60	O	M	M
6 Identification, Planting and Care of Trees	60		M	M
7 Tree and Shrub Pruning and Maintenance	60		M	M
8 Tree Pests and Diseases	60	O	M	M
9 Tree-felling Activities	60	M	M	M
10 Forestry and Arboricultural Machinery Operations	60		M	M
11 Aerial Arboriculture Skills	60		M	
12 Surveying, Inspecting and Measuring Trees	60		O	
13 Trees in Urban Environments	60		M	
14 Timber Conversion and Utilisation	60		O	M
15 Woodland Management	60		O	O
16 Forestry and Silviculture	60			M
17 Forest Recreation	60			O
18 Wildlife Ecology and Conservation Management	60		O	O
19 Developing a Land-based Enterprise	60		O	O
20 Woodland Project	120	M		

***** This qualification is not currently recognised by DFE for performance measures.

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Qualification and unit content

Pearson has developed the content of the new BTEC Nationals in collaboration with employers and representatives from higher education and relevant professional bodies. In this way, we have ensured that content is up to date and that it includes the knowledge, understanding, skills and attributes required in the sector.

Each qualification in the suite has its own purpose. The mandatory content provides a balance of breadth and depth ensuring that all learners have a strong basis for developing technical skills required in the sector. Learners are then offered the opportunity to develop a range of technical skills and attributes expected by employers with some opportunity to select between optional units where a degree of choice for individual learners to study content relevant to their own progression choices is appropriate. It is expected that learners will apply their learning in relevant employment and sector contexts during delivery and have opportunities to engage meaningfully with employers.

The proportion of mandatory content ensures that all learners are following a coherent programme of study and acquiring the knowledge, understanding and skills that will be recognised and valued. Learners are expected to show achievement across mandatory units as detailed in *Section 2*.

BTEC Nationals have always required applied learning that brings together knowledge and understanding (the cognitive domain) with practical and technical skills (the psychomotor domain). This is achieved through learners performing vocational tasks that encourage the development of appropriate vocational behaviours (the affective domain) and transferable skills. Transferable skills are those such as communication, teamwork, planning and completing tasks to high standards, which are valued in both the workplace and in higher education.

Our approach provides rigour and balance, and promotes the ability to apply learning immediately in new contexts. Further details can be found in *Section 2*.

Centres should ensure that delivery of content is kept up to date. Some of the units within the specification may contain references to legislation, policies, regulations and organisations, which may not be applicable in the country you deliver this qualification in (if teaching outside of England), or which may have gone out-of-date during the lifespan of the specification. In these instances, it is possible to substitute such references with ones that are current and applicable in the country you deliver subject to confirmation by your Standards Verifier.

Assessment

Assessment is specifically designed to fit the purpose and objective of the qualification. It includes a range of assessment types and styles suited to vocational qualifications in the sector. There are three main forms of assessment that you need to be aware of: external, internal and synoptic.

Externally-assessed units

Each external assessment for a BTEC National is linked to a specific unit. All of the units developed for external assessment are of 120 GLH to allow learners to demonstrate breadth and depth of achievement. Each assessment is taken under specified conditions, then marked by Pearson and a grade awarded. Learners are permitted to resit external assessments during their programme. You should refer to our website for current policy information on permitted retakes.

The styles of external assessment used for qualifications in the forestry and arboriculture suite are:

- examinations – all learners take the same assessment at the same time, normally with a written outcome
- set tasks – learners take the assessment during a defined win.

Some external assessments include a period of preparation using set information. External assessments are available twice a year. For detailed information on the external assessments please see the table in *Section 2*. For further information on preparing for external assessment see *Section 5*.

Internally-assessed units

Most units in the sector are internally assessed and subject to external standards verification. This means that you set and assess the assignments that provide the final summative assessment of each unit, using the examples and support that Pearson provides. Before you assess you will need to become an approved centre, if you are not one already. You will need to prepare to assess using the guidance in *Section 6*.

In line with the requirements and guidance for internal assessment, you select the most appropriate assessment styles according to the learning set out in the unit. This ensures that learners are assessed using a variety of styles to help them develop a broad range of transferable skills. Learners could be given opportunities to:

- demonstrate practical and technical skills using appropriate tools and processes
- complete realistic tasks to meet specific briefs or particular purposes
- write up the findings of their own research
- use case studies to explore complex or unfamiliar situations
- carry out projects for which they have choice over the direction and outcomes.

You will make grading decisions based on the requirements and supporting guidance given in the units. Learners may not make repeated submissions of assignment evidence. For further information see *Section 6*.

Synoptic assessment

Synoptic assessment requires learners to demonstrate that they can identify and use effectively, in an integrated way, an appropriate selection of skills, techniques, concepts, theories and knowledge from across the whole sector as relevant to a key task. BTEC learning has always encouraged learners to apply their learning in realistic contexts using scenarios and realistic activities that will permit learners to draw on and apply their learning. For these qualifications we have formally identified units that contain a synoptic assessment task. Synoptic assessment must take place after the teaching and learning of other mandatory units in order for learners to be able to draw from the full range of content. The synoptic assessment gives learners an opportunity to independently select and apply learning from across their programmes in the completion of a vocational task. Synoptic tasks may be in internally- or externally-assessed units. The particular unit that contains the synoptic tasks for this qualification is shown in the structure in *Section 2*.

Language of assessment

Assessment of the internal and external units for these qualifications will be available in English. All learner work must be in English. A learner taking the qualifications may be assessed in British or Irish Sign Language where it is permitted for the purpose of reasonable adjustment.
For information on reasonable adjustments see *Section 7*.

Grading for units and qualifications

Achievement in the qualification requires a demonstration of depth of study in each unit, assured acquisition of a range of practical skills required for employment or progression to higher education, and successful development of transferable skills. Learners achieving a qualification will have achieved across mandatory units, including external and synoptic assessment.

Units are assessed using a grading scale of Distinction (D), Merit (M), Pass (P), Near Pass (N) and Unclassified (U). The grade of Near Pass is used for externally-assessed units only. All mandatory and optional units contribute proportionately to the overall qualification grade, for example a unit of 120 GLH will contribute double that of a 60 GLH unit.

Qualifications in the suite are graded using a scale of P to D*, **or** PP to D*D*, **or** PPP to D*D*D*. Please see *Section 9* for more details. The relationship between qualification grading scales and unit grades will be subject to regular review as part of Pearson's standards monitoring processes on the basis of learner performance and in consultation with key users of the qualification.

UCAS Tariff points

The BTEC Nationals attract UCAS points. Please go to the UCAS website for full details of the points allocated.

1 Qualification purpose

Pearson BTEC Level 3 National Foundation Diploma in Forestry and Arboriculture

In this section, you will find information on the purpose of this qualification and how its design meets that purpose through the qualification objective and structure. We publish a full 'Statement of Purpose' for each qualification on our website. These statements are designed to guide you and potential learners to make the most appropriate choice about the size of qualification suitable at recruitment.

Who is this qualification for?

The Pearson BTEC Level 3 National Foundation Diploma in Forestry and Arboriculture is intended as a Tech Level qualification, equivalent in size to 1.5 A Levels and, as such, is designed to meet the Tech Bacc measure if taken alongside Level 3 mathematics and the Extended Project Qualification (EPQ). It is a one-year, full-time course that provides a comprehensive introduction to the sector and is primarily for those intending to gain employment directly or those who wish to progress to an apprenticeship or a higher-level forestry and arboriculture qualification.

No prior study of the sector is needed but learners should normally have a range of achievement at Level 2, in GCSEs or equivalent qualifications, including English, mathematics and science.

What does this qualification cover?

The content of this qualification has been developed in consultation with employers and professional bodies to ensure that it is appropriate for those interested in working in the sector. In addition, higher-education representatives have been involved to ensure that it fully supports entry to the relevant range of specialist degrees. The objective of the qualification is to develop the knowledge, understanding and skills that provide an excellent basis for employment, further study or training.

There are five mandatory units, which cover the following aspects of forestry and arboriculture:

- professional working responsibilities
- plant and soil science
- work experience in land-based sectors
- woodland project.

Learners will be able to add one optional unit to the mandatory content. These have been designed to support progression to a range of employment opportunities in the forestry and arboriculture sector. The optional units cover the following areas:

- tree pests and diseases
- estate skills.

While taking this qualification, to develop practical skills in preparation for employment, learners will be required to engage with sector employers as part of their course, including 150 hours of work experience with an employer in the sector.

What could this qualification lead to?

This qualification will prepare learners for direct employment in the forestry and arboriculture sector. It is suitable for those who wish to enter a particular specialist area of work, such as:

- assistant forestry groundsperson
- assistant arboriculture groundsperson
- trainee forester
- trainee estate worker.

If learners take additional qualifications, they could increase their professional industry skills and competencies, and take on increased responsibilities in the above job roles. Additional qualifications include:

- ABC Level 2 Certificate in Forestry
- ABC Level 2 Certificate in Arboriculture
- Level 2 Award in Chainsaw Maintenance and Cross-cutting.

If learners complete this qualification in a year, they may progress to further learning at Level 3, for example a second BTEC National Foundation Diploma in a complementary sector, or a larger-size BTEC National in Forestry and Arboriculture.

When achieved alongside other Level 3 qualifications as part of a two-year programme of study, learners will be able to progress to a range of degree programmes in the forestry and arboriculture sector. The qualification carries UCAS points and is recognised by higher-education providers as contributing to meeting admission requirements to many relevant courses. For example, if taken alongside AS/A Levels in biology and/or chemistry, it could lead to:

- BSc (Hons) in Arboriculture and Tree Management
- BSc (Hons) in Arboriculture and Urban Forestry
- BSc (Hons) in Arboriculture
- BSC (Hons) in Forestry
- FdSc in Arboriculture.

Learners should always check the entry requirements for degree programmes with specific higher-education providers.

How does the qualification provide employability and technical skills?

In the BTEC National units, there are opportunities during the teaching and learning phase to give learners practice in developing employability skills. Where employability skills are referred to in this specification, we are generally referring to skills in the following three main categories:

- **cognitive and problem-solving skills:** using critical thinking, approaching non-routine problems applying expert and creative solutions, using systems and technology
- **interpersonal skills:** communicating, working collaboratively, negotiating and influencing, self-presentation
- **intrapersonal skills:** self-management, adaptability and resilience, self-monitoring and development.

There are also specific requirements in some units for assessment of these skills where relevant, for example, where learners are required to undertake real or simulated activities.

Many of the mandatory and specified optional units encourage learners to develop the specific practical skills that employers are looking for.

How does the qualification provide transferable knowledge and skills for higher education?

All BTEC Nationals provide transferable knowledge and skills that prepare learners for progression to university or other higher study either immediately or for career progression. The transferable skills that universities value include:

- the ability to learn independently
- the ability to research actively and methodically
- the ability to give presentations and be active group members.

BTEC learners can also benefit from opportunities for deep learning where they are able to make connections among units and select areas of interest for detailed study. BTEC Nationals provide a vocational context in which learners can become prepared for lifelong learning through:

- effective writing
- analytical skills
- preparation for the assessment methods used in degrees.

2 Structure

Qualification structure

Pearson BTEC Level 3 National Foundation Diploma in Forestry and Arboriculture

Mandatory units

There are six mandatory units, four internal and two external. Learners must complete and achieve at Near Pass grade or above all mandatory external units. Learners must complete and achieve a Pass or above in all mandatory internal units in Group A.

Learners must complete the mandatory internal unit in Group B.

Optional units

Learners must complete at least one optional unit.

Learners must complete and achieve at pass grade or above in at least one unit across groups B and C.

Pearson BTEC Level 3 National Foundation Diploma in Forestry and Arboriculture				
Unit number	**Unit title**	**GLH**	**Type**	**How assessed**
	Mandatory units group A – learners complete and achieve all units			
1	Professional Working Responsibilities	**120**	**Mandatory**	External
2	Plant and Soil Science	**120**	**Mandatory**	External
20	Woodland Project	**120**	**Mandatory and Synoptic**	Internal
	Mandatory units group B – learners complete all units			
4	Work Experience in the Land-based Sectors	**60**	**Mandatory**	Internal
9	Tree-felling Activities	**60**	**Mandatory**	Internal
	Optional units group C – learners complete one unit			
5	Estate Skills	**60**	**Optional**	Internal
8	Tree Pests and Diseases	**60**	**Optional**	Internal

External assessment

This is a summary of the type and availability of external assessment, which is of units making up 44 per cent of the total qualification GLH. See *Section 5* and the units and sample assessment materials for more information.

Unit	Type	Availability
Unit 1: Professional Working Responsibilities	• A task set and marked by Pearson and completed under supervised conditions. • The supervised assessment is 3 hours in a specified session timetabled by Pearson. • Written submission of evidence. • 60 marks.	**Jan and May/June** **First assessment January 2020**
Unit 2: Plant and Soil Science	• A written examination set and marked by Pearson. • 1 hour 30 minutes. • Written submission. • 80 marks.	**Jan and May/June** **First assessment January 2020**

Synoptic assessment

The mandatory synoptic assessment requires learners to select and apply learning from across the qualification to the completion of defined key vocational tasks.

Within the assessment for *Unit 20: Woodland Project*, learners will complete a woodland project, by applying professional practice to site inspection and evaluation, judging the suitability of trees for a project, soil assessment and management through preparing ground for planting and aftercare, applying planting, pruning, maintenance, pest and disease control, taking remedial action and felling of trees, review of own professional practice and woodland project management. The assessment draws together forestry and arboriculture working principles and practices gained throughout the mandatory content of the qualification.

Learners complete the tasks using knowledge, understanding and skills from their studies of the sector and by applying both transferable and specialist knowledge and skills, including from: *Unit 1: Professional Working Responsibilities*, knowledge of safe and professional working practices in relation to themselves and others, and industry standard waste management practices along with the ability to manage professional woodland practice through review; *Unit 2: Plant and Soil Science*, knowledge of requirements for healthy tree growth and the application of ground perpetration and ongoing maintenance to enable successful tree growth, combined with the identification of soil based disease, pests or malnutrition in trees for ongoing woodland projects; *Unit 4: Work Experience in the Land-based Sectors*, experience of and insight into real working practices in the sector through making independent judgements and project management along with compliance to regulations within the sector.

In assessing this unit assignments will require learners to select from and apply their learning from across their programme. The unit provides further information.

Employer involvement in assessment and delivery

You need to ensure that learners on this qualification have a significant level of employer involvement in programme delivery or assessment. See *Section 4* for more information.

3 Units

Understanding your units

The units in this specification set out our expectations of assessment in a way that helps you to prepare your learners for assessment. The units help you to undertake assessment and quality assurance effectively.

Each unit in the specification is set out in a similar way. There are two types of unit format:

- internal units
- external units.

This section explains how the units work. It is important that all teachers, assessors, internal verifiers and other staff responsible for the programme review this section.

Internal units

Section	Explanation
Unit number	The number is in a sequence in the sector. Numbers may not be sequential for an individual qualification.
Unit title	This is the formal title that we always use and it appears on certificates.
Level	All units are at Level 3 on the national framework.
Unit type	This shows if the unit is internal or external only. See structure information in *Section 2* for full details.
GLH	Units may have a GLH value of 120, 90 or 60. This indicates the numbers of hours of teaching, directed activity and assessment expected. It also shows the weighting of the unit in the final qualification grade.
Unit in brief	A brief formal statement on the content of the unit that is helpful in understanding its role in the qualification. You can use this in summary documents, brochures etc.
Unit introduction	This is designed with learners in mind. It indicates why the unit is important, how learning is structured, and how learning might be applied when progressing to employment or higher education.
Learning aims	These help to define the scope, style and depth of learning of the unit. You can see where learners should be learning standard requirements ('understand') or where they should be actively researching ('investigate'). You can find out more about the verbs we use in learning aims in *Appendix 2*.
Summary of unit	This new section helps teachers to see at a glance the main content areas against the learning aims and the structure of the assessment. The content areas and structure of assessment are required. The forms of evidence given are suitable to fulfil the requirements.
Content	This section sets out the required teaching content of the unit. Content is compulsory except when shown as 'e.g.'. Learners should be asked to complete summative assessment only after the teaching content for the unit or learning aim(s) has been covered.

Section	Explanation
Assessment criteria	Each learning aim has Pass and Merit criteria. Each assignment has at least one Distinction criterion. A full glossary of terms used is given in *Appendix 2*. All assessors need to understand our expectations of the terms used. Distinction criteria represent outstanding performance in the unit. Some criteria require learners to draw together learning from across the learning aims.
Essential information for assignments	This shows the maximum number of assignments that may be used for the unit to allow for effective summative assessment, and how the assessment criteria should be used to assess performance.
Further information for teachers and assessors	The section gives you information to support the implementation of assessment. It is important that this is used carefully alongside the assessment criteria.
Resource requirements	Any specific resources that you need to be able to teach and assess are listed in this section. For information on support resources see *Section 10*.
Essential information for assessment decisions	This information gives guidance for each learning aim or assignment of the expectations for Pass, Merit and Distinction standard. This section contains examples and essential clarification.
Links to other units	This section shows you the main relationship among units. This section can help you to structure your programme and make best use of materials and resources.
Employer involvement	This section gives you information on the units that can be used to give learners involvement with employers. It will help you to identify the kind of involvement that is likely to be successful.

External units

Section	Explanation
Unit number	The number is in a sequence in the sector. Numbers may not be sequential for an individual qualification.
Unit title	This is the formal title that we always use and it appears on certificates.
Level	All units are at Level 3 on the national framework.
Unit type	This shows if the unit is internal or external only. See structure information in *Section 2* for full details.
GLH	Units may have a GLH value of 120, 90 or 60 GLH. This indicates the numbers of hours of teaching, directed activity and assessment expected. It also shows the weighting of the unit in the final qualification grade.
Unit in brief	A brief formal statement on the content of the unit.
Unit introduction	This is designed with learners in mind. It indicates why the unit is important, how learning is structured, and how learning might be applied when progressing to employment or higher education.
Summary of assessment	This sets out the type of external assessment used and the way in which it is used to assess achievement.
Assessment outcomes	These show the hierarchy of knowledge, understanding, skills and behaviours that are assessed. Includes information on how this hierarchy relates to command terms in sample assessment materials (SAMs).
Essential content	For external units all the content is obligatory, the depth of content is indicated in the assessment outcomes and sample assessment materials (SAMs). The content will be sampled through the external assessment over time, using the variety of questions or tasks shown.
Grade descriptors	We use grading descriptors when making judgements on grade boundaries. You can use them to understand what we expect to see from learners at particular grades.
Key terms typically used in assessment	These definitions will help you analyse requirements and prepare learners for assessment.
Resources	Any specific resources that you need to be able to teach and assess are listed in this section. For information on support resources see *Section 10*.
Links to other units	This section shows the main relationship among units. This section can help you to structure your programme and make best use of materials and resources.
Employer involvement	This section gives you information on the units that can be used to give learners involvement with employers. It will help you to identify the kind of involvement that is likely to be successful.

Index of units

This section contains all the units developed for this qualification. Please refer to *page 4* to check which units are available in all qualifications in the forestry and arboriculture sector.

Unit 1: Professional Working Responsibilities

Level: **3**

Unit type: **External**

Guided learning hours: **120**

Unit in brief

Learners study professional responsible working practices with a focus on ensuring health and safety, wellbeing, resource management and waste management in the land-based sectors.

Unit introduction

The land-based sectors are made up of diverse industries, with the majority of people being self-employed. The sectors directly manage almost 90% of the UK's land mass. Promoting and maintaining welfare, health and safety, and effective waste management in the working environment is essential for all the sectors. It is also a key requirement for the development of all employees.

In this unit, you will investigate the impact that professional working responsibilities have on personal welfare. You will learn about health and safety legislation, safe working practices, risk assessments, and the professional skills required to work safely and effectively in the land-based sectors. You will develop skills in and knowledge of good practice and professional responsibility towards self and others in the workplace, including the duty of care for the environment, relating this to resource efficiency and responsible management. You will develop your skills to interpret appropriate policies, plans, audits, maps and schematic diagrams in relation to safe working practices, reducing the impact of waste, and analysing documentation to review operational plans. You will develop a sound understanding of personal and professional responsibilities required to enter employment, with a strong awareness of how to be safe and keep others safe. To complete the assessment task within this unit, you will need to draw on your learning from across your programme.

This unit will prepare you for progression to employment in a trainee or supervisory role in the land-based sectors or to set up your own land-based business. You will also gain skills that prepare you for further or higher education courses, including agricultural science, plant science, environmental studies and land management.

Summary of assessment

This unit is assessed by a task set by Pearson.

In the assessed task, learners are given information and will complete a number of activities demonstrating their knowledge and understanding of professional working responsibilities.

The task will be carried out under supervised conditions in a single three-hour session timetabled by Pearson.

The number of marks for the unit is 60.

The assessment availability is January and May/June each year. The first assessment availability is January 2020.

Sample assessment materials will be available to help centres prepare learners for assessment.

Assessment outcomes

AO1 Demonstrate knowledge and understanding of personal and professional working responsibilities and practices, risk management and waste management in the land-based sectors.

AO2 Analyse the application of personal and professional working responsibilities and practices, to risk management, and waste management in the land-based sectors.

AO3 Evaluate approaches to working personal and professional responsibilities and practices, risk management, and waste management in the land-based sectors.

AO4 Make connections between principles and practices of health and safety management in the land-based sectors.

Essential content

The essential content is set out under content areas. Learners must cover all specified content before the assessment.

A Professional responsibilities associated with the workplace

A1 Characteristics of professional working responsibilities and sources of relevant information

- Understanding the scope of professional working responsibilities in the land-based sectors, including:
  - compliance with current legislation and industry codes of practice
  - minimising risk to self, others and the environment
  - following industry best practice
  - working to industry standards
  - developing skills through continuing professional development (CPD).
- Stakeholders associated with developing, promoting and upholding professional responsibilities, including the role of:
  - employers
  - employees
  - government departments and agencies
  - trades unions
  - professional bodies and trade associations.
- Sources of information on professional working responsibilities, including:
  - staff handbooks, staff lists and staff induction documents
  - internet-based resources, including government legislation
  - professional publications
  - codes of conduct
  - contracts of employment.

A2 Characteristics and scope of personal responsibilities in the workplace

- Promoting a working environment and culture that is healthy, safe and effective, including awareness of the role of:
  - industry schemes
  - employer awareness campaigns
  - external training programmes and training providers
  - workplace policies, including whistleblower policies.
- Promoting effective working relationships.
- Awareness of factors that may have a negative impact on own and others' personal welfare and workplace performance, including:
  - personal stress
  - illness
  - work-related stress and workload
  - lone working.
- Accessing sources of assistance and support for wellbeing in the workplace, and their importance, including:
  - NHS services
  - charities
  - professional and trade organisations
  - professional counselling and mental health organisations
  - industry schemes.

- Awareness of the importance of CPD, including:
  - formal and informal opportunities for skills development
  - job shadowing
  - upskilling
  - awareness of industry-specific certificates of competence.

B Health and safety responsibilities

B1 Introduction to health and safety and associated legislation

Awareness of current health and safety legislation that applies in a working environment and how legislation impacts on working activities.

- Statutes and regulations current at the time of assessment:
  - Management of Health and Safety at Work Regulations 1999
  - Health and Safety at Work etc. Act 1974
  - Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) 2013
  - Control of Substances Hazardous to Health (COSHH) Regulations 2002
  - Manual Handling Operations Regulations 1992
  - Work at Height Regulations 2005
  - Provision and Use of Work Equipment Regulations (PUWER) 1998
  - Lifting Operations and Lifting Equipment Regulations (LOLER) 1998
  - The Electricity at Work Regulations 1989.
- Health and safety audit, including:
  - analysis of previous incidents and near misses
  - identifying good practice, poor practice and gaps in health and safety policies and procedures
  - suggesting improvements
  - setting objectives
  - considering cost–benefit implications of issues identified and improvements suggested.

B2 Safe working practices

Awareness of key concepts of safe working practices, with reference to health and safety and the environment.

- The importance of training staff and implementing policies and practices in order to maintain appropriate standards in health and safety practices.
- Access to adequate welfare facilities, including drinking water, toilets, wash facilities.
- Provision of an appropriate and safe working environment, including ventilation, temperature, lighting and adequate maintenance of the working area.
- Provision of first-aid training and equipment, including first aid at work training.
- Using personal protective equipment (PPE) correctly, including when:
  - operating, maintaining and repairing machinery
  - handling organic or hazardous substances
  - requiring protection from ultraviolet (UV) light
  - requiring protection from weather conditions.
- Minimising risk of disease, including:
  - wearing correct clothing
  - using the correct equipment and in the correct manner
  - practising appropriate standards of biosecurity, including hygiene and self-awareness
  - awareness of causes and symptoms of common diseases affecting those working in land-based sectors, including legionnaires' disease, leptospirosis, tetanus, salmonella, Lyme disease, E. coli, cryptosporidium.
- Safe use of machinery, including standard operating procedures (SOPs) for common land-based machinery and the consequences if SOPs are not followed.

- Fire safety, including:
  - fire alarms, extinguishers and blankets
  - ensuring combustible materials are stored in a safe and appropriate way
  - taking reasonable steps to minimise risk of fire and arson in buildings and in the environment.
- Producing and displaying an evacuation plan for all areas, including evacuation in the event of fire.
- Electrical safety, including:
  - requirement for all electrical work to be carried out by a competent person
  - ensuring all electrical equipment is in an appropriate state for use
  - portable appliance testing (PAT) and residual current devices (RCDs)
  - overhead lines and underground cables
  - using rechargeable equipment and tools where appropriate.
- Displaying safety information, including symbols on machinery and product labels.
- Signage, including:
  - fire safety signage
  - signs prohibiting certain behaviour
  - warning signs
  - signs prescribing specific behaviour
  - signs indicating emergency escape or first aid.
- Reporting of accidents and near misses.
- Importance of working in ways that avoid or minimise negative environmental impacts, including:
  - knowledge and application of legislation relevant to environmental impacts
  - being aware of the potential environmental impact, both negative and positive, of activities carried out in the workplace
  - steps that can be taken in order to minimise the negative environmental impacts of work carried out.

B3 Risk assessment

The requirement to carry out risk assessments, dynamic risk assessments and the relationship to current relevant legislation.

- Using and interpreting risk assessments:
  - written or static risk assessments prepared before the activities
  - dynamic risk assessment carried out while undertaking activities
  - qualitative or subjective analysis of risk
  - numerical or objective analysis of risk, including severity and likelihood, hierarchy of controls.
- Risk mitigation strategies and their implementation to manage identified risks, including:
  - cost–benefit analysis of specific mitigation strategies.
- Producing dynamic risk assessments:
  - presence of the general public, employees and contractors
  - interpretation of given information, including product labels, signage and COSHH data sheets
  - lone working practices.

B4 Schematics and maps

The importance of maps and schematic diagrams in establishing the locations of services and drainage, for purposes relating to health and safety, land management and the environment.

- Interpreting and using maps and schematics at a variety of scales.
- Using maps and schematics to analyse and record information, including:
  - the role of Global Positioning System (GPS), aerial photographs and online mapping services.
- Determining and checking the location of services, both overground and underground.

- Equipment and techniques required to locate services accurately, including the:
  - use of cable avoidance tool (CAT) and Genny
  - importance of safe digging techniques
  - importance of isolating services, including gas, water and electric.

B5 Purpose of risk assessment

- Uses and implementation of risk assessments.
- Scenarios for risk assessment use:
  - application of health and safety, environmental and waste management policies and procedures
  - response to a specific incident, including incidents reported in the press
  - the permanent or temporary change of use of land or buildings
  - the purchase or installation of new equipment
  - the development of a new enterprise or new methods of working
  - implementing new initiatives, including changes to legislation.

C Managing waste responsibly and safely

Classify waste, understand the relevant legal responsibilities and develop waste management strategies that consider the cost–benefit implications of waste management.

C1 Animal, plant and non-organic waste

- Definition and sources of organic and inorganic wastes in the land-based sectors, including:
  - aggregates, plastics and metals
  - biodegradable waste
  - controlled waste
  - hazardous waste
  - dirty or foul water
  - grey water.
- Awareness that designated areas in the working environment have specific types of items and processes for waste disposal and management.

C2 Legal responsibilities for waste management

- Current waste management legislation and documentation specific to land-based sectors, including:
  - duty of care
  - waste exemptions
  - waste disposal documentation
  - hazardous and controlled waste
  - custody of waste.
- The waste hierarchy system, including:
  - prevention, including procurement to reduce waste
  - prepare to reuse
  - recycle
  - other recovery, including incineration, anaerobic digestion and gasification, and pyrolysis with energy recovery
  - disposal, including landfill and incineration without energy recovery.
- The potential impact of waste and waste disposal on sustainability, climate change and the environment, including:
  - advantages and disadvantages
  - social factors
  - economic factors
  - environmental factors.
- Innovations in waste management.

C3 Environmental and waste management policies, plans and audits

Documents and processes related to health, safety, the environment and waste management.

- Use of audits to establish the current situation in a business or enterprise.
- Audit procedures, including frequency, checklists, logs, metering and measurements.
- The role of audits to inform or update plans and policies.
- Financial implications and cost–benefit analysis of waste storage and disposal, including:
  - economic advantages and disadvantages of specific waste management strategies
  - environmental advantages and disadvantages of specific waste management strategies.

Grade descriptors

To achieve a grade learners are expected to demonstrate these attributes across the essential content of the unit. The principle of best fit will apply in awarding grades.

Level 3 Pass

Learners will demonstrate knowledge and understanding of basic professional working and safe working in a land-based setting. Learners will demonstrate that they can apply safe working practices to a given context. They will identify areas of good practice, areas where standards could be raised and outline basic methods of doing this. Learners will be able to make some connections between the risks that are associated with a specific activity in a given context, with a range of variables. Learners will apply some valid concepts to the correct and safe management of different types of waste, they will understand the need to apply legal and environmental considerations to this and the management of resources, and its link to sustainability.

Level 3 Distinction

Learners will demonstrate detailed knowledge and understanding of professional working and safe working in a land-based setting. Learners will demonstrate that they can apply justified safe working practices to a given context. They will identify areas of good practice, areas where standards could be raised and outline accurate recommendations for doing this, using a detailed and appropriate action plan. Learners will be able to make appropriate and justified connections between the risks that are associated with a specific activity in a given context, with a range of variables. Learners will apply accurate and detailed concepts to the correct and safe management of different types of waste, they will understand the need to apply legal and environmental considerations to this and the management of resources, and its link to sustainability.

Key words typically used in assessment

The following table shows the key words that will be used consistently by Pearson in our assessments to ensure learners are rewarded for demonstrating the necessary skills.

Please note: the list below will not necessarily be used in every paper/session and is provided for guidance only.

Command or term	Definition
Analyse	Learners present the outcome of methodical and detailed examination either: • to discover the meaning or essential features of a theme, topic or situation • by breaking something down into its components or examining factors methodically and in detail • by identifying separate factors, stating how they are related and explaining how each one contributes to the topic.
Complete	Learners enter relevant information or data as required to a structured item such as a table or diagram.
Dynamic risk assessment	The process of identifying risks and hazards continuously and in response to changes in situations and activities.

Command or term	Definition
Evaluate	Learners review information before bringing it together to form a conclusion or come to a supported judgement of a subject's qualities in relation to its context, drawing on evidence: strengths, weaknesses, alternative actions, significance, relevant data or information.
Health and safety audit	The auditing of information on the effectiveness of health and safety policies and procedures.
Interpretation	Learners are able to draw the meaning, purpose or qualities of something from a stimulus.
Justify/Justification	Learners give reasons or evidence to: • support an opinion and/or decision • prove something right or reasonable.
Recommend	Learners put forward someone or something with approval as being suitable for a particular purpose or role.
Strategies	Method or plan to bring out a desired outcome, such as the achievement of a goal or solution to a problem.
Waste management plan	A plan for the disposal of a range of waste materials, showing consideration of legal requirements, environmental responsibilities and sustainability.

Links to other units

This unit links to:

- Unit 4: Work Experience in the Land-based Sectors
- Unit 20: Woodland Project.

Employer involvement

This unit would benefit from employer involvement in the form of:

- masterclasses
- technical workshops involving staff from local land-based organisations
- contribution of ideas to unit assignment/project materials
- observation during work experience
- support from local land-based organisation staff as mentors.

Unit 2: Plant and Soil Science

Level: **3**

Unit type: **External**

Guided learning hours: **120**

Unit in brief

Learners study the structural and functional features of plants and soils that inform management practices.

Unit introduction

Plants are one of the most amazing and varied living organisms on our planet. They supply us with our oxygen, provide us with food and shape our landscape. Understanding how plants grow and what they need to be successful is essential for their management in a range of sectors and for a broad range of purposes, including growing crops for people or livestock, growing decorative plants and providing environments for leisure or habitat conservation.

In this unit, you will develop an understanding of external and internal plant structures, including plant cells. You will learn about the relationship between these structures and their function, such as how they obtain their nutrition and how they reproduce. You will gain an understanding of important life processes of plants and how these are affected by their environment. You will learn about the physical and chemical characteristics of soil. You will also learn different types of soil, their characteristics and the essential nutrition in soils that plants need to ensure their success.

The knowledge and skills gained in this unit are fundamental to any role where you grow, plant, manage or establish plants. Whether you are working in forestry, arable farming, sports turf, landscaping or gardening, this unit will give you a foundation for further study at higher education or roles in your chosen sector.

Summary of assessment

This unit is assessed by an examination set and marked by Pearson.

The examination will last for 1 hour and 30 minutes. The number of marks for the paper is 80.

The paper will consist of a variety of question types, including extended open response.

The assessment availability is January and May/June each year. The first assessment availability is January 2020.

Sample assessment materials will be available to help centres prepare learners for assessment.

Assessment outcomes

AO1 Demonstrate knowledge of structures and functions in plant and soil science

Command words: complete, describe, give, identify, match, name, state

Marks: ranges from 1 to 4 marks

AO2 Demonstrate understanding of plant and soil science, including soil and plant management practices

Command words: define, describe, explain, give, label, link, match, outline

Marks: ranges from 1 to 4 marks

AO3 Apply knowledge and understanding of plant and soil science in the context of managing plant growth

Command words: analyse, assess, compare, discuss, evaluate, examine, explain

Marks: ranges from 6 to 8 marks

AO4 Make connections between managing soil and plant growth in different contexts

Command words: analyse, assess, compare, discuss, evaluate

Marks: ranges from 6 to 8 marks

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Essential content

The essential content is set out under content areas. Learners must cover all specified content before the assessment.

A Plant structure and systems

Structures and functions of plants, including cells, life processes and their role in the growing of healthy plants.

A1 Plant cell structure and specialisations

Structure and function of plant cells and their components linked to their role and location.

- Cell structure and organelles: cell wall, plasma membrane, nucleus, vacuole, cytoplasm, ribosome, mitochondria, chloroplasts, rough endoplasmic reticulum, smooth endoplasmic reticulum, Golgi apparatus, microtubules.
- Cell division by mitosis and meiosis, including prophase, metaphase, anaphase, telophase, cytokinesis, genetic differences.
- Cell specialisations, including distribution of chloroplasts:
  - root, including leucoplasts, endodermis, epidermis, stele, apical meristem, parenchyma, root hair, root cap
  - stem, including parenchyma, lenticels, meristems
  - leaf, including guard cells, epidermis, palisade mesophyll, spongy mesophyll, vascular bundle
  - flowering parts, including chromoplasts, pollen, gametes, zygote.

A2 Plant structure and function

Functions of plant structures in relation to plant growth and development, including changes to seasonal conditions.

- Root and stem structure:
  - root structure, including fibrous, adventitious and taproot system; functions, including anchorage, osmosis and absorption of minerals, transport system to plant, food storage
  - storage organs, including bulbs, corms, rhizomes, tubers
  - shoot structure, stem characteristics, node, internode, lateral bud, terminal bud; leaf arrangements, including alternate, opposite and whorled, lenticel; function, including support, bear leaves, transport system of water and nutrients around the plant, growth
  - vascular bundles, including xylem, phloem, cambium.
- Leaf structure:
  - leaf characteristics, petiole, lamina, margin, midrib, apex, base; veination, including reticulated and parallel
  - differences between evergreen and deciduous leaves
  - leaf types, including simple and compound, petiolated and sessile, leaf shapes.
- Characteristics of evergreen plants, to include *Ilex*, *Taxus* and *Picea.*
- Characteristics of deciduous plants, to include *Betula*, *Fagus* and *Fraxinus*.
- Characteristics of grasses: *Triticum* and *Hordeum*.

A3 Plant processes

Processes and requirements for healthy plant growth, including the features, structure and function of relevant plant tissues.

- Photosynthesis, including:
  - role of chloroplast structure and chlorophylls
  - light dependent and independent stages, carbon fixation
  - factors influencing the rate of photosynthesis, to include temperature, carbon dioxide levels, leaf colour, leaf area, light availability, water supply, nutrients.
- Respiration:
  - aerobic and anaerobic respiration
  - factors influencing respiration rates, including temperature, oxygen, light, carbon dioxide, water availability, plant growth.
- Compensation point in relation to respiration and photosynthesis, including plasmodesmata.
- The role of osmosis in turgidity, flaccidity and plasmolysis.
- Diffusion of carbon dioxide, oxygen and water vapour into and out of plants.
- Translocation in the phloem.
- Transpiration in the xylem:
  - factors affecting transpiration, including the sun, air temperature, humidity, air movement, water supply
  - guard cells and stomata, including regulation of opening and closing to facilitate gas exchange and control transpiration in plants.

A4 Plant nutrition

Nutritional requirements for growth and development of healthy plants.

- Role of the elements required for plant growth:
  - elements from soil water and the atmosphere, carbon (C), hydrogen (H), oxygen (O)
  - macronutrients: nitrogen (N), phosphorus (P), potassium (K), calcium (Ca), magnesium (Mg), sulfur (S)
  - micronutrients: boron (B), chlorine (Cl), copper (Cu), iron (Fe), manganese (Mn), molybdenum (Mo), zinc (Zn), nickel (Ni).

Effects of lack of nutrition on growth and development of plants.

- Effects of the lack of macro and micro nutrients and how these are shown in the plant:
  - signs of deficiencies, chlorosis of the leaves, stunted growth, distorted foliage, aborted flowers or pods, absence of flowering, fruiting, weak stems, leaf striping, leaf spotting, necrosis or plant death
  - causes of nutritional deficiencies, acidic or alkaline soil, deviation from optimum pH, soil type, leaching, drought, waterlogging.

A5 Reproduction systems

- Structure and function of reproductive parts of flowering plants:
  - differences between dioecious, monoecious and hermaphrodite flowering plants
  - angiosperms and characteristics of monocotyledon and dicotyledonous flowers
  - parts of the flower, receptacle, calyx, corolla, perianth, pedicel, peduncle, bract
  - androecium, including filament, anther
  - gynoecium: carpels, ovary, style, stigma.
- Pollination processes:
  - self-pollination and cross-pollination
  - entomophilous pollination and anemophilous pollination and pollen transfer.
- Fertilisation processes – development and characteristics of pericarp in:
  - simple and compound succulent fruit
  - dry fruit, including dehiscent, indehiscent and schizocarpic seeds.

- Germination:
  - parts of the seed, testa, embryo, including cotyledon(s), epicotyl, plumule, hypocotyl, radicle
  - seed dispersal systems, dormancy, viability, vigour
  - hypogeal germination
  - epigeal germination
  - factors that affect successful germination, including age of seed, light, air, moisture, temperature and viability.
- Asexual reproduction, including rhizome and stolon.

B Soil

The characteristics of soil and the importance of soil fertility in relation to plant health and successful growth.

B1 Soil types and texture

- Soil types, to include sand, silt, clay, chalk, peat and loam.
- Soil texture:
  - soil particles for sand, silt, clay and loam, including water holding capacity, permeability, workability, organic matter, particle size, fertility, pH
  - soil grading and particle sizes, including use of hand texturing.

B2 Soil structure

- Soil profiles and horizons in relation to rooting depths, including aggregates, topsoil, subsoil, parent rock.
- Structural characteristics: single grain, granular, blocky, platy, columnar and prismatic structures, including particles, water and air space, and air-filled porosity.
- Effects of topography and weathering on soil:
  - aspect, shape of the land, slopes, dips, free-draining soils, poor drainage, water table
  - climatic factors, including wind, rain, frost, erosion
  - physical, chemical and biological effects on soil formation.

B3 Biological and chemical activities affecting soil health and fertility

Impact on soil health and fertility, and plant growth, of biological and biochemical activities.

- Biological activity in the soil profile: bacteria, fungus, actinomycetes, saprophytic fungi and mycorrhizae.
- Role of rhizobium bacteria in fixing atmospheric nitrogen.
- Indicators of good soil fertility and impact on soil health:
  - interaction of animals and vegetation with soil and links to biological weathering
  - role of organisms in improving soil condition and health
  - living organisms in the soil profile: slugs, snails, earthworms, woodlice, springtails, beetles and eelworms.
- Sources and cycles of carbon and nitrogen.
- The role of organic matter, including humus, peat, farmyard manure, including pig, horse, cow and chicken, slurry, leaf mulch, bark, composts, seaweed, green manure, sewage sludge, straw, industrial waste.

B4 Soil acidity and alkalinity

- Effects on plant and root growth:
  - plant health, nutrient availability, microbial activity, plant yield
  - characteristics of calcifuge, calcicole plants.
- Interpretation of pH scale test results.
- Causes of changes in soil acidity and alkalinity:
  - applications of lime, aluminium sulfate, ferrous sulfate, organic matter
  - poor drainage, watering, buffering capacity.

B5 Soil water

Processes affecting water availability in soil and its effect on plant growth.

- Relationship of soil characteristics to infiltration and permeability rates.
- Cause and effect of water availability, water tables, natural springs, cultivation techniques and drainage.
- Water stress on soils, including drought and flooding.
- Water content and the relationship between:
  - gravitational water and saturation point
  - capillary rise and field capacity
  - hygroscopic action and permanent wilting point
  - moisture holding and water holding capacity.

C Managing plant growth media

C1 Soil management

Managing soil for optimum plant growth in indoor and outdoor soils, including protective environments, gardens, fields and sports turf.

- Soil aeration: purpose and methods.
- Integration of organic matter: purpose and methods.
- Irrigation methods, including water conservation: recycling and rain capture, plant choice, application timings, use of moisture-sensing equipment/computer control.
- Soil drainage methods, including changes to soil texture, water courses and ditches.
- Characteristics of fertilisers:
  - nitrogen (N), phosphorus (P) and potassium (K) ratios
  - length of nutrient release related to fertiliser form
  - application methods for liquid, granular, powder, pellets, granules, powders, prills, frits.
- Adjusting soil acidity and alkalinity: purpose and methods.
- Effects of over application of fertiliser on soil health and plant growth.
- Impact on environment of fertiliser leaching.

C2 Soil alternatives

Purposes and methods of using soil alternatives.

- Purpose of growing plants without the use of soil: yield increase, quicker growth, less use of chemicals, lower incidences of disease, recycling water solutions.
- Drip irrigation (slow feed system), deep water culture (root immersion in nutrient water supply), ebb and flow (periodic flooding of plants).
- Types and characteristics of non-soil material and loam-free composts:
  - large particle material, to include sand and gravel
  - fibrous material, to include sphagnum peat moss
  - porous and absorbent material, to include perlite, vermiculite, rock wool and oasis cubes
  - composted or aged material, to include pulverised bark, coconut coir.

Grade descriptors

To achieve a grade learners are expected to demonstrate these attributes across the essential content of the unit. The principle of best fit will apply in awarding grades.

Level 3 Pass

Learners demonstrate a basic understanding of the structures and functions of plant cells. They are able to identify the main features and requirements of plants as related to their growth. Learners demonstrate an understanding of the characteristics of different soil types and basic methods for managing and improving soil to promote healthy plant growth.

Level 3 Distinction

Learners demonstrate a thorough understanding of plant structure linked to function, from a cellular to whole plant level. They are able to articulate practices used in soil management for optimising plant growth and yield. Learners can analyse data and information relating to plant and soil science and management practices, interpreting this in order to draw reasoned conclusions. They can make connections between the characteristics of different soils, the requirements of plants and the potential implications of soil management practices.

Key words typically used in assessment

The following table shows the key words that will be used consistently by Pearson in our assessments to ensure learners are rewarded for demonstrating the necessary skills.

Please note: the list below will not necessarily be used in every paper/session and is provided for guidance only.

Command or term	Definition
Analyse	Present the outcome of methodical and detailed examination of information or data to interpret and study key trends and interrelationships.
Apply	Put knowledge, understanding or skills into action in a particular context.
Assess	Evaluate or estimate the nature, ability or quality of something.
Compare	Identify the main factors relating to two or more items/situations or aspects of a subject that is extended to explain the similarities, differences, advantages and disadvantages.
Complete	Place a word(s) or number(s) in a sentence, paragraph, table or graph to give the correct answer/sense.
Define	State or describe the nature, scope or meaning of a subject as objective facts.
Describe	Give an account in words of someone or something, including all of the relevant characteristics, qualities or events.
Discuss	Consider different aspects of a topic, how they interrelate and the extent to which they are important.
Draw	Create a graphical or visual representation of information.

Command or term	Definition
Explain	Understand the origins, functions and objectives of a subject and its suitability for purpose. Give reasons to support an opinion, view or argument, with clear details.
Give	Provide one or more piece(s) of information.
Identify	Establish or indicate the origin, nature or definitive character of something. Usually requires some key information to be selected from a given stimulus/source.
Label	Name or provide key information about a stimulus material.
Name	Give the correct term for something.
Outline	Provide a general description of key principles, usually in relation to a process, method or concept.
State	Express the condition of or facts about something definitely or clearly.

Links to other units

This is an underpinning unit for the qualification.

Employer involvement

Centres can involve employers in the delivery of this unit if there are local opportunities to do so. There is no specific guidance related to this unit.

Unit 4: Work Experience in the Land-based Sectors

Level: **3**

Unit type: **Internal**

Guided learning hours: **60**

Unit in brief

Learners research work opportunities in the land-based sectors and the skills needed to attain them, developing communication and employability skills through study and work experience.

Unit introduction

Where do you picture yourself in five years' time? Do you know about the wide range of career opportunities open to you in the land-based sectors? Discovering these opportunities and understanding the skills and qualifications needed in order to gain employment in these sectors will help you to answer these questions as well as to plan your career.

In this unit, as well as investigating employment opportunities, you will examine how good communication and employability skills can improve your prospects in gaining and staying in employment. You will learn how and where to access information about employment vacancies and further courses of study as well as how to develop your curriculum vitae (CV) and adapt it for specific vacancies. You will also learn how to develop good communication, interview and customer service skills. You will apply for and take on available work experience roles in the sector and reflect on your own progress.

This unit will help prepare you for employment in the land-based sectors in areas such as forestry, arboriculture, aquaculture, landscaping, horticulture, fencing, fisheries management, floristry, gamekeeping, conservation, countryside management and wildlife management, and their related service industries. It will also help you progress to higher education in courses such as BSc (Hons) degrees in agriculture, countryside management, horticulture and forestry management.

Learning aims

In this unit you will:

A Investigate employment opportunities in the land-based sectors to target progression

B Develop communication and interview skills to improve employment prospects in the land-based sectors

C Undertake work experience in the land-based sectors to contribute to personal and professional development.

Summary of unit

Learning aim	Key content areas	Recommended assessment approach
A Investigate employment opportunities in the land-based sectors to target progression	**A1** Scope of the land-based sectors **A2** Requirements for progression **A3** Relevant legislation for work placement opportunities	A portfolio of work-related learning research, completed application documents and mock interview outcomes, e.g. observation, video.
B Develop communication and interview skills to improve employment prospects in the land-based sectors	**B1** Applying for work-related activities **B2** Interview skills **B3** Reflecting on preparation and performance	
C Undertake work experience in the land-based sectors to contribute to personal and professional development	**C1** Practical work experience **C2** Work behaviours **C3** Reflecting on workplace practice	A report reflecting on work experience, informed by employer verification of participation and other feedback.

Content

Learning aim A: Investigate employment opportunities in the land-based sectors to target progression

A1 Scope of the land-based sectors

- Analysis of progression opportunities to determine desirability, suitability and feasibility.
- Land-based sectors – appropriate broad representation of current industries, e.g. production crops, agricultural livestock, aquaculture, environmental conservation, countryside management, fencing, fisheries management, floristry, gamekeeping and wildlife management, land-based engineering, landscaping, production and amenity horticulture, forestry and arboriculture.
- Opportunities – the range of career and progression opportunities available within chosen sector and opportunities within related sectors, e.g. retail, leisure, tourism, hospitality.
- Higher education – UCAS, entry requirements, student loans.
- Apprenticeships – requirements, timescales, pay scales, balance between academic and practical work, assessment, higher apprenticeships.
- Employment sectors:
  - public sector, e.g. education, government, local government, countryside officer/ranger, public grounds and parks
  - private sector, e.g. country parks, garden centres
  - voluntary sector or charities, e.g. wildlife trusts, wildlife parks.
- Employment sectors, to include an appropriate broad representation of current industries, e.g. agricultural sales, food production, aquaculture, floristry, production horticulture, land-based engineering.
- Self-employment, e.g. gamekeeper, agricultural contractor, arborist, gardener.

A2 Requirements for progression

Knowledge of formal and informal requirements for progression.

- Entry criteria, including qualifications, skills and knowledge.
- Self-management, including study skills, presentation and attitude, time management and planning.
- Exit criteria for specific progression routes.
- Soft skills, including communication, problem solving, individual and team and leadership skills, personal management.

A3 Relevant legislation for work placement opportunities

- Safeguarding at work placements.
- Contracts of employment and working hours (in relation to age), including zero-hours contracts/fixed-term/hourly-paid/permanent (full-/part-time) contracts, Working Time Regulations 1998, Pay As You Earn (PAYE), statutory leave, maternity/paternity leave, employment status.
- Different legal status of business: single owner (self-employed)/partnership/limited company/self-employed subcontractor.
- Awareness of the impact of current legislation supporting conduct in the workplace for employers and employees (full-time, part-time, casual, interns and work placements), such as:
  - Health and Safety at Work etc. Act 1974
  - Equality Act 2010
  - Data Protection Act 1998
  - Control of Substances Hazardous to Health (COSHH) Regulations 2002
  - Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) 2013
  - Animal Welfare Act 2006.

Learning aim B: Develop communication and interview skills to improve employment prospects in the land-based sectors

B1 Applying for work-related activities

- Selection of work, including different sources of vacancies such as websites, trade publications and sector-wide bodies, e.g. Lantra.
- Importance of reading job description, personal specification, including relevance of essential or desirable criteria, to include qualifications, skills, experience.
- Completion of CV and adapting CV or job application to specified vacancy.
- Letters of application, supporting statements and completing application forms, to include standing out from the crowd, addressing relevance to employers and how they might shortlist candidates.
- Correct use of language, grammar, spelling and punctuation.

B2 Interview skills

Creating an impression through effective communication.

- Preparation and presentation skills, including:
  - planning and practice for the interview
  - interview styles, e.g. competency or behaviour-based, knowledge-focused
  - personal appearance and hygiene
  - interpersonal skills and attitude
  - body language.
- Listening and talking skills, including:
  - interview conventions
  - use of language – what is/what is not appropriate
  - building rapport
  - developing a dialogue
  - effective listening and questioning
  - non-verbal communication, e.g. eye contact.

B3 Reflecting on preparation and performance

- Reflecting on preparation for interviews and interview performance, including knowledge of employer and role, communication skills, professional behaviour.

Learning aim C: Undertake work experience in the land-based sectors to contribute to personal and professional development

C1 Practical work experience

Operating in workplace practices, including:

- knowledge of the purpose of the business and/or environment
- knowledge of reporting procedures with regard to behaviour and expectations, e.g. lateness, sickness, emergency
- health and safety protocols, e.g. fire safety, emergency procedures
- procedures to maintain confidentiality.

C2 Work behaviours

- Completion of role to add value in the workplace:
  - understanding the extent and limitation of own roles and responsibilities
  - carrying out tasks according to roles and responsibilities
  - following instructions
  - communicating with others
  - self-management
  - working safely
  - reliability, regular attendance and commitment
  - punctuality
  - use of initiative
  - cooperation with colleagues and end users, e.g. customers, clients, other organisations.
- Obtaining feedback, including:
  - timesheets signed by an appointed person at work experience employment, confirming appropriate attendance and punctuality
  - employer or teacher observation/witness statements
  - employer feedback sheets, provided at intervals.

C3 Reflecting on workplace practice

Reflecting on personal performance in relation to own career progression, to include:

- formative feedback from employer(s), colleagues, teacher, stakeholders
- performance self-assessment
- review of areas for development, to include SWOT (strengths, weaknesses, opportunities, threats) analysis, SMART (specific, measurable, achievable, relevant, time-based) target setting, knowledge of SWOT and SMART in learning development.

Assessment criteria

<table>
<tr><th>Pass</th><th>Merit</th><th>Distinction</th></tr>
<tr><td colspan="2">Learning aim A: Investigate employment opportunities in the land-based sectors to target progression</td><td rowspan="4">A.D1 Evaluate how effective preparation for work experience can significantly enhance employment prospects.
B.D2 Evaluate own preparation for and performance in work experience interview, including review of all future opportunities.</td></tr>
<tr><td>A.P1 Explain the value of own research and preparation carried out for work experience, related opportunities and progression routes.
A.P2 Explain accurately the relevant legislation relating to a work placement.</td><td>A.M1 Analyse the value of own research and preparation carried out for work experience, related opportunities and progression routes.</td></tr>
<tr><td colspan="2">Learning aim B: Develop communication and interview skills to improve employment prospects in the land-based sectors</td></tr>
<tr><td>B.P3 Explain the preparation and research carried out for a work experience interview.
B.P4 Demonstrate communication and interpersonal skills as an interviewee for a selected work experience.</td><td>B.M2 Perform proficiently as an interviewee for a selected work experience, using appropriate communication and interpersonal skills.</td></tr>
<tr><td colspan="2">Learning aim C: Undertake work experience in the land-based sectors to contribute to personal and professional development</td><td rowspan="2">C.D3 Evaluate the effectiveness of the work experience carried out in improving occupational and personal skills to make best use of opportunities for employment.</td></tr>
<tr><td>C.P5 Explain how the work experience undertaken has improved occupational and personal skills for future opportunities.
C.P6 Review how own performance during work experience contributed to the employer.</td><td>C.M3 Assess the value of the occupational and personal skills developed during work experience for future opportunities.
C.M4 Analyse the impact on the employer of own performance during work experience.</td></tr>
</table>

Essential information for assignments

The recommended structure of assessment is shown in the unit summary along with suitable forms of evidence. *Section 6* gives information on setting assignments and there is further information on our website.

There is a maximum number of two summative assignments for this unit. The relationship of the learning aims and criteria is:

Learning aims: A and B (A.P1, A.P2, B.P3, B.P4, A.M1, B.M2, A.D1, B.D2)

Learning aim: C (C.P5, C.P6, C.M3, C.M4, C.D3)

Further information for teachers and assessors

Resource requirements

For this unit, learners must have access to a work experience role, for example work placement, part-time work, volunteering etc. Employers must be external to the centre.

Teachers should consider devising a set of criteria they can use to give feedback when carrying out practice interviews.

Essential information for assessment decisions

Learning aims A and B

For distinction standard, learners will produce a written report evaluating the quality of their own preparation when seeking work experience. This will include their investigation and research carried out, completion of application documents adapted for specific roles, and completion of a mock interview or employer-evidenced real interview. The report will include conclusions about the quality of each step of the preparation, linking this to the teacher's evaluation of the mock interview and the chance of securing employment. Learners will write a conclusion that includes clear understanding of best practice in this area.

For merit standard, learners will produce a written analysis of the quality of their own preparation when seeking work experience. This will include their investigation and research carried out, completion of application documents adapted for specific roles, and completion of a good mock interview or employer-evidenced real interview. The analysis will include a detailed examination of each step of the preparation, linking this to the chance of securing employment. Learners will include an analysis of the teacher's evaluation of the mock interview.

For pass standard, learners will consider the value of their own preparation when seeking work experience, for example investigation and research carried out, completion of application documents adapted to specific roles, and completion of a mock interview or employer-evidenced real interview. Learners will include links to the teacher's evaluation of the mock interview. Learners could include a SWOT analysis.

Learning aim C

Learners need to review and reflect on their time undertaking work experience. This will relate to the number of hours required by the qualification.

For distinction standard, learners will undertake work experience and supply reasoning in their reflective reports to determine the effectiveness of the completed work experience and its capacity to improve their opportunities for employment. Their reasoning will consider the relationship between the occupational and personal skills developed during the work experience and how these may help them in securing future employment. The relationship between learners' own performance during work experience and its impact on the employer will also be covered. Learners will consider how well they prepared themselves for the work experience activities in order to gain the most from the experience(s). Learners' reflections should take account of employer and teacher feedback, and observations of them during their work experience.

For merit standard, learners will undertake work experience and present in their reflective reports a relationship between the occupational and personal skills developed during the work experience, and a discussion about how these skills will help secure employment. Learners will consider the relationship between their own performance during the work experience and its impact on the employer. Learners' reflections should take account of employer and teacher feedback, and observations of them during their work experience.

For pass standard, learners will undertake work experience and present in their reflective reports a consideration of how they developed different occupational and personal skills during their placement. Learners will make a formal assessment of their own performance during work experience based on feedback, including a SWOT analysis, and link this to their contribution to the employer. Learners' reflections should take account of employer and teacher feedback, and observations of them during their work experience.

Links to other units

This unit links with all others in the specification.

Employer involvement

This unit would benefit from employer involvement in the form of:

- technical workshops involving staff from local land-based organisations
- contribution of ideas to unit assignment/project materials
- observation during work experience
- support from local land-based organisation staff as mentors.

Unit 5: Estate Skills

Level: **3**

Unit type: **Internal**

Guided learning hours: **60**

Unit in brief

Learners develop the skills needed to manage and maintain habitats, structures, surfaces, boundaries and services that are found in the land-based sector.

Unit introduction

Managing the physical environment of the land-based sectors means you need to be able to maintain, repair and install a variety of different structures, surfaces, boundaries and services, as well as maintain habitats, ensuring that work is carried out efficiently and safely.

In this unit, you will develop the knowledge and skills needed to manage the repair, maintenance and installation of the fabric of businesses and organisations working in the land-based sectors. These include forestry, horticulture and agriculture as well as more general countryside management. You will learn to plan, implement and reflect on maintenance tasks, including those you carry out yourself and those completed by others such as staff or professional contractors whose work you will manage. In this unit, you will draw on your learning from across the programme to complete assessment tasks.

This unit will give you the skills required to progress to employment as a trainee farm or forestry worker, garden centre assistant or as part of an estate management team. It is also an excellent introduction to a degree in estate management.

Learning aims

In this unit you will:

A Explore estate skills for the management and maintenance of habitats and environments

B Undertake estate skills and their management for the land-based sector

C Carry out the supervision of others engaged in maintenance, repair and installation tasks in the land-based sector.

Summary of unit

Learning aim	Key content areas	Recommended assessment approach
A Explore estate skills for the management and maintenance of habitats and environments	**A1** The nature and scope of estate skills for land-based sector management **A2** Assessing needs **A3** Planning tasks	A portfolio of evidence that plans for estate management projects. The portfolio should include: • surveys • relevant legislation and codes of practice • a plan, including schedules and specifications.
B Undertake estate skills and their management for the land-based sector	**B1** Working safely **B2** Practical estates tasks **B3** Reflecting on tasks undertaken	Evidence of tasks carried out and reflection on task outcomes, to include: • logbooks, observation records and witness statements of tasks undertaken • a review of task outcomes.
C Carry out the supervision of others engaged in maintenance, repair and installation tasks in the land-based sector	**C1** Workforce supervision **C2** Supervise estate skills undertaken **C3** Evaluate estate skills tasks completed	Evidence of the supervision of others in carrying out tasks, to include: • an evaluation framework that includes task outcome and workforce supervision • observation records and witness statements that demonstrate supervision and management of scheduled tasks • a review of the outcomes of tasks carried out by others • a review of own supervision of a workforce.

Content

Learning aim A: Explore estate skills for the management and maintenance of habitats and environments

A1 The nature and scope of estate skills for land-based sector management

Understanding the form and function of estate skills elements that are found in the land-based sector.

- Boundaries, including:
  - deer or rabbit fencing, electric fencing, stock fencing, and post and rail fencing
  - decorative fencing.
- Surfaces, including:
  - paths, tracks, rides, accommodation flooring, grassed surfaces
  - drainage of surfaces, including field drains.
- Structures to provide for land-based management, including:
  - field structures, e.g. field shelters, stiles and way markers, greenhouses, cold frames, raised beds
  - gates and water troughs
  - internal structures, e.g. drinkers, stall furniture and feeders
  - finishes, including paints, varnishes and preservatives.
- Habitat maintenance for land-based management, including:
  - weed and invasive plant control, scrub clearance, hedgerow cutting/layering
  - wildlife refuges, e.g. nesting/resting boxes, woodpiles, hedgehog tunnels.
- Supply, distribution or storage of mains services and utilities, including:
  - water and gas, including bottled gas, electricity, fuel, oil
  - sewerage, including mains, cesspit and septic tank.
- Materials, tools and construction methods used for estate skills tasks:
  - basic construction materials, e.g. wood, concrete, woodchip, tarmac, type 1 aggregate, fencing, galvanised sheets, polypropylene piping
  - common specialist tools and basic test equipment, e.g. circuit tester
  - fixtures and fittings, e.g. hinges, locks, ball valves, pipe connections
  - selection, transport, maintenance and storage of tools, materials and equipment.

A2 Assessing needs

Inspection of boundaries, surfaces, structures, services and habitats.

- Inspecting boundaries, surfaces, habitats and structures for their maintenance, repair, construction and installation needs.
- Inspection and basic fault-finding of electrical circuits and devices using non-contact test equipment.
- Inspection of drainage, gas and water services for leaks and blockages.
- Methods and processes for reporting inspection findings, to include verbal and written, use of appropriate maps, plans and diagrams.

A3 Planning tasks

The application of regulations and specific, current regulations and guidance notes relevant to estate skills for land-based management, including health and safety at work and those relating to animal welfare.

- Government welfare codes of practice for specific animals and plants.
- Use of risk assessments, their purpose and types, including static, dynamic, qualitative and quantitative.
- Correct selection and use of personal protective equipment (PPE).
- Assessing the task, including measuring, estimating, use of maps, diagrams and plans.
- Creating and using schedules of tasks.

- Job specifications, to include job description and rationale, timescales, tools, equipment, materials, location of work, costs, skill sets, health and safety considerations, environmental issues and supervising arrangements.
- Sourcing tools, equipment, materials, skill sets, e.g. internal workforce, external contractors.
- Processes and aids to planning tasks, including budgets, schedules and flow charts.
- The use of IT in raising and monitoring repair and maintenance tasks.
- Communications with contractors and employees to ensure efficient planning.

Learning aim B: Undertake estate skills and their management for the land-based sector

B1 Working safely

- Compliance with appropriate health and safety regulations and guidance, e.g. PPE, animal welfare.
- Selection of the correct tools, equipment and materials.
- Transportation of tools, equipment and materials.
- Preparation of the work area.
- Correct and safe use of tools and equipment.
- Waste disposal in accordance with regulations.
- Maintaining and storing tools, equipment and materials.

B2 Practical estates tasks

Maintenance, repair construction and installation of:

- boundaries, to include post and rail fencing, hedgerows, electric fencing and strained fencing, e.g. stock or chain link fencing
- surfaces, to include aggregate or concrete, woodchip, wood, sand or artificial products, e.g. woodchip or grassed paths, forest access roads, ornamental paving
- structures, e.g. greenhouses, field shelters, gates, stalls, troughs, feeders, stiles, signage
- drainage, e.g. unblocking drains or field drains, clearing an open ditch
- isolation of mains services in the event of leaks or for maintenance, repair, construction and installation tasks
- basic repair of electrical appliances or circuits, e.g. changing a plug or fuse, resetting a circuit
- use of basic equipment to locate underground or hidden services
- installation of temporary electric supply for both indoor and outdoor power requirements, e.g. extension leads, electric fence batteries, small generators
- repair, maintenance or installation of systems to supply water, e.g. to a water trough, irrigation system or to allow a tap and hose to be connected to an existing system
- habitats, e.g. brush clearance, hedgerow cutting, construction of wildlife refuges.

B3 Reflecting on tasks undertaken

Process for reviewing the tasks undertaken to assess the impact on land-based management, to include:

- matching skills to tasks
- taking account of problems that arise and using problem-solving techniques
- comparing the time taken with the time allocated and the time needed
- identifying inefficient working practices
- monitoring actual costs against estimates and identifying cost overruns
- examining specifications to improve clarity and eliminate ambiguity
- monitoring compliance with regulations, guidance and advice notes
- assessing communication to identify improvements.

Learning aim C: Carry out the supervision of others engaged in maintenance, repair and installation tasks in the land-based sector

C1 Workforce supervision

- Identifying skill sets, e.g. internal workforce, external contractors.
- Communicating maintenance, repair, construction and installation needs to in-house teams and outside contractors, to include raising orders, issuing instructions orally and in writing, getting estimates and quotations, commissioning contractors and understanding contracts.
- Using written communication skills:
  - using correct spelling, punctuation and grammar
  - adopting different styles, including formal and informal.
- Using oral communication skills:
  - using tone, inflexion and style when speaking
  - using aids, e.g. maps and plans.

C2 Supervise estate skills undertaken

- Ensuring the work is proceeding according to expectations, e.g. site visits, problem solving and evaluating the progress of estate skills tasks, ensuring compliance with specifications, checking the progress of work against the specification, regulations and codes of practice and risk assessments.
- Using problem-solving skills to assess issues, examine alternative solutions, decide on a course of action, implement solutions and monitor outcomes.

C3 Evaluate estate skills tasks completed

Using evaluation frameworks to enable assessment of completed tasks and workforce management.

- Creating evaluation frameworks using details of the original specification as a checklist.
- Evaluating completed products, including compliance with specifications, regulations, and codes of practice and risk assessments.
- Communicating evaluation outcomes, ensuring correct task completion, including situations where there is a dispute.
- Creating evaluation frameworks for assessing workforce management, to include:
  - selection of workforce
  - communication of task
  - supervision of work in progress
  - application of problem-solving skills
  - feeding back on outcomes of task.

Assessment criteria

Pass	Merit	Distinction
Learning aim A: Explore estate skills for the management and maintenance of habitats and environments		
A.P1 Explain findings of own surveys undertaken to establish estate skills needs. **A.P2** Select information from the findings of own surveys undertaken to plan for the management of an estate skills task.	**A.M1** Analyse the results of own surveys undertaken to produce a schedule for the management of estate skills tasks.	**A.D1** Evaluate the likely impact of the schedule produced for the management of estate skills tasks resulting from own surveys undertaken.
Learning aim B: Undertake estate skills and their management for the land-based sector		
B.P3 Perform simple estate skills tasks to an agreed specification. **B.P4** Explain how own estate skills tasks undertaken meet job specifications.	**B.M2** Perform complex estate skills tasks to an agreed specification and within an agreed timescale. **B.M3** Assess own performance in carrying out estate skills tasks to meet job specifications.	**B.D2** Evaluate the standard of own estate skills tasks undertaken in relation to job specifications.
Learning aim C: Carry out the supervision of others engaged in maintenance, repair and installation tasks in the land-based sector		
C.P5 Demonstrate the management and supervision of a simple estate skills task. **C.P6** Explain the effectiveness of own workforce supervision of an estate skills task.	**C.M4** Demonstrate the management and supervision of a complex estate skills task. **C.M5** Analyse the effectiveness of own workforce supervision of an estate skills task, identifying areas for improvement.	**C.D3** Evaluate the effectiveness of own workforce supervision of a complex estate skills task, detailing improvements.

Essential information for assignments

The recommended structure of assessment is shown in the unit summary along with suitable forms of evidence. *Section 6* gives information on setting assignments and there is further information on our website.

There is a maximum number of three summative assignments for this unit. The relationship of the learning aims and criteria is:

Learning aim: A (A.P1, A.P2, A.M1, A.D1)

Learning aim: B (B.P3, B.P4, B.M2, B.M3, B.D2)

Learning aim: C (C.P5, C.P6, C.M4, C.M5, C.D3)

Further information for teachers and assessors

Resource requirements

For this unit, learners must have access to:

- a range of common and specialist hand tools, including power tools and testing equipment
- suitable PPE
- a wide range of suitable estate skills tasks, including the provision of mains and temporary services.

Essential information for assessment decisions

Learning aim A

For distinction standard, learners will conduct surveys of land-based establishments. They will use a range of appropriate test equipment independently and proficiently. They will readily understand complex estate skills issues, considering causes and making connections with usage and consequences if unaddressed, exploring the situation thoroughly. Learners will present meticulous findings in the form of annotated maps, plans, diagrams and accompanying notes. They will be assured in their assessment of issues and their decisions in respect of repair, maintenance or installation needs.

Learners will produce comprehensive and flexible plans, reprioritising tasks where appropriate in order to use time and resources efficiently. Plans will include a detailed appraisal of work required and a thoroughly considered, time-specific schedule of work. Learners will give a clear rationale for all their recommendations, demonstrating detailed awareness of the influence of relevant governing legislation and codes of practice, and the impact on the establishment if the work is delayed or not completed. Job specifications produced will be comprehensive. Learners will show that they have considered how their plans will be effective in terms of, for example, use of resources, completion of tasks, meeting identified needs.

For merit standard, learners will conduct surveys of land-based establishments. They will use a range of appropriate test equipment safely and without supervision. They will interrogate the causes of issues, suggesting remedial action and, where appropriate, prevention in relation to repair, maintenance or installation needs. They will explore the complexity of faults and issues, considering less obvious factors. Learners will present detailed findings in the form of annotated maps, plans, diagrams and accompanying notes.

Learners will plan proactively with clear timescales for repair, maintenance and installation needs. Their plans will clearly demonstrate an understanding of the need to prioritise work, and an appreciation of realistic timescales and resources. Their planning will demonstrate a detailed assessment of the work required and a time-specific schedule of work. Consideration will be given to relevant governing legislation and codes of practice. Job specifications produced will be clear and detailed.

For pass standard, learners will conduct surveys of land-based establishments. They will use a range of appropriate test equipment, under supervision where necessary. Learners will understand major issues and correctly identify methods of repair, maintenance or installation. They will record correct findings appropriate to each situation surveyed, presenting the information in the form of annotated maps, plans, diagrams and accompanying notes. The notes and annotations will give clear reasoning for their findings.

Learners' plans will address key repair, maintenance and installation needs, correctly prioritising works using broad timescales. Where appropriate, their plans will take into account governing legislation and codes of practice. Job specifications produced will contain key information.

Learning aim B

For distinction standard, learners will carry out complex tasks that require multiple operations, using appropriate equipment and a variety of tools and materials. Tasks will be undertaken efficiently, accurately and completely, meeting the specification. Learners will work to a professional industry standard and they will comply with best workplace practice.

Learners will review the qualitative standard of practical work undertaken to improve the completion of tasks, supporting their views with reasoned judgements.

For merit standard, learners will carry out complex tasks that require multiple operations, using appropriate equipment and a variety of tools and materials. Tasks will be undertaken efficiently, accurately and completely, meeting the specification. Learners will work to the standard of a competent employee. They will carry out complex tasks that require the installation, maintenance or repair of boundaries, surfaces, habitats and either mains or temporary services.

Learners will demonstrate best workplace practice by working safely and in accordance with relevant legislation, ensuring the workplace is prepared and cleared. They will understand the need for, and demonstrate, correct tool, material and equipment procedures, including selection, use, transport, maintenance and storage.

Learners will review their work in light of the job specification and the standard achieved, giving valid suggestions for improvements in tasks.

For pass standard, learners will carry out simple estate skills tasks, requiring few operations and a limited range of tools and materials. Tasks will be undertaken efficiently, accurately and completely, meeting the specification. They will work to the standard of a novice employee. Learners will carry out simple tasks that require the installation, maintenance or repair of boundaries, surfaces, habitats and either mains or temporary services.

Learners will demonstrate acceptable workplace practice by working safely and in accordance with relevant legislation, ensuring the workplace is cleared after task completion. They will demonstrate correct tool, material and equipment procedures, including selection, use, transport, maintenance and storage.

Learners will review their work in light of the job specification.

Learning aim C

For distinction standard, learners will carry out effective and comprehensive workforce supervision that demonstrates clear, concise, unambiguous, oral and written communications suited to the recipient, such as contractors or colleagues.

Learners will delegate responsibilities appropriately according to skill sets and resources. They will monitor and assess task progression, advising only when necessary, using positive and flexible problem-solving skills when needed. They will assess the completed task against the specification and communicate their findings concisely and assertively.

Learners will draw up a valid and reliable evaluation framework to use when assessing their management of completed tasks. They will identify specific areas where their management of the task could have improved efficiency, safety or cost-effectiveness, and will make valid recommendations that would achieve this.

For merit standard, learners will demonstrate they can communicate clearly and appropriately with a workforce, such as contractors or colleagues, both orally and in writing.

Learners will delegate responsibilities. They will accurately assess the progress of a complex task and demonstrate problem-solving skills when needed. They will communicate appropriately their assessment of the progress of a task.

Learners will draw up an accurate evaluation framework to use when assessing workforce management. They will make recommendations for improvements in their own performance.

For pass standard, learners will demonstrate that they can issue simple workforce instructions, both orally and in writing.

Learners will carry out supervision of tasks, including checks on progress and identifying obvious issues that may hinder task completion to the specification. Where problems occur, learners will make suggestions and may intervene directly. Learners will provide basic feedback to the workforce on the progress of the task.

Learners will draw up a simple evaluation framework to use when assessing their management of the workforce, identifying their own strengths and weaknesses.

Links to other units

This unit links to:

- Unit 4: Work Experience in the Land-based Sectors
- Unit 20: Woodland Project.

Employer involvement

This unit would benefit from employer involvement in the form of:

- masterclasses
- technical workshops involving staff from local land-based organisations
- contribution of ideas to unit assignment/project materials
- observation during work experience
- support from local land-based organisation staff as mentors.

Unit 8: Tree Pests and Diseases

Level: **3**

Unit type: **Internal**

Guided learning hours: **60**

Unit in brief

Learners develop the skills required to identify, prevent and control common pests and diseases in trees.

Unit introduction

What is wrong with that tree? Pests and diseases can have a significant negative effect on the visual condition of trees, not to mention the economic impact they can have on crop production, such as fruit or timber. Knowing what is wrong with a tree, and what to do about it, is essential for the management of healthy, productive trees.

In this unit, you will learn about the features of a range of pathogens that can affect trees. You will learn how to identify trees and pathogens, along with the signs and symptoms that indicate a tree is under attack from a particular pest or disease. You will explore how to manage tree pathogens using different methods, equipment and techniques in both organic and conventional systems. You will also carry out your own practical investigation into monitoring and managing tree health.

This unit will support your progression to employment in the land-based sector as a trainee forester or forest worker, or to further study in an Apprenticeship or higher education.

Learning aims

In this unit you will:

A Examine tree pests and diseases for the management of tree health

B Explore health management strategies for trees

C Apply methods to prevent and control pests and diseases for effective tree health management.

Summary of unit

Learning aim	Key content areas	Recommended assessment approach
A Examine tree pests and diseases for the management of tree health	**A1** UK tree species **A2** Abiotic and seasonal factors affecting health status **A3** Common pests and diseases affecting trees **A4** Effects of abiotic factors, pests and diseases on health status	A report on the importance of identifying organisms that are key to managing tree health, supported by witness statements of learners' ability to identify key organisms.
B Explore health management strategies for trees	**B1** Monitoring and surveillance methods **B2** Prevention and control of pests and diseases **B3** Planning tree health management	Portfolio on theoretical and practical tree health management: identification, monitoring, prevention and control of pests and diseases, including witness statements from teachers and/or employers.
C Apply methods to prevent and control pests and diseases for effective tree health management	**C1** Safe management of tree health **C2** Preventing and controlling pests and diseases	

Content

Learning aim A: Examine tree pests and diseases for the management of tree health

Types, characteristics and life cycles of trees, pests and diseases.

A1 UK tree species

Recognition of common genera and species of trees in the UK.

- *Betulaceae*, e.g. *Alnus, Betula, Corylus*.
- *Fagaceae*, e.g. *Castanea, Fagus, Quercus.*
- *Liliaceae*, e.g. *Erythronium, Galanthus*.
- *Oleaceae*, e.g. *Fraxinus, Olea.*
- *Pinaceae*, e.g. *Pinus.*
- *Rosaceae*, e.g. *Malus, Prunus, Rosa.*

A2 Abiotic and seasonal factors affecting health status

Processes and impact of factors that predispose trees to pests and disease.

- Water-related, to include drought, waterlogging, water pollution.
- Weather-related, to include frost, shade, sun scorching.
- Damage, to include mechanical, herbicidal.
- Soil-related, to include poor soil aeration, nutrient deficiencies or excesses.

A3 Common pests and diseases affecting trees

Recognition and features of biotic pests and pathogens, including their impact on susceptible host species and significance to tree health management.

- Insect pests, to include *Hemiptera*, *Hymenoptera*, *Lepidoptera* and *Coleoptera spp.*
- Mammalian pests, to include rabbits, grey squirrels and deer.
- Fungi, to include:
  - mutually beneficial relationships, e.g. mycorrhizae, ectomycorrhizae
  - Ascomycetes, e.g. *Nectria*, *Fusarium*, *Ophiostoma* and *Hymenoscyphus*
  - Basiodiomycetes, e.g. *Ganoderma*, *Puccinia* and *Armillaria spp*
  - Oomycetes e.g. *Phytophthora*.
- Bacterial pathogens, e.g. *Xanthomonas*, *Pseudomonas*.
- Features and behaviour of pests and pathogens:
  - life cycles, reproduction methods and rates
  - behavioural characteristics
  - social structure
  - growth and development
  - preferred habitat and food supply
  - natural population controls, e.g. mortality, predation
  - natural spread, e.g. wind, territory
  - living vectors
  - fomites, e.g. vehicles, machinery.

- Purpose and protocol for reporting certain pests and diseases to appropriate organisations, e.g. Forestry Commission, Department for Environment, Farming and Rural Affairs (Defra):
  - American dagger nematodes
  - acute oak decline
  - ash dieback disease
  - Asian longhorn beetle
  - Dutch elm disease
  - elm yellows
  - larch disease
  - oak pinhole borer
  - oak processionary moth
  - oriental chestnut gall wasp.

A4 Effects of abiotic factors, pests and diseases on health status

Mechanisms of action, short- and long-term consequences of abiotic factors, infection and infestation.

- General effects: dieback, premature senescence, canker.
- Seed and fruit: damage, abnormal formation, reduced yield.
- Leaf changes: colour, structure, defoliation.
- Trunk, stem and limbs: fissures, cracks, stem bleeding, stripped bark, fructification, shoot distortion, bore holes.
- Rot types, to include root, seed, wood.
- Damage leading to secondary infection.

Learning aim B: Explore health management strategies for trees

B1 Monitoring and surveillance methods

Suitability, advantages and disadvantages of methods and equipment.

- Health status markers:
  - general appearance of individual and surrounding trees
  - timing, frequency and type of damage and/or decay.
- Collecting evidence of pest problems:
  - trapping of invertebrates, e.g. sweep nets, pooters
  - presence of faeces from larger animals, tracks.
- Identification of pests and disease, e.g. use of hand lenses, digital cameras, preservation of samples.
- Recording and assessment methods, e.g. use of field data sheets, software, graphical representation of changes over time.

B2 Prevention and control of pests and diseases

Prevention and control methods and equipment, their suitability, advantages and disadvantages.

- Species selection and meeting basic needs, e.g. irrigation, drainage, nutrition.
- Breeding for natural resistance and disease tolerance.
- Culling of pest species.
- Pruning.
- Sanitation felling.
- Chemical and biological control:
  - pesticides, fungicides, deterrents and legal responsibilities, e.g. The Plant Protection Products (Sustainable Use) Regulations 2012
  - natural predators.

B3 Planning tree health management

Planning considerations for managing tree health, including responsibilities under UK legislation.

- Integrated pest and disease management (IPDM) planning principles.
- Risk assessments.
- Compliance with the UK Forestry Standard (UKFS).
- Impact of designated status on tree health management planning, e.g. Sites of Special Scientific Interest (SSSI), Tree Preservation Orders (TPOs).
- Purpose and effects of Plant Health Orders:
  - protection for growers and producers
  - certification of planting material
  - restrictions on importing, exporting, moving or keeping particular plants, plant pests and other materials such as soil, to include plant passports and scientific licences.
- Planning stages and processes:
  - establishing existing habitat types, woodland structure and other parameters, e.g. location, topography, climate
  - use of maps and visual tools
  - identification of potential threats, e.g. to plant health, soil erosion, wild mammals
  - identifying priorities and key objectives
  - suitability of applying chemical or biological controls for pests and diseases
  - waste disposal, e.g. tree tubes, chemical containers
  - disposal of infected material, e.g. branches.

Learning aim C: Apply methods to prevent and control pests and diseases for effective tree health management

C1 Safe management of tree health

Equipment and techniques required to work safely and avoid spreading pests and diseases.

- Safety measures:
  - appropriate personal protective equipment (PPE), e.g. safety glasses, masks, gloves
  - preparation of, and compliance with, risk assessments
  - safe transport, carrying and use of tools and equipment, e.g. chainsaws, pruning shears, ladders
  - safe working procedures to ensure protection of self and others
  - compliance with relevant legislation, e.g. Health and Safety at Work etc. Act 1974, Control of Substances Hazardous to Health Regulations 2002 (COSHH), The Plant Protection Products (Sustainable Use) Regulations 2012.
- Biosecurity measures:
  - checks of tree stock health and accompanying documentation
  - actions to minimise spread of pests and diseases, e.g. cleaning and disinfection of equipment, removal of soil and debris from boots and transport
  - appropriate actions near water courses to prevent spread of pests and diseases downstream
  - methods of disposal of infected and non-infected material.

C2 Preventing and controlling pests and diseases

Techniques, equipment and processes involved in preventing and controlling pests and diseases.

- Application of protective barriers, e.g. tree tubes, mesh, fences.
- Removal of tree parts and appropriate movement of timber.
- Sourcing, preparing and application of treatments, to include calculation of required amounts, e.g. liquids, sprays, powders.
- Animal traps and repellents.

Assessment criteria

Pass	Merit	Distinction
Learning aim A: Examine tree pests and diseases for the management of tree health		
A.P1 Explain methods and importance of correctly identifying tree pests and diseases. **A.P2** Explain the factors that contribute to the acquisition of pests and diseases of trees.	**A.M1** Discuss the characteristics of pests and pathogens that affect trees.	**A.D1** Assess the impact of pests and pathogens on tree health.
Learning aim B: Explore health management strategies for trees		
B.P3 Perform simple monitoring and surveillance of tree health. **B.P4** Plan simple tree health management strategies, providing reasoning.	**B.M2** Perform complex monitoring and surveillance of tree health. **B.M3** Complex tree health management strategies, providing reasoning.	**B.D2** Justify complex health management strategies for prevention and controlling pests and diseases of trees.
Learning aim C: Apply methods to prevent and control pests and diseases for effective tree health management		
C.P5 Perform simple health management strategies to prevent and control pests and diseases. **C.P6** Explain own methods used in tree health management.	**C.M4** Perform complex health management strategies to prevent and control pests and diseases. **C.M5** Assess the effectiveness of own methods used in tree health management.	**C.D3** Demonstrate efficient, complex tree health management, evidencing reasoned conclusions as to effectiveness of methods used.

Essential information for assignments

The recommended structure of assessment is shown in the unit summary along with suitable forms of evidence. *Section 6* gives information on setting assignments and there is further information on our website.

There is a maximum number of two summative assignments for this unit. The relationship of the learning aims and criteria is:

Learning aim: A (A.P1, A.P2, A.M1, A.D1)

Learning aims: B and C (B.P3, B.P4, C.P5, C.P6, B.M2, B.M3, C.M4, C.M5, B.D2, C.D3)

Further information for teachers and assessors

Resource requirements

For this unit, learners must have access to:

- a range of trees in different habitats
- images and samples of common pests
- a range of equipment and methods used to monitor, prevent and control pests and diseases.

Essential information for assessment decisions

Learning aim A

For distinction standard, learners will identify three tree species, two pests and two diseases correctly, with little need to refer to other sources. They will give a wide-ranging account of common and uncommon pests, and diseases relevant to the health management of trees, the purposes of monitoring their spread, and the impact on UK tree populations, linking these to the impact on individual trees, woodlands and local ecosystems. Learners will provide a comprehensive overview linking features such as life cycle, reproduction, preferred habitats and modes of movement of pests and disease with particular geographical locations, susceptible host species and abiotic factors affecting the transmission and severity of affliction. Their accounts will demonstrate a thorough understanding of the similarities and differences between different pests and diseases, and the importance of correctly identifying both host and pest/disease to managing tree health in context.

For merit standard, learners will use standard methods to correctly and efficiently identify three tree species, two pests and two diseases, providing sound reasoning for the choices they make. They will give detailed accounts of the features of pests and pathogens, such as the different parts of their life cycles and modes of movement. Learners will give careful consideration to the factors determining how and why pests and pathogens come to affect their hosts, including how abiotic factors can affect host susceptibility in both individual and groups of trees. Their accounts will demonstrate a sound depth of understanding of the links between pests, pathogens and diseases in trees.

For pass standard, learners must provide essential detail of the features and processes used to identify trees, pests, pathogens and related diseases. They will correctly identify a minimum of three trees, two pests and two diseases. They will demonstrate understanding of how fungi, bacteria, viruses, insects, gastropods and mammals affect trees, including the linked symptoms displayed by affected trees. Learners will demonstrate basic knowledge and understanding of how host trees are made more or less susceptible to attack from pests and pathogens.

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Learning aims B and C

For distinction standard, learners will complete tasks of a similar complexity to those at merit standard with an efficient use of time and resources. They will consider their practical tasks and written work in a manner that demonstrates a comprehensive understanding of how tree health can be managed effectively to reduce the impact of pests and pathogens. Learners will give a good account of a number of organic and conventional contexts in the management of pests and disease, commenting on how current prevention and control strategies may impact future management, such as the development and prevention of pesticide resistance. They will consider the impact of UK tree health legislation on their planning and implementation. Learners' approaches to tree health management strategies will reflect research into alternative strategies available, and reasoned decision making behind choices made.

They will review their strategies for monitoring the effectiveness of methods implemented, commenting on tree health status, pest and disease prevention and control. Written work will be logically structured and illustrated appropriately throughout.

For merit standard, learners will plan for and carry out more complex tasks, such as the monitoring of multiple sites, or through completion of a longer-term project requiring accuracy and dedication for effective management. They will apply their understanding of monitoring methods to specific examples, identifying the most suitable methods to use after careful consideration of the factors affecting a given situation, such as the need to prevent disease in a certified organic system. Learners will carry out pest and disease monitoring, prevention and control techniques in a manner which demonstrates familiarity with the correct methods to achieve the desired outcomes. They will review the stages of their tree health management plans, making reasoned judgements on how effective the implemented methods were in preventing and controlling pests and disease at key stages.

For pass standard, learners will outline the pests and diseases which may present particular problems in a given area of woodland, the potential and current impacts on the health of the tree, and the likely consequences if control measures are not put in place. They will make straightforward and appropriate plans for managing tree health. Learners must demonstrate understanding of the basic methods of monitoring levels of pests and diseases. They will correctly and safely use equipment and resources to perform one organic and one conventional method for preventing and controlling pests and disease. Throughout the practical work they will monitor and record the pest and disease status in each case.

Links to other units

This unit links to:

- Unit 2: Plant and Soil Science
- Unit 6: Identification, Planting and Care of Trees
- Unit 7: Tree and Shrub Pruning and Maintenance
- Unit 20: Woodland Project.

Employer involvement

This unit would benefit from employer involvement in the form of:

- masterclasses
- technical workshops involving staff from local land-based organisations
- contribution of ideas to unit assignment/project materials
- observation during work experience
- support from local land-based organisation staff as mentors.

Unit 9: Tree-felling Activities

Level: **3**

Unit type: **Internal**

Guided learning hours: **60**

Unit in brief

Learners plan and carry out the key vocational task of tree felling of small-diameter trees. This, requires them to apply skills in chainsaw operation and maintenance, and to draw on their wider knowledge of forestry and arboriculture.

Unit introduction

A key part of the role of a groundsperson in the forestry and arboriculture sectors is managing the felling of small-diameter trees. To carry this out effectively, the groundsperson needs to assess tree-felling needs, plan the best felling approaches and clearing of sites after felling, and ensure there is professional management of the crop or environment to meet its purpose. This work involves using chainsaws so being confident and safe in their use is essential.

In this unit, you will develop cross-cutting techniques using chainsaws. You will undertake the chainsaw maintenance required for safe and efficient operation, including how to identify common problems and resolve them. You will assess sites and trees for their tree-felling needs and use a chainsaw to undertake basic felling and cross-cutting of small-diameter trees, including dismantling trees on the ground.

The unit contains the key vocational assessment task of felling operations, in which you will assess a site to determine tree-cutting needs, plan activities selecting appropriate application of techniques, cut small-diameter trees and manage the safe clearing of the felling area. You will then evaluate the success of activities. You will need to select and apply knowledge and skills developed in your study of the mandatory content and your wider learning from across the programme. You will select and apply your knowledge and skills from *Unit 1: Professional Working Responsibilities*, *Unit 2: Plant and Soil Science*, *Unit 6: Identification, Planting and Care of Trees* and *Unit 7: Tree and Shrub Pruning and Maintenance*. You will also use your experience of real work practices in the sector from *Unit 4: Work Experience in the Land-based Sectors*.

The skills you learn in this unit are key to employment in the forestry and arboriculture sectors. These skills are also useful in other land-based sectors where tree felling is required, including countryside management, farming and conservation. The unit will enable you to progress to relevant certificates of competence and to a higher education course such as a Foundation or Bachelor Degree in Arboriculture.

Learning aims

In this unit you will:

A Develop tree-felling cross-cutting techniques through the safe use and maintenance of chainsaws

B Plan activities for chainsaw felling of small-diameter trees

C Carry out planned felling and clearing activities for small-diameter trees.

Summary of unit

Learning aim	Key content areas	Recommended assessment approach
A Develop tree-felling cross-cutting techniques through the safe use and maintenance of chainsaws	**A1** Chainsaws and their safe use **A2** Maintaining the engine and saw **A3** Cross-cutting techniques	A demonstration and report on the safe use and maintenance of chainsaws, and the cross-cutting techniques used for felling small-diameter trees.
B Plan activities for chainsaw felling of small-diameter trees	**B1** Assessing needs **B2** Planning activities	Planning and management of chainsaw-felling activities to meet a set brief. The recommended portfolio of evidence includes: • a site and tree inspection • planning documents – schedules, job specification • logbooks, observation records and witness statements of activities undertaken • a review of own performance. Learners will be expected to select and apply learning from other mandatory units and optional units as appropriate.
C Carry out planned felling and clearing activities for small-diameter trees	**C1** Working professionally **C2** Evaluating tree-felling activities	

Content

Learning aim A: Develop tree-felling cross-cutting techniques through the safe use and maintenance of chainsaws

A1 Chainsaws and their safe use

- Chainsaw types, uses, characteristics and features:
  - types and styles of chainsaw, relationship to use and wood type
  - engine size and guide bar length for task
  - two-stroke engines and their main components
  - environmental factors relevant to chainsaw design, to include fuel efficiency, emissions reduction, use of bio oils rather than mineral oils.
- Safe use of a saw:
  - safety features, including anti-kickback devices, stop/off switch, safety (dead hand) throttle, chain catchers, anti-vibration mounts, chain brake
  - personal protective equipment (PPE), including helmet, visor, earmuffs, protective trousers, protective boots, jacket and gloves
  - safe working techniques – correct methods to hold and manipulate saws, health and safety considerations, including safety of self and others, e.g. passers-by, the public, co-workers
  - environmental considerations, to include noise, pollution, waste disposal.
- Chain safety features:
  - depth gauges and correct chain, chain catcher in place, use of safety guide bar.
- Chain inspection and maintenance:
  - chain – tension, height of depth gauge, condition of teeth-cutting edge, wear of teeth
  - guide bar – straightness, wear of channel, signs of bluing (overheating), lubrication
  - wear on sprocket, including signs of damage.

A2 Maintaining the engine and saw

Processes and techniques used in routine maintenance:

- use of operator's manual, service intervals, visual checks
- identification and mixing of correct fuel petrol/oil ratio
- safe refuelling
- use of chain oil for lubrication
- location of spark plug and its use as an indicator of problems, replacement of spark plug
- location of air filter and its cleaning and replacement
- cleaning the external and internal surfaces of the saw.
- Sharpening the chain:
  - use of guides to check depth gauges and use of appropriate flat files to adjust accordingly
  - selecting appropriate round file and using guide, with reference to operator manual to sharpen chain, each tooth sharpened to the same length, working to left- and right-handed teeth.

A3 Cross-cutting techniques

The importance of safe and competent use of the chainsaw in cutting branches using cross-cutting techniques.

- Stance and holding the saw in a way that minimises kickback risk.
- Understanding and recognising tension and compression in limbs and the dangers of them.
- Offering the saw to the wood, including:
  - avoiding using the tip
  - sequence of cuts to reduce risk of saw becoming pinched in the wood.
- Assessing risk, including dangers from released tension and dropping cut wood.

- Methods and requirements for felling difficult trees:
  - felling methods
  - escape routes
  - safe working distance
  - use of felling aids, e.g. felling levers, wedges, winches, round slings, strops and ropes.

Learning aim B: Plan activities for chainsaw felling of small-diameter trees

In undertaking the key vocational task, planning and carrying out chainsaw tree-felling activities for small-diameter trees, learners must select and apply learning from *Unit 1: Professional Working Responsibilities*, *Unit 2: Plant and Soil Science*, *Unit 6: Identification*, *Planting and Care of Trees*, *Unit 7: Tree and Shrub Pruning and Maintenance* and *Unit 4: Working in the Land-based Sectors*.

B1 Assessing needs

- Site inspection:
  - condition of site and tree, direction of fall
  - surroundings, including site access, environmental considerations, topography
  - access and escape routes.
- Tree inspection, problem trees, their issues, identification and felling solutions, to include:
  - hung-up trees
  - leaning trees
  - diseased or hollow trees
  - multi-stem trees
  - windblown trees
  - branches under tension.

B2 Planning activities

- Risk assessment, their purpose and types and potential hazards.
- Processes and aids to planning activities, including budgets, schedules and flow charts.
- Correct selection and use of personal protective equipment (PPE).
- Job specification to include job description and rationale, timescales, tools, equipment, materials, location of work, costs, skill sets, health and safety considerations, environmental issues.
- Sourcing tools, equipment, materials, skill sets, e.g. internal workforce, external contractors.
- Consideration of potential impact on the environment and sustainability:
  - impacts on wildlife, e.g. bat roosts, badger setts, cavity-nesting birds
  - saproxylic species (animals that feed on dead wood) and importance of dead wood in woodland ecosystems
  - statutory designations, e.g. Sites of Special Scientific Interest (SSSIs), Tree Preservation Orders (TPOs), current legislation and guidelines
  - replacement planting.

Learning aim C: Carry out planned felling and clearing activities for small-diameter trees

C1 Working professionally

Establishing a safe working site.

- Compliance with appropriate health and safety regulations and guidance, e.g. PPE, use of warning signs, exclusion zones.
- Selection and transportation of the correct tools, equipment and materials.
- Preparation of the work area and positioning of equipment and fuel/oil storage.
- Pre-start checks, starting the saw (cold and warm starts).
- Consideration of ground conditions, including firmness and impediments to access and escape, e.g. brambles, ivy, fences, boggy ground.
- Using a chainsaw to fell a small-diameter tree:
  - deciding on direction of fall, including lean of tree, possible problems and desired direction
  - consideration of environmental conditions, e.g. wind speed and direction, rain
  - using correct sequence of cuts and system
  - position of cuts for the notch, size and direction of cuts, and the felling cut
  - maintenance of a suitably-sized hinge
  - awareness of possible use of felling aids, including wedges and felling lever.
- De-limbing and clearing up:
  - moving safely between work positions
  - work methods
  - tree condition
  - ground conditions
  - ancillary equipment, e.g. log tongs, hooks and picks
  - safe handling of products and arisings
  - awareness of methods for stump removal, including stump grinders, chemicals, heavy plant, winching systems, jacks, fire, hand digging
  - methods of waste disposal and their consequences for the environment and sustainability, including sale of by-products, timber stacks, eco-piles, dead hedges, chipping, burning.
- Team working – communicating clearly with supporting team members.

C2 Evaluating tree-felling activities

- Taking account of problems that arise and using problem-solving techniques.
- Comparing the time taken with the time allocated.
- Identifying inefficient working practices.
- Monitoring actual costs against estimates and identifying cost overruns.
- Monitoring compliance with regulations, guidance and advice notes.
- Assessing communication to identify improvements.
- Using evaluation frameworks to enable assessment of completed activities
  - evaluating completed products, including compliance with specifications, regulations, and codes of practice and risk assessments
  - communicating evaluation outcomes, ensuring correct task completion, including situations where there is a dispute.

Assessment criteria

<table>
<tr><th>Pass</th><th>Merit</th><th>Distinction</th></tr>
<tr><td colspan="2">Learning aim A: Develop tree-felling cross-cutting techniques through the safe use and maintenance of chainsaws</td><td rowspan="3">A.D1 Evaluate techniques used and own proficient performance for chainsaw maintenance, and complex cross-cutting techniques.</td></tr>
<tr><td>A.P1 Demonstrate simple cross-cutting techniques, explaining use and effectiveness of own performance.
A.P2 Perform simple chainsaw maintenance, explaining techniques used, and the effectiveness of own performance.</td><td>A.M1 Demonstrate complex cross-cutting techniques, assessing use and own performance.
A.M2 Perform complex chainsaw maintenance, assessing techniques used, and the effectiveness of own performance.</td></tr>
<tr><td colspan="2">Learning aim B: Plan activities for chainsaw felling of small-diameter trees</td></tr>
<tr><td>B.P3 Perform site- and tree-inspection activities.
B.P4 Produce a simple plan for felling of small-diameter trees, explaining the reasons for planning decisions.</td><td>B.M3 Perform detailed inspections and produce a complex small-diameter tree-felling management plan, with rationale for decisions.</td><td rowspan="3">B.D2 Justify own planning decisions for comprehensive small-diameter tree-felling activities arising from own detailed inspections.
C.D3 Carry out proficient, complex felling and cross-cutting management activities to selected small-diameter trees, meeting planned objectives, evaluating the effectiveness of processes used and own planning.</td></tr>
<tr><td colspan="2">Learning aim C: Carry out planned felling and clearing activities for small-diameter trees</td></tr>
<tr><td>C.P5 Carry out competent, simple felling and cross-cutting activities to selected small-diameter trees to meet planned objectives.
C.P6 Explain the effectiveness of processes used, and own planning, of felling activities.</td><td>C.M4 Carry out competent, complex felling and cross-cutting management activities to selected small-diameter trees, meeting planned objectives.
C.M5 Analyse the effectiveness of processes used, and own planning, of felling activities.</td></tr>
</table>

Essential information for assignments

The recommended structure of assessment is shown in the unit summary along with suitable forms of evidence. *Section 6* gives information on setting assignments and there is further information on our website.

There is a maximum number of three summative assignments for this unit. The relationship of the learning aims and criteria is:

Learning aim: A (A.P1, A.P2, A.M1, A.M2, A.D1)

Learning aims: B and C (B.P3, B.P4, C.P5, C.P6, B.M3, C.M4, C.M5, B.D2, C.D3)

Further information for teachers and assessors

Resource requirements

For this unit, learners must have access to:

- a selection of chainsaws
- tools for the maintenance of chainsaws, including files, gauges, brushes, spanners and screwdrivers
- suitable PPE specific to chainsaw use
- fuels, oils, greases and cleaning materials
- a safe location in which to work
- suitable small-diameter trees.

Essential information for assessment decisions

Learning aim A

For distinction standard, learners will carry out routine operator maintenance on a chainsaw to a high standard and with confidence, considering all relevant issues and producing robust solutions. Learners will carry out felling a tree in a direction opposite to its lean, to avoid obstacles such as buildings and other trees. Learners will demonstrate cross-cutting of small-diameter trees to a high standard and with confidence, covering all the relevant issues. They will accurately select and use tools and equipment such as log tongs, picks and hooks to carry out maintenance and cross-cutting activities proficiently and to a standard that reflects what is expected in the workplace. The work will be carried out without assistance, other than use of the relevant manufacturer's recommendations, and will be technically correct and in accordance with relevant legislation. Learners will show complete competence in the use of skills and techniques, including positioning of self, manipulation of saw, position and depth of cuts used, working independently and safely at all times. They will fully assess the associated risks and hazards.

Learners will ensure the workplace is prepared and cleared after task completion in line with practices, showing depth of understanding of environmental issues and sustainable waste disposal.

Learners' evidence will demonstrate a consistent use of accurate and relevant terminology.

Learners will keep detailed and accurate records as appropriate to the tasks being carried out.

For merit standard, learners will carry out routine operator maintenance on a chainsaw safely and efficiently, considering most of the relevant issues and producing efficient solutions. Learners will carry out felling of a tree in a given direction and cross-cutting of small-diameter trees safely and efficiently, considering most of the relevant issues. They will select and use some of the available tools and equipment to carry out maintenance and cross-cutting activities safely and efficiently, in accordance with legislation and codes of practice. Learners will use manufacturer recommendations with some confidence and with minimal assistance. They will demonstrate an understanding of the importance of carrying out each aspect of pre-start checks before maintenance is carried out and of the maintenance itself. Their reasoning will be technically accurate and clear. Learners will show some competence in the use of skills and techniques when undertaking cross-cutting activities, including positioning of self, manipulation of saw, position and depth of cuts used. They will assess the associated risks and hazards, organising their work to carry out tasks in a logical sequence, which they will explain clearly.

Learners will ensure that the workplace is prepared and cleared after task completion in line with standard practices, showing some understanding of environmental considerations and the principles of sustainable waste disposal.

Learners will keep records, as appropriate to the tasks and with sufficient detail, so it is clear what has been carried out.

For pass standard, learners will carry out pre-start checks and routine operator maintenance on a chainsaw that requires a limited range of tools and equipment. Learners will carry out felling and cross-cutting of small-diameter trees safely. They will show a realistic awareness of risks and potential issues. Learners will explore possible common faults with chainsaws and explain them in a way that shows an awareness of the concepts that is realistic and acceptable but possibly limited in scope. They will carry out maintenance and cross-cutting activities, demonstrating acceptable workplace practice by working safely and in accordance with relevant legislation. Learners will show that they can follow manufacturer's recommendations but may need some limited supervision and assistance in determining sensible sequences of work.

Their use of the chainsaw may contain minor inefficiencies in technique, such as positioning and depth of cuts, but there will be no crucial errors or health and safety shortfalls. Learners will demonstrate breadth of knowledge in how different techniques or methods may be applied in specific contexts to safely fell and cross-cut a small-diameter tree.

Learners will ensure the site is cleared after task completion and that waste is disposed of appropriately, showing a realistic awareness and understanding of sustainability concepts and practices relating to tree felling.

Learners will show an appropriate awareness of the importance of keeping appropriate records that provide the key information.

Learning aims B and C

In completing the assessment for learning aims B and C, learners must individually plan and carry out small-diameter, tree-felling activities. Learners are required to independently select, apply and demonstrate appropriate knowledge and skills relating to working practices from *Unit 1: Professional Working Responsibilities*, knowledge of tree growth from *Unit 2: Plant and Soil Science*, tree identification and maintenance needs from *Unit 6: Identification, Planting and Care of Trees*, maintenance methods and assessments from *Unit 7: Tree and Shrub Pruning and Maintenance* and of sector standards from *Unit 4: Work Experience in the Land-based Sectors*.

For distinction standard, learners will carry out a site- and tree inspection to a standard that reflects what is expected in the workplace. They will readily understand complex tree-felling and cross-cutting skills issues, considering methods and impact on the environment, exploring the situation thoroughly. Learners will present meticulous findings in the form of annotated maps, plans, diagrams and accompanying notes.

Based on their inspection, learners will produce complex, comprehensive and flexible plans, reprioritising tasks where appropriate in order to use time and resources efficiently. Plans will include a detailed appraisal of work required and a thoroughly considered, time-specific schedule of work. Learners will give a clear rationale for all their recommendations, demonstrating detailed awareness of the influence of relevant governing legislation, codes of practice and certification requirements, and the impact on the environment if the work is delayed or not completed. Job specifications produced will be comprehensive. Learners will show that they have considered how their plans will be effective in terms of, for example, use of resources and completion of tasks, meeting identified needs.

Learners will manage complex felling of problem trees such as leaning trees or those tangled in others. They will demonstrate cross-cutting skills activities that require multiple operations, using appropriate equipment and techniques. Activities will be undertaken efficiently, accurately and completely, fully meeting the plan they have devised for the task.

Learners will review the qualitative standard of practical work undertaken to improve the completion of activities, supporting their views with reasoned judgements.

Learners will carry out effective and safe teamwork that demonstrates clear, concise, unambiguous, oral and written communications with team members.

Learners will monitor and assess task progression, advising only when necessary, using positive and flexible problem-solving skills when needed. They will assess the completed task against the specification and communicate their findings concisely and assertively. Learners will keep detailed and accurate records as appropriate to the tasks being carried out.

Learners will draw up a valid and reliable evaluation framework to use when assessing their management of completed activities. They will make specific, reasoned references as to why and how the various aspects of the work meet the given objectives, making specific references to the feedback received and providing suitable and insightful justifications for the recommendations for improvement.

For merit standard, learners will carry out a site and tree inspection, making efficient use of time and resources. They will understand tree-felling and cross-cutting skills issues and methods, and the impact on the environment, considering less obvious factors. Learners will present detailed findings in the form of annotated maps, plans, diagrams and accompanying notes.

Based on their inspection, learners will prepare plans with clear timescales for undertaking tree-felling and cross-cutting activities. Their plans will clearly demonstrate an understanding of the need to prioritise work and an appreciation of realistic timescales and resources. Their planning will demonstrate a detailed assessment of the work required and a time-specific schedule of work, with a detailed and balanced analysis of the risks associated with felling and cross-cutting, with mostly relevant suggestions for minimising these risks. Consideration will be given to relevant governing legislation, codes of practice and certification requirements. Job specifications produced will be clear.

Learners will manage complex tree felling of trees to fall in a given direction and cross-cutting activities that requires multiple operations, using appropriate equipment and materials. Learners will demonstrate best workplace practice by ensuring safety in accordance with relevant legislation and fulfilling the plan they have devised for the task.

Learners will review approaches adopted and their own work in light of the job specification and the standard achieved, giving valid suggestions for improvements in activities.

Learners will demonstrate that they can communicate clearly and appropriately with a work team.

Learners will accurately assess the progress of a complex task and demonstrate problem-solving skills when needed. They will communicate appropriately their assessment of the progress of a task. Learners will keep records as appropriate to the tasks, with sufficient detail so it is clear what has been carried out.

Learners will draw up an accurate evaluation framework to use when assessing workforce management. They will make recommendations for improvements in their own performance.

For pass standard, learners will carry out a site and tree inspection appropriately but may need some supervision at times. Learners will demonstrate some relevant understanding of the concepts and practices of sustainability in relation to tree felling. They will record correct findings appropriate to each situation surveyed, presenting the information in the form of annotated maps, plans, diagrams, and accompanying notes. The notes and annotations will give clear reasoning for their findings.

Based on their inspection, learners will produce a limited, realistic plan that addresses key tree-felling and cross-cutting activities, correctly prioritising works using broad timescales. Where appropriate, their plans will take into account governing legislation, certification and codes of practice. Job specifications produced will contain key information.

Learners will demonstrate some understanding of the risks associated with a site and with the actual felling and subsequent operations but this may be limited in scope. Learners' evidence will be realistic and may be supported by limited use of relevant examples.

Learners will manage a simple tree-felling and cross-cutting skills activity, requiring few operations and a limited range of tools and materials. Learners will demonstrate acceptable workplace practice, including ensuring safe working practice in accordance with relevant legislation and following the plan they have devised.

Learners will demonstrate that they can issue simple team instructions, both orally and in writing. They will carry out monitoring of activities, including checks on progress and identifying obvious issues that may hinder task completion to the specification. Where problems occur, learners will make suggestions and may intervene directly. Learners will give basic feedback to the workforce on the progress of the task.

Learners will show an appropriate awareness of the importance of keeping appropriate records that provide key information.

Learners will draw up a simple evaluation framework to use when assessing their management of the workforce, identifying the effectiveness of approaches used and their own strengths and weaknesses.

Links to other units

For the Pearson BTEC National Extended Diplomas in Forestry and Arboriculture, this unit should be completed towards the end of the programme. In order to complete the synoptic assessment task in this unit, learners should build on the assessments from across the mandatory content, selecting and applying appropriate knowledge and skills, including knowledge and skills relating to working practices from *Unit 1: Professional Working Responsibilities*, knowledge of tree growth from *Unit 2: Plant and Soil Science*, the identification and maintenance needs of trees from *Unit 6: Identification*, *Planting and Care of Trees*, maintenance methods and assessments from *Unit 7: Tree and Shrub Pruning and Maintenance*, and of sector standards from *Unit 4: Work Experience in the Land-based Sectors*. This unit also links to Unit 20 in the BTEC National Foundation Diploma in Forestry and Arboriculture.

Employer involvement

This unit would benefit from employer involvement in the form of:

- masterclasses
- technical workshops involving staff from local land-based organisations
- the contribution of ideas for unit assignment/project materials
- observation during work experience
- support from local land-based organisation staff as mentors.

Unit 20: Woodland Project

Level: **3**

Unit type: **Internal**

Guided learning hours: **120**

Unit in brief

Learners develop the skills needed to manage the inspection, planting, pruning and aftercare of woodland habitats.

Unit introduction

Trees are an amazing and diverse range of plants that thrive in both urban and rural locations. Trees are planted for many reasons, including the management of native woodland, the development of wood materials for industry, the shaping of the landscape, the production of edible fruit and simply as ornamental, stand-alone specimens. Managing trees and woodland is an important skill for those working in the land-based sector. Understanding tree requirements and providing suitable surroundings and continued aftercare will mean that the trees will flourish and form a significant feature of the landscape for many years to come.

In this unit, you will learn the correct method for surveying and inspecting a space to find out if it is suitable for a tree or woodland project. You will research a range of different trees that might be suitable for a given area and select appropriate trees for planting – using your knowledge of their individual requirements. You will produce a woodland project management plan and complete practical tasks in planting your chosen trees and providing aftercare so that they establish successfully. You will review tree health in older trees and complete tasks designed to enable their healthy growth.

This unit contains the key vocational assessment task of managing a woodland project. You will select and apply knowledge and skills that you developed in your study of the mandatory content and use your wider learning from across the programme. You will select and apply your knowledge and skills from: *Unit 1: Professional Working Responsibilities* in order to work within regulations, keep the working environment safe and reflect on progress; *Unit 2: Plant and Soil Science* to make accurate and functional assessments of soil suitability, detect soil-related failure in trees and perform soil management tasks; *Unit 4: Work Experience in the Land-based Sectors* to apply relevant work standards, behaviours and reflective practice during the project and *Unit 9: Tree-felling Activities* in order to use equipment proficiently and safely throughout the aftercare of the woodland.

This unit will give you the industry-standard skills that are needed for you to be able to identify, plant, care for and fell trees for a specific purpose. These skills are useful for progression to employment in roles such as forest worker and arborist. Alternatively, you may wish to continue your study to higher education, for example to study for a degree in woodland management.

Learning aims

In this unit you will:

A Investigate plant characteristics and suitability of woodland habitat for a project

B Produce a plan for managing the cultivation of a woodland

C Implement planting, pruning and aftercare of trees for a project

D Inspect and evaluate ongoing woodland project management.

Summary of unit

Learning aim	Key content areas	Recommended assessment approach
A Investigate plant characteristics and suitability of woodland habitat for a project	**A1** Tree classification and recognition for woodland projects **A2** Characteristics and categorisation of trees **A3** Inspecting a habitat and considerations affecting the choice of trees and their aftercare needs	A portfolio of evidence that combines a habitat inspection and assessment, a woodland project management plan for a specific purpose and records of implementation of the plan.
B Produce a plan for managing the cultivation of a woodland	**B1** Woodland project management **B2** Prepare ground for planting	
C Implement planting, pruning and aftercare of trees for a project	**C1** Planting methods **C2** Pruning techniques **C3** Considerations when pruning **C4** Providing aftercare	
D Inspect and evaluate ongoing woodland project management	**D1** Assessing trees and shrubs for potential failure **D2** Remedial action to reduce risk of tree and woodland failure	An inspection log detailing the progress of the woodland project in order to provide remedial action.

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Content

Learning aim A: Investigate plant characteristics and suitability of woodland habitat for a project

Naming conventions and taxonomic categories used to identify trees based on their features, and the importance of using the correct terminology.

A1 Tree classification and recognition for woodland projects

- Plant classification order for trees:
  - kingdom
  - phyla, including gymnosperms and angiosperms
  - class, including monocotyledons and dicotyledons
  - family, genus, species
  - sub-species, variety, form, cultivar, hybrid.
- Use of botanical names and binominal system for plant naming:
  - correct use of descriptive names to aid identification, e.g. pendula, alba, macrophyllum.

A2 Characteristics and categorisation of trees

Methods used to identify trees using tree features and characteristics.

- Definition, categorisation and identification of trees from native and non-native species:
  - broad-leaved trees
  - ornamental trees
  - evergreen trees
  - conifers.
- Morphological features and characteristics used in the identification of trees:
  - foliage, including bark, branch, twig, lenticels, node, internode
  - leaf arrangements, including alternate, opposite and whorled, leaf bud, petiolated and sessile
  - veination, including reticulated and parallel, simple and compound
  - leaf types, including cordate, ovate, lanceolate, linear, oblong, palmate, pinnate, trifoliate, lobed, needles, scales
  - leaf colour
  - flowers, including bud, petals, bract, singular, grouped, shape, colour, arrangement
  - succulent fruits, including berries, fruits, drupes
  - dried fruits, including nuts and seeds
  - seasonal features, including stems, foliage, flowers, seeds, fruits.
- Identification methods and tools, including tactile, smell, visual observation, form.
- Resources for identification and assessment:
  - illustrated textbooks, nursery catalogues, brochures and labels
  - technology, including smartphone apps
  - identification keys, including flow chart, dichotomous key.
- Sources of information and standards for classification, e.g. Forestry Commission, Royal Horticultural Society, the Woodland Trust.

A3 Inspecting a habitat and considerations affecting the choice of trees and their aftercare needs

- Plant requirements:
  - soil type, including clay, sand, silt, loam, pH, structure, texture, drainage, depth
  - nutrient requirements, including primary/macronutrients, secondary nutrients and trace elements for growth, rigour, establishment, flowering and fruiting
  - environmental factors, including aspect, light and shade tolerance, space available, frost and sun pockets, protection, topography, air quality, overhead and underground services, traffic, highways, climate and microclimate, exposure, drainage, uneven ground, preferred habitat, space
  - support needs, including stakes, canes, guards, guys, anchors, ties
  - stock type, including bare root, root balled, containerised, size, growth speed, shape, purpose
  - public access areas, footpaths, rights of way, potential issues of falling leaves, fruit, overhanging branches, maintenance access
  - aesthetic value, grouping and combinations, arboricultural merit, silvicultural merit
  - specific requirements, including protection and support type for individual trees, including for sizes of plant, seedlings, whips, bush, standard, budded/grafted.
- Project requirements parameters:
  - wood stock – timber, telegraph poles, gate posts, walking sticks, bean poles
  - food production
    - fruit – apples, cherries, plums, damsons, pears, quince, medlars
    - nuts – walnuts, chestnuts, hazel
    - syrup – birch, maple
  - nursery stock – native, non-native, ornamental, fruiting
  - environmental – carbon fixing, reed bed sanitation, drainage, riverbank forming, habitat creation, wildlife food creating, soil erosion, shelter
  - recreation – scenic, gardens, parkland, urban greening, tourism, shade.

Learning aim B: Produce a plan for managing the cultivation of a woodland

B1 Woodland project management

- Project strategy:
  - aims and objectives
  - purpose of planting, e.g. timber, orchard, habitat etc.
  - client needs, e.g. client, park manager
  - strategy outline.
- Land selected, habitat and soil inspection:
  - land type – flood plain, moor, wold, dale, marsh, upland, parkland, garden
  - habitat – sampling: trapping, hunting, tracks
  - soil inspection – pH, rub test, soil pits.
- Pest and disease strategy:
  - sample pests in area
  - research pests for chosen trees
  - pest control methods
  - combative plants
  - long-term effects of chemical exposure.
- Fertility and nutrient strategy:
  - sample soil NP and K availability
  - additional nutrition requirements
  - soil cultivation, conditioners and mulching.

- Waste management and environmental strategy:
  - waste oil, packaging
  - clippings, pollard and coppiced matter
  - use of shredders and mulchers
  - removal of debris, weeds and other organic matter.
- Materials, equipment, supplies and suppliers.
- Schedule, e.g. three-to-five-year plan, regular tasks, one-off task.
- Quality parameters for trees and shrubs:
  - biosecurity, e.g. fungi, viruses, bacteria, invertebrates
  - needs of the brief, e.g. wood type, fruit quality, aesthetics, speed of growth, effect on environment.
- Planting and ground preparation strategy:
  - cultivation by hand or machine, including correct depth, consolidation, level, addition of soil conditioners, ameliorants, fertilisers, anti-desiccants, as appropriate to area.
- Considerations for maintenance and pruning:
  - seasonal pruning requirements in relation to aesthetic considerations
  - risk assessment
  - working conditions, e.g. weather
  - access arrangements
  - public safety.
- Outline of upfront costs.
- Regulations and risk assessments for work to be carried out:
  - identification of hazards and risks around the work area (related to tools, equipment, people) and how these can be minimised, including essential personal protective equipment (PPE)
  - legislation, including Environmental Protection Act 1990, Wildlife and Countryside Act 1981, Health and Safety at Work etc. Act 1974, Control of Substances Hazardous to Health (COSHH) Regulations 2002
  - methods for working safely and minimising damage to working areas.
- Inspection and assessment frequency, type and recording strategy:
  - methods of assessing pruning requirements and species identification, including plant characteristics consisting of natural size and form, age, vigour, health and physical damage.

B2 Prepare ground for planting

- Selection of correct tools, materials and equipment to prepare ground for planting:
  - tools, including spade, rake, hoe, trowel, wheelbarrows
  - materials, including stakes, ties, guards, soil conditioners, organic matter, fertiliser base dressing
  - machinery, including cultivator, rotavator, excavator.

Learning aim C: Implement planting, pruning and aftercare of trees for a project

C1 Planting methods

Activities carried out to ensure optimum condition for planting and successful establishment.

- Use and application of correct tools and equipment for planting:
  - tools, including spades, e.g. Schlick, Mansfield, rake, hoe, trowel, secateurs, loppers, wheelbarrows
  - machinery, including hydraulic tree spades, rotary planters, augers.
- Tree preparation, including watering, removal of dead foliage and weeds, pruning.
- Planting:
  - safe working practices to minimise damage to working area and self
  - reviewing ground preparation
  - handling of trees to avoid damage
  - backfilling
  - safe disposal of waste, including organic and inorganic
  - safe removal of tools and equipment.

C2 Pruning techniques

- Formative pruning – preparing and getting the shape in the early stages of tree development.
- Tree pruning techniques, including crown thinning, crown reduction, crown lifting, and crown cleaning.
- Pruning techniques for trees and shrubs, including pollarding, coppicing, rejuvenation, root pruning.
- Using the appropriate methods, prune trees and shrubs appropriately according to their age, size and desired effect/use within the landscape.
- Site management in maintaining health and safety, disposal of waste and PPE.

C3 Considerations when pruning

- The seasonality and timing of pruning techniques for the type of tree/shrub.
- The selection of the appropriate technique suitable for the tree type within its particular growing area.
- The landscape where the tree/shrub sits.
- The legal considerations in terms of tree, planning and conservation regulations.
- The health and safety of operatives, regulations around working at heights, harnessing, personal liability insurance, and access to equipment and PPE.
- Selecting appropriate pruning tools and equipment, e.g. types of hand tools.
- Close the site, clear up, cordon off sections, give advance warning and notices.

C4 Providing aftercare

Methods, equipment and materials used for successful establishment and growth.

- Tree protection, including support, e.g. stakes, guys, anchors and guards for protection from animals, people and weather.
- Initial aftercare to ensure successful establishment, including feeding, watering, pruning, mulching with organic and inorganic materials, and disposal of waste, including organic and inorganic.
- Continued aftercare, including inspection, nutrition, watering, formative pruning, moisture retention, mulching, adjustment and removal of support, use of pesticides and herbicides.

Learning aim D: Inspect and evaluate ongoing woodland project management

D1 Assessing trees and shrubs for potential failure

- Assessment of probability of tree failure:
  - potential failure of trees dependent on tree type
  - consideration of the form and branching characteristics
  - evidence of structural weakness and imbalance
  - impact of local environment, e.g. construction work, changes in soil levels.

D2 Remedial action to reduce risk of tree and woodland failure

- Solutions and considerations for remedial action:
  - removal or pruning options, e.g. coppicing, pollarding, felling
  - undergrowth management, e.g. mulching, weeding, thinning
  - physical support, e.g. propping, guying, bracing
  - site improvement
  - costs and benefits of remedial action proposed
  - long- and short-term consequences
  - felling of trees to eliminate disease and provide space
  - consideration of health and safety legislation.

Assessment criteria

<table>
<tr><th>Pass</th><th>Merit</th><th>Distinction</th></tr>
<tr><td colspan="2">Learning aim A: Investigate plant characteristics and suitability of woodland habitat for a project</td><td rowspan="6">A.D1 Produce a comprehensive evaluation of an area and its suitability for developing into a woodland environment project including purpose and tree type.
BC.D2 Produce a thorough and efficient woodland project strategy and confidently implement woodland management practice.</td></tr>
<tr><td>A.P1 Explain opportunities for woodland development for a project using appropriate plant classification.
A.P2 Discuss maintenance and management factors of woodland for different tree types.</td><td>A.M1 Evaluate factors for own selection of trees for a given area.
A.M2 Compare and contrast maintenance and management factors of woodland.</td></tr>
<tr><td colspan="2">Learning aim B: Produce a plan for managing the cultivation of a woodland</td></tr>
<tr><td>B.P3 Produce an appropriate preparation and management plan for developing a woodland area.
B.P4 Produce an appropriate strategy for how tree and shrub failure may be assessed and prevented or remedied.</td><td>B.M3 Produce an effective preparation and management plan for developing a woodland area.
B.M4 Produce an effective strategy for how tree and shrub failure may be assessed and prevented or remedied.</td></tr>
<tr><td colspan="2">Learning aim C: Implement planting, pruning and aftercare of trees for a project</td></tr>
<tr><td>C.P5 Use appropriate and safe working practices when carrying out ground preparation, planting and aftercare to establish new trees.
C.P6 Use appropriate methods for planting, pruning and aftercare of trees.</td><td>C.M5 Apply efficient working practices when preparing, planting and providing aftercare for trees.</td></tr>
<tr><td colspan="2">Learning aim D: Inspect and evaluate ongoing woodland project management</td><td rowspan="2">D.D3 Carry out thorough ongoing inspection and review of woodland trees and habitat in order to confidently meet project needs.</td></tr>
<tr><td>D.P7 Carry out ongoing inspection and review of woodland trees and habitat.
D.P8 Carry out appropriate remedial action within the woodland habitat.
D.P9 Assess own professional practice and health and safety procedures.</td><td>D.M6 Carry out effective ongoing inspection and review of woodland, taking competent remedial action to support the woodland project.
D.M7 Evaluate own professional practice and health and safety procedures.</td></tr>
</table>

Essential information for assignments

The recommended structure of assessment is shown in the unit summary along with suitable forms of evidence. *Section 6* gives information on setting assignments and there is further information on our website.

There is a maximum number of three summative assignments for this unit. The relationship of the learning aims and criteria is:

Learning aims: A, B and C (A.P1, A.P2, B.P3, B.P4, C.P5, C.P6, A.M1, A.M2, B.M3, B.M4, C.M5, A.D1, BC.D2)

Learning aim: D (D.P7, D.P8, D.P9, D.M6, D.M7, D.D3)

Further information for teachers and assessors

Resource requirements

For this unit, learners must have access to:

- a range of trees to study, from young whips to mature trees
- an area to plant and establish new trees
- appropriate, well-maintained tools, equipment and materials for preparing ground, planting, pruning, felling and providing aftercare to trees
- suitable PPE.

Essential information for assessment decisions

Learning aim A

For distinction standard, learners will carry out a thorough and detailed inspection of a proposed woodland site for development. They will gather relevant and specific information on the suitability of the site, covering all critical plant requirements affecting the development and aftercare of trees. They will have a thorough understanding of the project parameters, including wide-ranging and detailed knowledge of trees.

Learners will make perceptive, well-reasoned observations as to the needs of the habitat and tree types. They will carry out tree selection by comparing and contrasting possible trees for planting, exploring in detail the appropriateness for the location, soil type, and management needs. Selected tree types will be highly suitable. Learners will demonstrate extensive and accurate use of correct terminology, including tree classification and categorisation, features and characteristics.

For merit standard, learners will carry out a competent inspection of a proposed woodland site for development. They will gather relevant information on the suitability of the site, covering most of the critical plant requirements that affect the development and aftercare of trees. They will have a sound understanding of the project parameters, demonstrating a broad knowledge of trees.

Learners will make reasoned, relevant observations as to the needs of the habitat and tree types. They will carry out tree selection based on detailed consideration of the appropriateness for the location, soil type, maintenance and management needs. Trees selected will be suitable. Learners will demonstrate accurate use of tree classification, terminology and categorisation, features and characteristics.

For pass standard, learners will carry out a general inspection of a proposed woodland site for development. They will gather relevant information on the suitability of the site, covering fundamental plant requirements that affect the development and aftercare of trees. They will have a good general understanding of the project parameters, demonstrating knowledge of a range of trees, although there may be some minor gaps.

Learners will make relevant, general observations as to the needs of the habitat and tree types. They will carry out generally appropriate tree selection based on key maintenance and management needs. Learners will demonstrate an understanding of tree classification, terminology, categorisation, features and characteristics.

Learning aims B and C

For distinction standard, learners will produce an efficient and comprehensive woodland project plan. The plan will include a robust and effective response to the inspection and evaluation of the potential of the habitat to meet the woodland project needs. Learners will show critical understanding of the aims of the project and will develop solid, appropriate objectives. Their project strategy will cover a range of comprehensive elements, including pests and disease, fertility, maintenance, quality parameters and inspection type and frequency. The schedule of tasks will be detailed, showing relevant and wide-ranging tasks that meet the project objectives and avoid risks. Learners' decisions will be consistently and logically informed, showing reasoned arguments and choices to meet the scope and breadth of woodland management needs.

Learners will carry out planting, aftercare, pruning and maintenance tasks that are highly effective in supporting the establishment and management of trees. They will select and apply professional processes to minimise risk and use effective safe working practices to ensure the safety of themselves, team workers and woodland users.

The selection, application and use of tools, materials and equipment will consistently demonstrate industry standard use of processes and techniques available for effective woodland management. Processes followed will be time and resource efficient, and learners will demonstrate clear knowledge and understanding of the impact of their actions and their capacity to meet project needs. Learners will provide effective plant and environment care that is linked to the management strategy and which demonstrates sound woodland management. Learners will approach their tasks confidently, demonstrating an assured use of a range of skills.

For merit standard, learners will produce a sound woodland project plan. The plan will respond coherently to the inspection and evaluation of the potential of the habitat to meet the woodland project needs. Learners will show sound understanding of the aims of the project and generate relevant objectives. Their project strategy will account for a broad range of elements, including pests and disease, fertility, maintenance, quality parameters and inspection type and frequency. The schedule of tasks will be detailed and clearly arranged to achieve the project outcomes safely and to a suitable standard. Learners' decisions will be relevant and informed, and they will give detailed reasoning for choices made to meet the management requirements of the woodland.

Learners will carry out planting, aftercare, pruning and maintenance tasks to ably support the establishment and management of trees. They will select and apply effective, professional processes to work safely and minimise risk to themselves, team workers and woodland users. They will select and use tools, materials and equipment safely and efficiently, demonstrating a clear understanding of their effective use and purpose. Learners will select and apply woodland management processes and techniques relating to planting, pruning and aftercare that demonstrates broad competency and skill, and a clear understanding of the needs of woodland trees and habitats. Learners will provide plant and environment care that demonstrates knowledge and skills relating to plant and environment needs, efficient use of resources and sound woodland management principles.

For pass standard, learners will produce a general woodland project plan. They will show an overall understanding of the aims of the project and generate safe and appropriate objectives. Their project strategy will cover elements such as pests and disease, fertility, maintenance, quality parameters and inspection type and frequency. The schedule will detail a range of common tasks to safely meet the project outcomes. Learners will evidence the reasoning behind key decisions in their plan that meet woodland management objectives.

Learners will carry out planting, aftercare, pruning and maintenance tasks to help support the establishment and management of trees. They will follow correct processes to minimise risks and demonstrate competent safe working practices. They will select and safely use tools, materials and equipment that are appropriate to the task, applying techniques and methods for planting and pruning that enable them to achieve the aims stated in their project plan. General care for the trees will be provided throughout the planting, pruning and aftercare processes. Learners will demonstrate a clear awareness of the plant and environment needs.

Learning aim D

For distinction standard, learners will carry out ongoing inspections of the environment used for the project. Their inspections will entail a detailed analysis of the issues relating to the use and composition of the habitat, and the health and welfare of trees. Learners will conduct their inspections skilfully, considering the interrelated nature of a broad range of issues the environment faces. They will include careful reasoning of the impact of conditions in the habitat before, during and after development.

Remedial action carried out by learners will be highly relevant, efficient and effective and will account for likely, and less obvious, short- and long-term consequences of the environmental conditions, and the impact of their responses to them. Learners' actions will follow a highly appropriate and effective range of processes, demonstrating assured use of skills and techniques to clearly address the issues identified. They will consider, where appropriate, issues relating to effective management, including cost-benefit analysis of action required.

Learners will review their performance and the impact it has had on the habitat, taking measures to improve and develop their approach.

For merit standard, learners will carry out ongoing inspections of the environment used for the project. Their inspection will cover both general and more specific issues relating to the use and composition of the habitat, and the health and welfare of trees. Learners will conduct their inspections competently and efficiently, correctly identifying a range of issues facing the environment and their management actions, including, where appropriate, those that are less obvious.

Remedial action carried out by learners will be highly relevant, providing effective solutions that account for both short- and long-term consequences of the environmental conditions, and their response to them. Their actions will follow suitable processes efficiently, using a range of skills and techniques to clearly address the issues identified. They will account for a range of management issues such as those related to health and safety legislation and site use.

Learners will evaluate their performance and make well-reasoned links between the standard of their work and the progress of trees in the habitat.

For pass standard, learners will carry out ongoing inspections of the environment used for the project. Their inspection will cover general issues relating to the use and composition of the habitat, and the health and welfare of trees. Learners will conduct their inspections competently, correctly identifying the key issues the environment faces.

Remedial action carried out by learners will be appropriate. It will consider both short- and long-term consequences of the environmental conditions and their response to them. Action taken will follow suitable processes, using tools and equipment correctly and safely. It will account for issues such as those related to health and safety legislation.

Learners will assess general aspects of their performance and make some links between their work and the progress of trees in the habitat.

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Links to other units

For the Pearson BTEC National Foundation Diploma in Forestry and Arboriculture, this unit should be completed towards the end of the programme. In order to complete the synoptic assessment task in this unit, learners should build on the assessments from across the mandatory content, selecting and applying appropriate knowledge and skills, including knowledge and skills relating to professional working practices from *Unit 1: Professional Working Responsibilities*, knowledge of soil and its impact on tree growth, from *Unit 2: Plant and Soil Science*, knowledge and skills relating to the inspection and felling of trees from *Unit 9: Tree-felling Activities*, and of sector standards and reflective practice from *Unit 4: Work Experience in the Land-based Sectors*.

Employer involvement

This unit would benefit from employer involvement in the form of:

- providing woodland habitat access
- masterclasses on tree selection, soil preparation, planting, pruning, aftercare and felling
- technical workshops involving staff from local land-based organisations
- observation feedback of performance
- work experience
- mentoring.

4 Planning your programme

How do I choose the right BTEC National qualification for my learners?

BTEC Nationals come in a range of sizes, each with a specific purpose. You will need to assess learners very carefully to ensure that they start on the right size of qualification to fit into their 16–19 study programme, and that they take the right pathways or optional units that allow them to progress to the next stage.

Some learners may want to take a number of complementary qualifications or keep their progression options open. These learners may be suited to taking a BTEC National Certificate or Extended Certificate. Learners who then decide to continue with a fuller vocational programme can transfer to a BTEC National Diploma or Extended Diploma, for example for their second year.

Some learners are sure of the sector they want to work in and are aiming for progression into that sector via higher education. These learners should be directed to the two-year BTEC National Extended Diploma as the most suitable qualification.

As a centre, you may want to teach learners who are taking different qualifications together. You may also wish to transfer learners between programmes to meet changes in their progression needs. You should check the qualification structures and unit combinations carefully as there is no exact match among the different sizes. You may find that learners need to complete more than the minimum number of units when transferring.

When learners are recruited, you need to give them accurate information on the title and focus of the qualification for which they are studying.

Is there a learner entry requirement?

As a centre it is your responsibility to ensure that learners who are recruited have a reasonable expectation of success on the programme. There are no formal entry requirements but we expect learners to have qualifications at or equivalent to Level 2.

Learners are most likely to succeed if they have:

- five GCSEs at good grades and/or
- BTEC qualification(s) at Level 2
- achievement in English and mathematics through GCSE or Functional Skills.

Learners may demonstrate ability to succeed in various ways. For example, learners may have relevant work experience or specific aptitude shown through diagnostic tests or non-education experience.

What is involved in becoming an approved centre?

All centres must be approved before they can offer these qualifications – so that they are ready to assess learners and so that we can provide the support that it is needed. Further information is given in *Section 8*.

What level of sector knowledge is needed to teach these qualifications?

We do not set any requirements for teachers but expect that centres will assess the overall skills and knowledge of the teaching team to ensure that they are relevant and up to date. This will give learners a rich programme to prepare them for employment in the sector. As part of the requirements of the programme are to involve employers in delivery this should support centres in ensuring that they are following up to date practices when delivering the programme.

What resources are required to deliver these qualifications?

As part of your centre approval you will need to show that the necessary material resources and work spaces are available to deliver BTEC Nationals. For some units, specific resources are required. This is indicated in the units.

How can myBTEC help with planning for these qualifications?

myBTEC is an online toolkit that supports the delivery, assessment and quality assurance of BTECs in centres. It supports teachers with activities, such as choosing a valid combination of units, creating assignment briefs and creating assessment plans. For further information see *Section 10*.

Which modes of delivery can be used for these qualifications?

You are free to deliver BTEC Nationals using any form of delivery that meets the needs of your learners. We recommend making use of a wide variety of modes, including direct instruction in classrooms or work environments, investigative and practical work, group and peer work, private study and e-learning.

What are the requirements for meaningful employer involvement?

Requirements

This BTEC National Forestry and Arboriculture has been designed as a Tech Level qualification. As an approved centre you are required to ensure that during their study, every learner has access to meaningful activity involving employers. Involvement should be with employers from the forestry and arboriculture sector and should form a significant part of the delivery or assessment of the qualification. Each centre's approach to employer involvement will be monitored in two ways. It will be monitored at centre level in the first term each year as part of the annual quality management review process that addresses centre strategy for delivery, assessment and quality assurance, when we will ask you to show evidence of how employer involvement is provided for all learners. You will need to show evidence in order to gain reporting clearance for certification. It will be monitored also at programme level as part of the standards verification process to confirm that plans for employer involvement meet the requirements of the specification. These approaches are designed to ensure additional activities can be scheduled where necessary so learners are not disadvantaged (see *Section 8 Quality assurance*).

We know that the vast majority of programmes already have established links with employers. In order to give you maximum flexibility in creating and strengthening employer involvement, we have not specified a particular level of input from employers. However, meaningful employer involvement, as defined below, should contribute significantly to at least **one** mandatory unit.

For this qualification, learners are expected to undertake 150 hours of work experience.

- This mandatory unit specifies where delivery and/or assessment will be linked to employers.
- Unit 4: Work Experience in the Land-based Sectors.

Also, there are suggestions in many of the units about how employers could become involved in delivery and/or assessment. These suggestions are not exhaustive and there will be other possibilities at local level.

Employer involvement in these units is subject to verification as part of the standards verification process (see *Section 8*).

Definition

Activities that are eligible to be counted as meaningful engagement are:

- structured work experience or work placements that develop skills and knowledge relevant to the qualification
- projects or assessments set with input from industry practitioners
- masterclasses or guest lectures from industry practitioners
- 'expert witness' reports from practitioners that contribute to the assessment of a learner's work.

There may be other ways in which learners can benefit from contact with employers or prepare for employment, such as listening to careers talks or working in simulated environments. While they provide benefits to learners they do not count as meaningful engagement.

Support

It is important that you give learners opportunities that are high quality and directly relevant to their study. We will support you in this through guidance materials and by giving you examples of best practice.

What support is available?

We provide a wealth of support materials, including curriculum plans, delivery guides, authorised assignment briefs, additional papers for external assessments and examples of marked learner work.

You will be allocated a Standards Verifier early on in the planning stage to support you with planning your assessments. There will be extensive training programmes as well as support from our Subject Advisor team.

For further details see *Section 10*.

How will my learners become more employable through these qualifications?

BTEC Nationals are mapped to relevant occupational standards (see *Appendix 1*).

In the mandatory content and the selected optional units that focus on technical preparation learners will be acquiring the key knowledge and skills that employers need. Also, employability skills such as team working and entrepreneurialism, and completing realistic tasks, have been built into the design of the learning aims and content. This gives you the opportunity to use relevant contexts, scenarios and materials to enable learners to develop a portfolio of evidence that demonstrates the breadth of their skills and knowledge in a way that equips them for employment.

5 Assessment structure and external assessment

Introduction

BTEC Nationals are assessed using a combination of *internal assessments*, which are set and marked by teachers, and *external assessments* which are set and marked by Pearson:

- mandatory units have a combination of internal and external assessments
- all optional units are internally assessed.

We have taken great care to ensure that the assessment method chosen is appropriate to the content of the unit and in line with requirements from employers and higher education.

In developing an overall plan for delivery and assessment for the programme, you will need to consider the order in which you deliver units, whether delivery is over short or long periods and when assessment can take place. Some units are defined as synoptic units (see *Section 2*). Normally, a synoptic assessment is one that a learner would take later in a programme and in which they will be expected to apply learning from a range of units. Synoptic units may be internally or externally assessed. Where a unit is externally assessed you should refer to the sample assessment materials (SAMs) to identify where there is an expectation that learners draw on their wider learning. For internally-assessed units, you must plan the assignments so that learners can demonstrate learning from across their programme. A unit may be synoptic in one qualification and not another because of the relationship it has to the rest of the qualification.

We have addressed the need to ensure that the time allocated to final assessment of internal and external units is reasonable so that there is sufficient time for teaching and learning, formative assessment and development of transferable skills.

In administering internal and external assessment, the centre needs to be aware of the specific procedures and policies that apply, for example to registration, entries and results. An overview with signposting to relevant documents is given in *Section 7*.

Internal assessment

Our approach to internal assessment for these qualifications will be broadly familiar to experienced centres. It offers flexibility in how and when you assess learners, provided that you meet assessment and quality assurance requirements. You will need to take account of the requirements of the unit format, which we explain in *Section 3*, and the requirements for delivering assessment given in *Section 6*.

External assessment

A summary of the external assessment for this qualification is given in *Section 2*. You should check this information carefully, together with the unit specification and the sample assessment materials, so that you can timetable learning and assessment periods appropriately.

Learners must be prepared for external assessment by the time they undertake it. In preparing learners for assessment you will want to take account of required learning time, the relationship with other external assessments and opportunities for retaking. You should ensure that learners are not entered for unreasonable amounts of external assessment in one session. Learners may resit an external assessment to obtain a higher grade of near pass or above. If a learner has more than one attempt, then the best result will be used for qualification grading, up to the permitted maximum. It is unlikely that learners will need to or benefit from taking all assessment twice so you are advised to plan appropriately. Some assessments are synoptic and learners are likely to perform best if these assessments are taken towards the end of the programme.

Key features of external assessment in forestry and arboriculture

After consultation with stakeholders, we have developed the following.

- *Unit 1: Professional Working Responsibilities* – learners complete written tasks examining their knowledge and skills in the areas of professional working practice, personal welfare, and responsibilities for themselves, others and the environment. The unit provides crucial knowledge and skills for wide-ranging roles found in the forestry and arboriculture sector.
- *Unit 2: Plant and Soil Science* – learners complete a written examination, demonstrating their knowledge of plant structures, systemic processes, and nutrition and soil composition and management. The unit provides fundamental knowledge of the processes for healthy plant growth, which is important for wide-ranging roles in forestry and arboriculture such as forest worker.

Units

The externally-assessed units have a specific format which we explain in *Section 3*. The content of units will be sampled across external assessments over time, through appropriate papers and tasks. The ways in which learners are assessed are shown through the assessment outcomes and grading descriptors. External assessments are marked and awarded using the grade descriptors. The grades available are Distinction (D), Merit (M), Pass (P) and Near Pass (N). The Near Pass (N) grade gives learners credit below a Pass, where they have demonstrated evidence of positive performance which is worth more than an unclassified result but not yet at the Pass standard.

Sample assessment materials

Each externally-assessed unit has a set of sample assessment materials (SAMs) that accompanies this specification. The SAMs are there to give you an example of what the external assessment will look like in terms of the feel and level of demand of the assessment. In the case of units containing synoptic assessment, the SAMs will also show where learners are expected to select and apply from across the programme.

The SAMs show the range of possible question types that may appear in the actual assessments. They give you a good indication of how the assessments will be structured. While SAMs can be used for practice with learners as with any assessment, the content covered and specific details of the questions asked will change in each assessment.

A copy of each of these assessments can be downloaded from our website. To allow your learners further opportunities for practice, an additional sample of each of the Pearson-set units will be available before the first sitting of the assessment.

6 Internal assessment

This section gives an overview of the key features of internal assessment and how you, as an approved centre, can offer it effectively. The full requirements and operational information are given in the *Pearson Quality Assurance Handbook*. All members of the assessment team need to refer to this document.

For BTEC Nationals it is important that you can meet the expectations of stakeholders and the needs of learners by providing a programme that is practical and applied. Centres can tailor programmes to meet local needs and use links with local employers and the wider vocational sector.

When internal assessment is operated effectively it is challenging, engaging, practical and up to date. It must also be fair to all learners and meet national standards.

Principles of internal assessment

Assessment through assignments

For internally-assessed units, the format of assessment is an assignment taken after the content of the unit, or part of the unit if several assignments are used, has been delivered. An assignment may take a variety of forms, including practical and written types. An assignment is a distinct activity completed independently by learners that is separate from teaching, practice, exploration and other activities that learners complete with direction from, and formative assessment by, teachers.

An assignment is issued to learners as an assignment brief with a defined start date, a completion date and clear requirements for the evidence that they need to provide. There may be specific observed practical components during the assignment period. Assignments can be divided into tasks and may require several forms of evidence. A valid assignment will enable a clear and formal assessment outcome based on the assessment criteria.

Assessment decisions through applying unit-based criteria

Assessment decisions for BTEC Nationals are based on the specific criteria given in each unit and set at each grade level. To ensure that standards are consistent in the qualification and across the suite as a whole, the criteria for each unit have been defined according to a framework. The way in which individual units are written provides a balance of assessment of understanding, practical skills and vocational attributes appropriate to the purpose of qualifications.

The assessment criteria for a unit are hierarchical and holistic. For example, if an M criterion requires the learner to show 'analysis' and the related P criterion requires the learner to 'explain', then to satisfy the M criterion a learner will need to cover both 'explain' and 'analyse'. The unit assessment grid shows the relationships among the criteria so that assessors can apply all the criteria to the learner's evidence at the same time. In *Appendix 2* we have set out a definition of terms that assessors need to understand.

Assessors must show how they have reached their decisions using the criteria in the assessment records. When a learner has completed all the assessment for a unit then the assessment team will give a grade for the unit. This is given simply according to the highest level for which the learner is judged to have met all the criteria. Therefore:

- to achieve a Distinction, a learner must have satisfied all the Distinction criteria (and therefore the Pass and Merit criteria); these define outstanding performance across the unit as a whole
- to achieve a Merit, a learner must have satisfied all the Merit criteria (and therefore the Pass criteria) through high performance in each learning aim
- to achieve a Pass, a learner must have satisfied all the Pass criteria for the learning aims, showing coverage of the unit content and therefore attainment at Level 3 of the national framework.

The award of a Pass is a defined level of performance and cannot be given solely on the basis of a learner completing assignments. Learners who do not satisfy the Pass criteria should be reported as Unclassified.

The assessment team

It is important that there is an effective team for internal assessment. There are three key roles involved in implementing assessment processes in your centre, each with different interrelated responsibilities, the roles are listed below. Full information is given in the *Pearson Quality Assurance Handbook*.

- The Lead Internal Verifier (the Lead IV) has overall responsibility for the programme, its assessment and internal verification to meet our requirements, record keeping and liaison with the Standards Verifier. The Lead IV registers with Pearson annually. The Lead IV acts as an assessor, supports the rest of the assessment team, makes sure that they have the information they need about our assessment requirements and organises training, making use of our guidance and support materials.
- Internal Verifiers (IVs) oversee all assessment activity in consultation with the Lead IV. They check that assignments and assessment decisions are valid and that they meet our requirements. IVs will be standardised by working with the Lead IV. Normally, IVs are also assessors but they do not verify their own assessments.
- Assessors set or use assignments to assess learners to national standards. Before taking any assessment decisions, assessors participate in standardisation activities led by the Lead IV. They work with the Lead IV and IVs to ensure that the assessment is planned and carried out in line with our requirements.

Effective organisation

Internal assessment needs to be well organised so that the progress of learners can be tracked and so that we can monitor that assessment is being carried out in line with national standards. We support you through, for example, providing training materials and sample documentation. Our online myBTEC service can help support you in planning and record keeping.
Further information on using myBTEC can be found in *Section 10* and on our website.

It is particularly important that you manage the overall assignment programme and deadlines to make sure that learners are able to complete assignments on time.

Learner preparation

To ensure that you provide effective assessment for your learners, you need to make sure that they understand their responsibilities for assessment and the centre's arrangements.

From induction onwards, you will want to ensure that learners are motivated to work consistently and independently to achieve the requirements of the qualifications. Learners need to understand how assignments are used, the importance of meeting assignment deadlines and that all the work submitted for assessment must be their own.

You will need to give learners a guide that explains how assignments are used for assessment, how assignments relate to the teaching programme and how learners should use and reference source materials, including what would constitute plagiarism. The guide should also set out your approach to operating assessment, such as how learners must submit work and request extensions.

Setting effective assignments

Setting the number and structure of assignments

In setting your assignments, you need to work with the structure of assignments shown in the *Essential information for assignments* section of a unit. This shows the structure of the learning aims and criteria that you must follow and the recommended number of assignments that you should use. For some units we provide authorised assignment briefs. For all the units we give you suggestions on how to create suitable assignments. You can find these materials along with this specification on our website. In designing your own assignment briefs you should bear in mind the following points.

- The number of assignments for a unit must not exceed the number shown in *Essential information for assignments*. However, you may choose to combine assignments, for example to create a single assignment for the whole unit.
- You may also choose to combine all or parts of different units into single assignments, provided that all units and all their associated learning aims are fully addressed in the programme overall. If you choose to take this approach, you need to make sure that learners are fully prepared so that they can provide all the required evidence for assessment and that you are able to track achievement in the records.
- A learning aim must always be assessed as a whole and must not be split into two or more tasks.
- The assignment must be targeted to the learning aims but the learning aims and their associated criteria are not tasks in themselves. Criteria are expressed in terms of the outcome shown in the evidence.
- For units containing synoptic assessment, the planned assignments must allow learners to select and apply their learning using appropriate self-management of tasks.
- You do not have to follow the order of the learning aims of a unit in setting assignments but later learning aims often require learners to apply the content of earlier learning aims and they may require learners to draw their learning together.
- Assignments must be structured to allow learners to demonstrate the full range of achievement at all grade levels. Learners need to be treated fairly by being given the opportunity to achieve a higher grade if they have the ability.
- As assignments provide a final assessment, they will draw on the specified range of teaching content for the learning aims. The specified content is compulsory. The evidence for assessment need not cover every aspect of the teaching content as learners will normally be given particular examples, case studies or contexts in their assignments. For example, if a learner is carrying out one practical performance, or an investigation of one organisation, then they will address all the relevant range of content that applies in that instance.

Providing an assignment brief

A good assignment brief is one that, through providing challenging and realistic tasks, motivates learners to provide appropriate evidence of what they have.

An assignment brief should have:

- a vocational scenario, this could be a simple situation or a full, detailed set of vocational requirements that motivates the learner to apply their learning through the assignment
- clear instructions to the learner about what they are required to do, normally set out through a series of tasks
- an audience or purpose for which the evidence is being provided
- an explanation of how the assignment relates to the unit(s) being assessed.

Forms of evidence

BTEC Nationals have always allowed for a variety of forms of evidence to be used, provided that they are suited to the type of learning aim being assessed. For many units, the practical demonstration of skills is necessary and for others, learners will need to carry out their own research and analysis. The units give you information on what would be suitable forms of evidence to give learners the opportunity to apply a range of employability or transferable skills. Centres may choose to use different suitable forms for evidence to those proposed. Overall, learners should be assessed using varied forms of evidence.

Full definitions of types of assessment are given in *Appendix 2*. These are some of the main types of assessment:

- written reports
- projects
- time-constrained practical assessments with observation records and supporting evidence
- recordings of performance
- sketchbooks, working logbooks, reflective journals
- presentations with assessor questioning.

The form(s) of evidence selected must:

- allow the learner to provide all the evidence required for the learning aim(s) and the associated assessment criteria at all grade levels
- allow the learner to produce evidence that is their own independent work
- allow a verifier to independently reassess the learner to check the assessor's decisions.

For example, when you are using performance evidence, you need to think about how supporting evidence can be captured through recordings, photographs or task sheets.

Centres need to take particular care that learners are enabled to produce independent work. For example, if learners are asked to use real examples, then best practice would be to encourage them to use their own or to give the group a number of examples that can be used in varied combinations.

Making valid assessment decisions

Authenticity of learner work

Once an assessment has begun, learners must not be given feedback on progress towards fulfilling the targeted criteria.

An assessor must assess only learner work that is authentic, i.e. learners' own independent work. Learners must authenticate the evidence that they provide for assessment through signing a declaration stating that it is their own work.

Assessors must ensure that evidence is authentic to a learner through setting valid assignments and supervising them during the assessment period. Assessors must take care not to provide direct input, instructions or specific feedback that may compromise authenticity.

Assessors must complete a declaration that:

- the evidence submitted for this assignment is the learner's own
- the learner has clearly referenced any sources used in the work
- they understand that false declaration is a form of malpractice.

Centres can use Pearson templates or their own templates to document authentication.

During assessment, an assessor may suspect that some or all of the evidence from a learner is not authentic. The assessor must then take appropriate action using the centre's policies for malpractice. Further information is given in *Section 7*.

Making assessment decisions using criteria

Assessors make judgements using the criteria. The evidence from a learner can be judged using all the relevant criteria at the same time. The assessor needs to make a judgement against each criterion that evidence is present and sufficiently comprehensive. For example, the inclusion of a concluding section may be insufficient to satisfy a criterion requiring 'evaluation'.

Assessors should use the following information and support in reaching assessment decisions:

- the *Essential information for assessment decisions* section in each unit gives examples and definitions related to terms used in the criteria
- the explanation of key terms in *Appendix 2*
- examples of assessed work provided by Pearson
- your Lead IV and assessment team's collective experience, supported by the standardisation materials we provide.

Pass and Merit criteria relate to individual learning aims. The Distinction criteria as a whole relate to outstanding performance across the unit. Therefore, criteria may relate to more than one learning aim (for example A.D1) or to several learning aims (for example DE.D3). Distinction criteria make sure that learners have shown that they can perform consistently at an outstanding level across the unit and/or that they are able to draw learning together across learning aims.

Dealing with late completion of assignments

Learners must have a clear understanding of the centre policy on completing assignments by the deadlines that you give them. Learners may be given authorised extensions for legitimate reasons, such as illness at the time of submission, in line with your centre policies.

For assessment to be fair, it is important that learners are all assessed in the same way and that some learners are not advantaged by having additional time or the opportunity to learn from others. Therefore, learners who do not complete assignments by your planned deadline or the authorised extension deadline may not have the opportunity to subsequently resubmit.

If you accept a late completion by a learner, then the assignment should be assessed normally when it is submitted using the relevant assessment criteria.

Issuing assessment decisions and feedback

Once the assessment team has completed the assessment process for an assignment, the outcome is a formal assessment decision. This is recorded formally and reported to learners.

The information given to the learner:

- must show the formal decision and how it has been reached, indicating how or where criteria have been met
- may show why attainment against criteria has not been demonstrated
- must not provide feedback on how to improve evidence
- must be validated by an IV before it is given to the learner.

Resubmission of improved evidence

An assignment provides the final assessment for the relevant learning aims and is normally a final assessment decision, except where the Lead IV approves one opportunity to resubmit improved evidence based on the completed assignment brief.

The Lead IV has the responsibility to make sure that resubmission is operated fairly. This means:

- checking that a learner can be reasonably expected to perform better through a second submission, for example that the learner has not performed as expected
- making sure that giving a further opportunity can be done in such a way that it does not give an unfair advantage over other learners, for example through the opportunity to take account of feedback given to other learners
- checking that the assessor considers that the learner will be able to provide improved evidence without further guidance and that the original evidence submitted remains valid.

Once an assessment decision has been given to the learner, the resubmission opportunity must have a deadline within 15 working days in the same academic year.

A resubmission opportunity must not be provided where learners:

- have not completed the assignment by the deadline without the centre's agreement
- have submitted work that is not authentic.

Retake of internal assessment

A learner who has not achieved the level of performance required to pass the relevant learning aims after resubmission of an assignment may be offered a single retake opportunity using a new assignment. The retake may only be achieved at a Pass.

The Lead Internal Verifier must only authorise a retake of an assignment in exceptional circumstances where they believe it is necessary, appropriate and fair to do so. For further information on offering a retake opportunity, you should refer to the *BTEC Centre Guide to Internal Assessment*. We provide information on writing assignments for retakes on our website (www.btec.co.uk/keydocuments).

Planning and record keeping

For internal processes to be effective, an assessment team needs to be well organised and keep effective records. The centre will also work closely with us so that we can quality assure that national standards are being satisfied. This process gives stakeholders confidence in the assessment approach.

The Lead IV must have an assessment plan, produced as a spreadsheet or using myBTEC. When producing a plan, the assessment team may wish to consider:

- the time required for training and standardisation of the assessment team
- the time available to undertake teaching and carry out assessment, taking account of when learners may complete external assessments and when quality assurance will take place
- the completion dates for different assignments
- who is acting as IV for each assignment and the date by which the assignment needs to be verified
- setting an approach to sampling assessor decisions though internal verification that covers all assignments, assessors and a range of learners
- how to manage the assessment and verification of learners' work so that they can be given formal decisions promptly
- how resubmission opportunities can be scheduled.

The Lead IV will also maintain records of assessment undertaken. The key records are:

- verification of assignment briefs
- learner authentication declarations
- assessor decisions on assignments, with feedback given to learners
- verification of assessment decisions.

Examples of records and further information are given in the *Pearson Quality Assurance Handbook*.

7 Administrative arrangements

Introduction

This section focuses on the administrative requirements for delivering a BTEC qualification. It will be of value to Quality Nominees, Lead IVs, Programme Leaders and Examinations Officers.

Learner registration and entry

Shortly after learners start the programme of learning, you need to make sure that they are registered for the qualification and that appropriate arrangements are made for internal and external assessment. You need to refer to the *Information Manual* for information on making registrations for the qualification and entries for external assessments.

Learners can be formally assessed only for a qualification on which they are registered. If learners' intended qualifications change, for example if a learner decides to choose a different pathway specialism, then the centre must transfer the learner appropriately.

Access to assessment

Both internal and external assessments need to be administered carefully to ensure that all learners are treated fairly, and that results and certification are issued on time to allow learners to progress to chosen progression opportunities.

Our equality policy requires that all learners should have equal opportunity to access our qualifications and assessments, and that our qualifications are awarded in a way that is fair to every learner. We are committed to making sure that:

- learners with a protected characteristic are not, when they are undertaking one of our qualifications, disadvantaged in comparison to learners who do not share that characteristic
- all learners achieve the recognition they deserve for undertaking a qualification and that this achievement can be compared fairly to the achievement of their peers.

Further information on access arrangements can be found in the Joint Council for Qualifications (JCQ) document *Access Arrangements, Reasonable Adjustments and Special Consideration for General and Vocational Qualifications*.

Administrative arrangements for internal assessment

Records

You are required to retain records of assessment for each learner. Records should include assessments taken, decisions reached and any adjustments or appeals. Further information can be found in the *Information Manual.* We may ask to audit your records so they must be retained as specified.

Reasonable adjustments to assessment

A reasonable adjustment is one that is made before a learner takes an assessment to ensure that they have fair access to demonstrate the requirements of the assessments. You are able to make adjustments to internal assessments to take account of the needs of individual learners. In most cases this can be achieved through a defined time extension or by adjusting the format of evidence. We can advise you if you are uncertain as to whether an adjustment is fair and reasonable. You need to plan for time to make adjustments if necessary.

Further details on how to make adjustments for learners with protected characteristics are given on our website in the document *Supplementary guidance for reasonable adjustment and special consideration in vocational internally-assessed units*.

Special consideration

Special consideration is given after an assessment has taken place for learners who have been affected by adverse circumstances, such as illness. You must operate special consideration in line with our policy (see previous paragraph). You can provide special consideration related to the period of time given for evidence to be provided or for the format of the assessment if it is equally valid. You may not substitute alternative forms of evidence to that required in a unit, or omit the application of any assessment criteria to judge attainment. Pearson can consider applications for special consideration in line with the policy.

Appeals against assessment

Your centre must have a policy for dealing with appeals from learners. These appeals may relate to assessment decisions being incorrect or assessment not being conducted fairly. The first step in such a policy could be a consideration of the evidence by a Lead IV or other member of the programme team. The assessment plan should allow time for potential appeals after assessment decisions have been given to learners. If there is an appeal by a learner, you must document the appeal and its resolution. Learners have a final right of appeal to Pearson but only if the procedures that you have put in place have not been followed. Further details are given in our policy *Enquiries and appeals about Pearson Vocational Qualifications*.

Administrative arrangements for external assessment

Entries and resits

For information on the timing of assessment and entries, please refer to the annual examinations timetable on our website.

Access arrangements requests

Access arrangements are agreed with Pearson before an assessment. They allow students with special educational needs, disabilities or temporary injuries to:

- access the assessment
- show what they know and can do without changing the demands of the assessment.

Access arrangements should always be processed at the time of registration. Learners will then know what type of arrangements are available in place for them.

Granting reasonable adjustments

For external assessment, a reasonable adjustment is one that we agree to make for an individual learner. A reasonable adjustment is defined for the individual learner and informed by the list of available access arrangements.

Whether an adjustment will be considered reasonable will depend on a number of factors, to include:

- the needs of the learner with the disability
- the effectiveness of the adjustment
- the cost of the adjustment; and
- the likely impact of the adjustment on the learner with the disability and other learners.

Adjustment may be judged unreasonable and not approved if it involves unreasonable costs, timeframes or affects the integrity of the assessment.

Special consideration requests

Special consideration is an adjustment made to a learner's mark or grade after an external assessment to reflect temporary injury, illness or other indisposition at the time of the assessment. An adjustment is made only if the impact on the learner is such that it is reasonably likely to have had a material effect on that learner being able to demonstrate attainment in the assessment.

Centres are required to notify us promptly of any learners that they believe have been adversely affected and request that we give special consideration. Further information can be found in the special requirements section on our website.

Conducting external assessments

Centres must make arrangement for the secure delivery of external assessments. External assessments for BTEC qualifications include examinations, set tasks and performance.

Each external assessment has a defined degree of control under which it must take place. Some external assessments may have more than one part and each part may have a different degree of control. We define degrees of control as follows.

High control

This is the completion of assessment in formal invigilated examination conditions.

Medium control

This is completion of assessment, usually over a longer period of time, which may include a period of controlled conditions. The controlled conditions may allow learners to access resources, prepared notes or the internet to help them complete the task.

Low control

These are activities completed without direct supervision. They may include research, preparation of materials and practice. The materials produced by learners under low control will not be directly assessed.

Further information on responsibilities for conducting external assessment is given in the document *Instructions for Conducting External Assessments*, available on our website.

Dealing with malpractice in assessment

Malpractice means acts that undermine the integrity and validity of assessment, the certification of qualifications, and/or that may damage the authority of those responsible for delivering the assessment and certification.

Pearson does not tolerate actions (or attempted actions) of malpractice by learners, centre staff or centres in connection with Pearson qualifications. Pearson may impose penalties and/or sanctions on learners, centre staff or centres where incidents (or attempted incidents) of malpractice have been proven.

Malpractice may arise or be suspected in relation to any unit or type of assessment within the qualification. For further details regarding malpractice and advice on preventing malpractice by learners, please see Pearson's *Centre Guidance: Dealing with Malpractice*, available on our website.

The procedures we ask you to adopt vary between units that are internally-assessed and those that are externally assessed.

Internally-assessed units

Centres are required to take steps to prevent malpractice and to investigate instances of suspected malpractice. Learners must be given information that explains what malpractice is for internal assessment and how suspected incidents will be dealt with by the centre. The *Centre Guidance: Dealing with Malpractice* document gives full information on the actions we expect you to take.

Pearson may conduct investigations if we believe that a centre is failing to conduct internal assessment according to our policies. The above document gives further information, examples and details the penalties and sanctions that may be imposed.

In the interests of learners and centre staff, centres need to respond effectively and openly to all requests relating to an investigation into an incident of suspected malpractice.

Externally-assessed units

External assessment means all aspects of units that are designated as external in this specification, including preparation for tasks and performance. For these assessments, centres must follow the JCQ procedures set out in the latest version of *JCQ Suspected Malpractice in Examinations and Assessments Policies and Procedures* (www.jcq.org.uk).

In the interests of learners and centre staff, centres need to respond effectively and openly to all requests relating to an investigation into an incident of suspected malpractice.

Learner malpractice

Heads of Centres are required to report incidents of any suspected learner malpractice that occur during Pearson external assessments. We ask that centres do so by completing a *JCQ Form M1* (available at www.jcq.org.uk/exams-office/malpractice) and emailing it and any accompanying documents (signed statements from the learner, invigilator, copies of evidence, etc.) to the Investigations Team at candidatemalpractice@pearson.com. The responsibility for determining appropriate sanctions or penalties to be imposed on learners lies with Pearson.

Learners must be informed at the earliest opportunity of the specific allegation and the centre's malpractice policy, including the right of appeal. Learners found guilty of malpractice may be disqualified from the qualification for which they have been entered with Pearson.

Teacher/centre malpractice

Heads of Centres are required to inform Pearson's Investigations Team of any incident of suspected malpractice by centre staff, before any investigation is undertaken. Heads of centres are requested to inform the Investigations Team by submitting a *JCQ Form M2(a)* (available at www.jcq.org.uk/exams-office/malpractice) with supporting documentation to pqsmalpractice@pearson.com. Where Pearson receives allegations of malpractice from other sources (for example Pearson staff or anonymous informants), the Investigations Team will conduct the investigation directly or may ask the head of centre to assist.

Incidents of maladministration (accidental errors in the delivery of Pearson qualifications that may affect the assessment of learners) should also be reported to the Investigations Team using the same method.

Heads of Centres/Principals/Chief Executive Officers or their nominees are required to inform learners and centre staff suspected of malpractice of their responsibilities and rights; see Section 6.15 of the *JCQ Suspected Malpractice in Examinations and Assessments Policies and Procedures* document.

Pearson reserves the right in cases of suspected malpractice to withhold the issuing of results and/or certificates while an investigation is in progress. Depending on the outcome of the investigation results and/or certificates may be released or withheld.

You should be aware that Pearson may need to suspend certification when undertaking investigations, audits and quality assurances processes. You will be notified within a reasonable period of time if this occurs.

Sanctions and appeals

Where malpractice is proven we may impose sanctions or penalties.

Where learner malpractice is evidenced, penalties may be imposed such as:

- mark reduction for external assessments
- disqualification from the qualification
- being barred from registration for Pearson qualifications for a period of time.

If we are concerned about your centre's quality procedures we may impose sanctions such as:

- working with you to create an improvement action plan
- requiring staff members to receive further training
- placing temporary blocks on your certificates
- placing temporary blocks on registration of learners
- debarring staff members or the centre from delivering Pearson qualifications
- suspending or withdrawing centre approval status.

The centre will be notified if any of these apply.

Pearson has established procedures for centres that are considering appeals against penalties and sanctions arising from malpractice. Appeals against a decision made by Pearson will normally be accepted only from heads of centres (on behalf of learners and/or members of staff) and from individual members (in respect of a decision taken against them personally). Further information on appeals can be found in our *Enquiries and Appeals* policy, which is on our website. In the initial stage of any aspect of malpractice, please notify the Investigations Team by email via pqsmalpractice@pearson.com who will inform you of the next steps.

Certification and results

Once a learner has completed all the required components for a qualification, even if final results for external assessments have not been issued, then the centre can claim certification for the learner, provided that quality assurance has been successfully completed. For the relevant procedures please refer to our *Information Manual*. You can use the information provided on qualification grading to check overall qualification grades.

Results issue

After the external assessment session, learner results will be issued to centres. The result will be in the form of a grade. You should be prepared to discuss performance with learners, making use of the information we provide and post-results services.

Post-assessment services

Once results for external assessments are issued, you may find that the learner has failed to achieve the qualification or to attain an anticipated grade. It is possible to transfer or reopen registration in some circumstances. The *Information Manual* gives further information.

Changes to qualification requests

Where a learner who has taken a qualification wants to resit an externally-assessed unit to improve their qualification grade, you firstly need to decline their overall qualification grade. You may decline the grade before the certificate is issued. For a learner receiving their results in August, you should decline the grade by the end of September if the learner intends to resit an external assessment.

Additional documents to support centre administration

As an approved centre you must ensure that all staff delivering, assessing and administering the qualifications have access to this documentation. These documents are reviewed annually and are reissued if updates are required.

- *Pearson Quality Assurance Handbook*: this sets out how we will carry out quality assurance of standards and how you need to work with us to achieve successful outcomes.
- *Information Manual*: this gives procedures for registering learners for qualifications, transferring registrations, entering for external assessments and claiming certificates.
- *Lead Examiners' Reports*: these are produced after each series for each external assessment and give feedback on the overall performance of learners in response to tasks or questions set.
- *Instructions for the Conduct of External Assessments*: this explains our requirements for the effective administration of external assessments, such as invigilation and submission of materials.
- *Regulatory policies*: our regulatory policies are integral to our approach and explain how we meet internal and regulatory requirements. We review the regulated policies annually to ensure that they remain fit for purpose. Policies related to this qualification include:
  - adjustments for candidates with disabilities and learning difficulties, access arrangements and reasonable adjustments for general and vocational qualifications
  - age of learners
  - centre guidance for dealing with malpractice
  - recognition of prior learning and process.

This list is not exhaustive and a full list of our regulatory policies can be found on our website.

8 Quality assurance

Centre and qualification approval

As part of the approval process, your centre must make sure that the resource requirements listed below are in place before offering the qualification.

- Centres must have appropriate physical resources (for example equipment, IT, learning materials, teaching rooms) to support the delivery and assessment of the qualification.
- Staff involved in the assessment process must have relevant expertise and/or occupational experience.
- There must be systems in place to ensure continuing professional development for staff delivering the qualification.
- Centres must have in place appropriate health and safety policies relating to the use of equipment by learners.
- Centres must deliver the qualification in accordance with current equality legislation.
- Centres should refer to the teacher guidance section in individual units to check for any specific resources required.

Continuing quality assurance and standards verification

On an annual basis, we produce the *Pearson Quality Assurance Handbook*. It contains detailed guidance on the quality processes required to underpin planning for delivery including appropriate employer involvement, and for robust assessment and internal verification.

The key principles of quality assurance are that:

- a centre delivering BTEC programmes must be an approved centre, and must have approval for the programmes or groups of programmes that it is delivering
- the centre agrees, as part of gaining approval, to abide by specific terms and conditions around the effective delivery and quality assurance of assessment; it must abide by these conditions throughout the period of delivery
- Pearson makes available to approved centres a range of materials and opportunities, through online standardisation, intended to exemplify the processes required for effective assessment, and examples of effective standards. Approved centres must use the materials and services to ensure that all staff delivering BTEC qualifications keep up to date with the guidance on assessment
- an approved centre must follow agreed protocols for standardisation of assessors and verifiers, for the planning, monitoring and recording of assessment processes, and for dealing with special circumstances, appeals and malpractice.

The approach of quality-assured assessment is through a partnership between an approved centre and Pearson. We will make sure that each centre follows best practice and employs appropriate technology to support quality-assurance processes, where practicable. We work to support centres and seek to make sure that our quality-assurance processes do not place undue bureaucratic processes on centres. We monitor and support centres in the effective operation of assessment and quality assurance.

The methods we use to do this for BTEC Level 3 include:

- making sure that all centres complete appropriate declarations at the time of approval
- undertaking approval visits to centres
- making sure that centres have effective teams of assessors and verifiers who are trained to undertake assessment
- assessment sampling and verification, through requested samples of assessments, completed assessed learner work and associated documentation
- an overarching review and assessment of a centre's strategy for delivering and quality assuring its BTEC programmes, for example making sure that synoptic units are placed appropriately in the order of delivery of the programme.

Centres that do not fully address and maintain rigorous approaches to delivering, assessing and quality assurance cannot seek certification for individual programmes or for all BTEC Level 3 programmes. An approved centre must make certification claims only when authorised by us and strictly in accordance with requirements for reporting.

Centres that do not comply with remedial action plans may have their approval to deliver qualifications removed.

9 Understanding the qualification grade

Awarding and reporting for the qualification

This section explains the rules that we apply in awarding a qualification and in providing an overall qualification grade for each learner. It shows how all the qualifications in this sector are graded.

The awarding and certification of these qualifications will comply with regulatory requirements.

Eligibility for an award

In order to be awarded a qualification, a learner must complete all units, achieve a near pass (N) or above in all external units and a pass or above in all mandatory units unless otherwise specified. Refer to the structure in *Section 2*.

To achieve any qualification grade, learners must:

- complete and **have an outcome** (D, M, P, N or U) for all units within a valid combination
- achieve the **required units at pass or above** shown in *Section 2*, and for the Diploma achieve a minimum of 600 GLH and Extended Diploma achieve a minimum 900 GLH at pass or above (or N or above in external units)
- achieve the **minimum number of points** at a grade threshold.

It is the responsibility of a centre to ensure that a correct unit combination is adhered to. Learners who do not achieve the required minimum grade (N or P) in units shown in the structure will not achieve a qualification.

Learners who do not achieve sufficient points for a qualification or who do not achieve all the required units may be eligible to achieve a smaller qualification in the same suite provided they have completed and achieved the correct combination of units and met the appropriate qualification grade points threshold.

Calculation of the qualification grade

The final grade awarded for a qualification represents an aggregation of a learner's performance across the qualification. As the qualification grade is an aggregate of the total performance, there is some element of compensation in that a higher performance in some units may be balanced by a lower outcome in others.

In the event that a learner achieves more than the required number of optional units, the mandatory units along with the optional units with the highest grades will be used to calculate the overall result, subject to the eligibility requirements for that particular qualification title.

BTEC Nationals are Level 3 qualifications and are awarded at the grade ranges shown in the table below.

Qualification	Available grade range
Certificate, Extended Certificate, Foundation Diploma	P to D*
Diploma	PP to D*D*
Extended Diploma	PPP to D*D*D*

The *Calculation of qualification grade* table, shown further on in this section, shows the minimum thresholds for calculating these grades. The table will be kept under review over the lifetime of the qualification. The most up to date table will be issued on our website.

Pearson will monitor the qualification standard and reserves the right to make appropriate adjustments.

Learners who do not meet the minimum requirements for a qualification grade to be awarded will be recorded as Unclassified (U) and will not be certificated. They may receive a Notification of Performance for individual units. The *Information Manual* gives full information.

Points available for internal units

The table below shows the number of **points** available for internal units. For each internal unit, points are allocated depending on the grade awarded.

	Unit size		
	60 GLH	**90 GLH**	**120 GLH**
U	0	0	0
Pass	6	9	12
Merit	10	15	20
Distinction	16	24	32

Points available for external units

Raw marks from the external units will be awarded **points** based on performance in the assessment. The table below shows the **minimum number of points** available for each grade in the external units.

	Unit size	
	90 GLH	**120 GLH**
U	0	0
Near Pass	6	8
Pass	9	12
Merit	15	20
Distinction	24	32

Pearson will automatically calculate the points for each external unit once the external assessment has been marked and grade boundaries have been set. For more details about how we set grade boundaries in the external assessment please go to our website.

Claiming the qualification grade

Subject to eligibility, Pearson will automatically calculate the qualification grade for your learners when the internal unit grades are submitted and the qualification claim is made. Learners will be awarded qualification grades for achieving the sufficient number of points within the ranges shown in the relevant *Calculation of Qualification Grade* table for the cohort.

Calculation of qualification grade

Applicable for registration from 1 September 2019.

Foundation Diploma		Extended Diploma	
540 GLH		1080 GLH	
Grade	**Points threshold**	**Grade**	**Points threshold**
U	0	U	0
Pass	54	PPP	108
		MPP	124
		MMP	140
Merit	78	MMM	156
		DMM	176
		DDM	196
Distinction	108	DDD	216
		D*DD	234
		D*D*D	252
D*	138	D*D*D*	270

The table is subject to review over the lifetime of the qualification. The most up-to-date version will be issued on our website.

Examples of grade calculations based on table applicable to registrations from September 2019

Example 1: Achievement of a Foundation Diploma with a P grade

	GLH	Type (Int/Ext)	Grade	Unit points
Unit 1	120	Ext	Pass	12
Unit 2	120	Ext	Pass	12
Unit 4	60	Int	Pass	6
Unit 8	60	Int	Unclassified	0
Unit 9	60	Int	Merit	10
Unit 20	120	Int	Merit	20
Totals	**540**		**P**	**60**

The learner has achieved N or higher in Units 1 and 2, and P or higher in Units 9 and 20.

The learner has sufficient points for a P grade.

Example 2: Achievement of a Foundation Diploma with a M grade

	GLH	Type (Int/Ext)	Grade	Unit points
Unit 1	120	Ext	Near Pass	8
Unit 2	120	Ext	Distinction	32
Unit 4	60	Int	Merit	10
Unit 8	60	Int	Merit	10
Unit 9	60	Int	Merit	10
Unit 20	120	Int	Distinction	32
Totals	**540**		**M**	**102**

The learner has sufficient points for a M grade.

Example 3: An Unclassified result for a Foundation Diploma

	GLH	Type (Int/Ext)	Grade	Unit points
Unit 1	120	Ext	Merit	20
Unit 2	120	Ext	U	0
Unit 4	60	Int	Pass	6
Unit 8	60	Int	Distinction	16
Unit 9	60	Int	Pass	6
Unit 20	120	Int	Distinction	32
Totals	**540**		**U**	**80**

The learner has a U in Unit 2.

The learner has sufficient points for an M grade but has not met the minimum requirement for N or higher in Units 1 and 2, and P or higher in Units 9 and 20.

10 Resources and support

Our aim is to give you a wealth of resources and support to enable you to deliver BTEC National qualifications with confidence. On our website you will find a list of resources to support teaching and learning, and professional development.

Support for setting up your course and preparing to teach

Specification

This **specification** (for teaching from September 2019) includes details on the administration of qualifications and information on all the units for the qualification.

Delivery Guide

This free guide gives you important advice on how to choose the right course for your learners and how to ensure you are fully prepared to deliver the course. It explains the key features of BTEC Nationals (for example employer involvement and employability skills). It also covers guidance on assessment (internal and external) and quality assurance. The guide tells you where you can find further support and gives detailed unit-by-unit delivery guidance. It includes teaching tips and ideas, assessment preparation and suggestions for further resources.

Schemes of work

Free sample schemes of work are provided for each mandatory unit. These are available in Word™ format for ease of customisation.

Curriculum models

These show how the BTECs in the suite fit into a 16–19 study programme, depending on their size and purpose. The models also show where other parts of the programme, such as work experience, maths and English, tutorial time and wider study, fit alongside the programme.

Study skills activities

A range of case studies and activities is provided; they are designed to help learners develop the study skills they need to successfully complete their BTEC course. The case studies and activities are provided in Word™ format for easy customisation.

myBTEC

myBTEC is a free, online toolkit that lets you plan and manage your BTEC provision from one place. It supports the delivery, assessment and quality assurance of BTECs in centres and supports teachers with the following activities:

- checking that a programme is using a valid combination of units
- creating and verifying assignment briefs (including access to a bank of authorised assignment briefs that can be customised)
- creating assessment plans and recording assessment decisions
- tracking the progress of every learner throughout their programme.

To find out more about myBTEC, visit the myBTEC page on the support services section of our website. We will add the new BTEC National specifications to myBTEC as soon as possible.

Support for teaching and learning

Pearson Learning Services provides a range of engaging resources to support BTEC Nationals, including introductory guides to the Next Generation BTEC Nationals approach to learning.

Teaching and learning resources are also available from a number of other publishers. Details of Pearson's own resources and of all endorsed resources can be found on our website.

Support for assessment

Sample assessment materials for externally-assessed units

Sample assessments are available for the Pearson-set units. One copy of each of these assessments can be downloaded from the website/available in print. For each suite, an additional sample for one of the Pearson-set units is also available, allowing your learners further opportunities for practice.

Further sample assessments will be made available through our website on an ongoing basis.

Sample assessment materials for internally-assessed units

We do not prescribe the assessments for the internally-assessed units. Rather, we allow you to set your own, according to your learners' preferences and to link with your local employment profile.

We do provide a service in the form of Authorised Assignment Briefs, which are approved by Pearson Standards Verifiers. They are available via our website or free on myBTEC.

Sample marked learner work

To support you in understanding the expectation of the standard at each grade, examples of marked learner work at PM/MD grades are linked to the Authorised Assignment Briefs.

Training and support from Pearson

People to talk to

There are many people who are available to support you and provide advice and guidance on delivery of your BTEC Nationals. These include:

- Subject Advisors – available for all sectors. They understand all Pearson qualifications in their sector and so can answer sector-specific queries on planning, teaching, learning and assessment
- Standards Verifiers – they can support you with preparing your assignments, ensuring that your assessment plan is set up correctly, and support you in preparing learner work and providing quality assurance through sampling
- Curriculum Development Managers (CDMs) – they are regionally based and have a full overview of the BTEC qualifications and of the support and resources that Pearson provides. CDMs often run network events
- Customer Services – the 'Support for You' section of our website gives the different ways in which you can contact us for general queries. For specific queries, our service operators can direct you to the relevant person or department.

Training and professional development

Pearson provides a range of training and professional development events to support the introduction, delivery, assessment and administration of BTEC National qualifications. These sector-specific events, developed and delivered by specialists, are available both face to face and online.

'Getting Ready to Teach'

These events are designed to get teachers ready for delivery of the BTEC Nationals. They include an overview of the qualifications' structures, planning and preparation for internal and external assessment, and quality assurance.

Teaching and learning

Beyond the 'Getting Ready to Teach' professional development events, there are opportunities for teachers to attend sector- and role-specific events. These events are designed to connect practice to theory; they provide teacher support and networking opportunities with delivery, learning and assessment methodology.

Details of our training and professional development programme can be found on our website.

Appendix 1 Links to industry standards

BTEC Nationals have been developed in consultation with industry and appropriate sector bodies to ensure that the qualification content and approach to assessment aligns closely to the needs of employers. Where they exist, and are appropriate, National Occupational Standards (NOS) and professional body standards have been used to establish unit content.

In the forestry and arboriculture sector, the mandatory content has been mapped to NOS to reflect the essential skills and knowledge needed for entry to employment.

Appendix 2 Glossary of terms used for internally-assessed units

This is a summary of the key terms used to define the requirements in the units.

Term	Definition
Analyse	Learners present the outcome of methodical and detailed examination, either: • breaking down a theme, topic or situation in order to interpret and study the interrelationships between the parts; and/or • of information or data to interpret and study key trends and interrelationships. Analysis can be through performance, practice, written or, less commonly, verbal presentation.
Apply	Learners complete practical tasks drawing on knowledge of concepts and processes.
Assess	Learners present a careful consideration of varied factors or events that apply to a specific situation, or identify those which are the most important or relevant and arrive at a conclusion.
Carry out	Learners demonstrate skills through practical activities, in line with certain requirements. Learners do this in order to complete an identified activity or to demonstrate personal achievement for an audience.
Compare	Learners identify the main factors relating to two or more items/situations or aspects of a subject that is extended to explain the similarities, differences, advantages and disadvantages. This is used to show depth of knowledge through selection and isolation of characteristics.
Demonstrate	Learners' work, performance or practice evidences the ability to carry out and apply knowledge, understanding and/or skills in a practical situation.
Develop	Learners acquire and apply skills and understanding through practical activities that involve the use of concepts, processes or techniques to expand or progress something.
Discuss	Learners consider different aspects of: • a theme or topic • how they interrelate; and • the extent to which they are important. A conclusion is not required.

Term	Definition
Evaluate	Learners' work draws on varied information, themes or concepts to consider aspects such as: • strengths or weaknesses • advantages or disadvantages • alternative actions • relevance or significance. Learners' enquiries should lead to a supported judgement showing relationship to its context. This will often be in a conclusion. Evidence of explanations could be through visual explanations with annotations, as well as written work, presentation, performance or practice.
Examine	Learners select and apply knowledge to less familiar contexts.
Explain	Learners' work shows clear detail and gives reasons and/or evidence to support an opinion, view or argument. It could show how conclusions are drawn (arrived at). Learners show that they comprehend the origins, functions and objectives of a subject, and its suitability for purpose.
Explore	Learners apply their skills and/or knowledge in contexts involving practical research or investigation.
Investigate	Learners' application of knowledge is based on personal research and development.
Justify	Learners give reasons or evidence to: • support an opinion • prove something right or reasonable.
Perform	Learners demonstrate a range of skills required to complete a given activity.
Plan	Learners create a way of doing a task or series of tasks to achieve specific requirements or objectives, showing progress from start to finish.
Produce	Learners' knowledge, understanding and/or skills are applied to develop a particular type of evidence, for example a proposal, plan, product, service or report.
Reflect	Learners consider their own performance and/or skills and development in relation to a specific scenario or scenarios and/or wider context(s). This may include feedback from others. There is often a requirement for learners to identify strengths and areas for improvement, along with a personal development or action plan.

Term	Definition
Review	Learners make a formal assessment of work produced. The assessment allows learners to appraise existing information or prior events, and reconsider information with the intention of making changes, if necessary.
Select	Learners choose the best or most suitable option, whether this is of materials, techniques, equipment or processes. The options and choices should be based on specific criteria.
Understand	Learners demonstrate knowledge related to defined situations.
Undertake	Learners demonstrate skills through practical activities, often referring to given processes or techniques.

This is a key summary of the types of evidence used for BTEC Nationals.

Type of evidence	Definition and purpose
Case study	A specific example to which all learners must select and apply knowledge. Used to show application to a realistic context where direct experience cannot be gained.
Development log	A record kept by learners to show the process of development. Used to show method, self-management and skill development.
Individual project	A self-directed, large-scale activity requiring planning, research, exploration, outcome and review. Used to show self-management, project management and/or deep learning, including synopticity.
Log	A record made by learners of how a process of development was carried out, including experimental stages, testing, selection and rejection of alternatives, practice or development steps.
Plan	Learners produce a plan as an outcome related to a given or limited task.
Portfolio	Digital or physical, showing a selection of work that contributes towards a project or for a specific purpose.
Practical task (artefact/outcome)	Learners carry out a defined or self-defined task to produce an outcome.
Presentation	To show presentation skills, including communication. To direct to a given audience and goal. To extract and summarise information.
Project	A large-scale activity requiring planning, research, exploration, outcome and review. Used to show self-management, project management and/or deep learning, including synopticity.
Research	An analysis of substantive research organised by learners from secondary and, if applicable, primary sources.
Written task/report	Individual completion of a task in a work-related format, e.g. a report, marketing communication, set of instructions.

Pearson BTEC Level 3 Nationals in Forestry and Arboriculture

Foundation Diploma in Forestry and Arboriculture

Extended Diploma in Forestry and Arboriculture

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