



Pearson BTEC Level 2 Technical Diploma in Countryside Studies

Specification

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Issue 3

Edexcel, BTEC and LCCI qualifications

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This specification is Issue 3. Key changes are listed in the summary table on the page after next of the document. We will inform centres of any changes to this issue. The latest issue can be found on the Pearson website: qualifications.pearson.com

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Welcome

With a track record built over 30 years of learner success, BTEC qualifications are widely recognised and respected. They provide progression to the workplace, either directly or via study at higher levels. Proof comes from YouGov research, which shows that 62% of large companies have recruited employees with BTEC qualifications.

Why are BTECs so successful?

BTECs embody a fundamentally learner-centred approach to the curriculum, with a flexible, unit-based structure. In these new BTEC Level 2 Technicals, the focus is on the development of technical, practical and transferable work-related skills, and sector-specific knowledge.

The development of these skills is key for learners to progress to work or to an Apprenticeship.

When creating the BTEC Level 2 Technicals, we worked with employers to ensure that the qualifications meet their needs. Employers are looking for recruits with the appropriate technical knowledge, and technical and transferable skills essential for employment.

The BTEC Level 2 Technicals meet these requirements through:

- a range of occupationally-related qualifications, each with a clear purpose, so that there is a qualification to suit each learner's plan for career progression
- up-to-date content that is closely aligned with employers' needs for a skilled future workforce
- assessments chosen to help learners progress to the next stage. This means that all assessments are set by the centre to meet local needs. This ensures that there is a core of skills and understanding common to all learners.

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

A word to learners...

BTEC Level 2 Technicals will demand a lot of practical work from you. You will need to:

- complete a range of units
- be organised
- take some assessments that Pearson will set and mark
- take other assessments that will demonstrate your technical and practical skills
- 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 go on to work or to an Apprenticeship – success in your BTEC Level 2 Technical qualification will help you to progress to the next stage in your life.

Good luck, and we hope you enjoy your course.

Collaborative development

Learners completing their BTEC Level 2 Technicals will be aiming to go on to employment or to an Apprenticeship. It was essential, therefore, that we developed these qualifications in close collaboration with experts from professional bodies and businesses, and with the providers who will be delivering the qualifications. We are grateful to all the further education lecturers, tutors, 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 further education providers that have worked with us include the British Association for Shooting and Conservation (BASC).

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

Summary of Pearson BTEC Level 2 Technical Diploma in Countryside Studies specification Issue 3 changes

Summary of changes made between the previous issue and this current issue	Page number
<i>Unit 1: Introduction to Working in Land-based Industries</i> and <i>Unit 2: Introduction to Plant and Soil Science</i> have been changed from being externally-assessed to being internally-assessed.	Pages 11-37
The wording in <i>Section 7 Teacher/centre malpractice</i> has been updated to clarify suspension of certification in certain circumstances.	Pages 126, 127
The wording under <i>Section 9 Understanding the qualification grade</i> has been updated to clarify current practice in ensuring maintenance and consistency of qualification standards.	Page 131

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Pearson BTEC Level 2 Technicals

Introduction

BTEC Level 2 Technicals are intermediate qualifications for post-16 learners who want to specialise in a specific occupation, occupational area or technical role. They prepare learners for work or an Apprenticeship by giving them the opportunity to develop sector-specific knowledge, technical and practical skills, and to apply these skills in work-related environments. The qualifications also provide progression to Level 3 Tech Level qualifications.

Developed in close conjunction with leading employers, BTEC Level 2 Technicals develop transferable workplace skills, such as good communication and the ability to work in a team, which employers have identified as essential for gaining employment in the sector and for progression once the learner is working.

At the core of these qualifications is the concept of preparing young people for the working world. Through practical activities and occupationally-fit-for-purpose assessments, learners will gain the skills and behaviours needed for sustainable employment.

BTEC Level 2 Technicals are designed to be used flexibly, depending on their size and scope:

- as part of a full-time 16–19 study programme, alongside mathematics and English GCSEs and/or Functional Skills, work placement and enrichment activities
- as the technical qualification within an Apprenticeship or off-the-job training for those already in work
- as a roll-on, roll-off programme for those entering an Apprenticeship or employment.

These qualifications are not eligible for performance tables in England.

This specification contains the information you need to deliver the Pearson BTEC Level 2 Technical Diploma in Countryside Studies (QN 603/1906/9). The specification signposts you to additional handbooks and policies. It includes all the units for this qualification.

1 Pearson BTEC Level 2 Technical Diploma in Countryside Studies

Purpose

Who is the qualification for?

This qualification is for you if you want to start a career working in the countryside sector. It is designed for post-16 learners and can be taken as part of a wider study programme. It is an ideal qualification if you are intending to progress directly to employment in the countryside sector or to a countryside Apprenticeship.

What does the qualification cover?

This qualification has been developed in consultation with employers in the countryside sector. This means that it will enable you to learn the skills and behaviours that will give you the best opportunity to be successful when applying for work.

There are **five mandatory units** plus you will choose **two from three optional units** that relate directly to the skills, knowledge and behaviours expected by employers in the countryside sector. The areas you cover include:

- Unit 1: Introduction to Working in Land-based Industries
- Unit 2: Introduction to Plant and Soil Science
- Unit 3: Countryside Work Placement
- Unit 4: Habitat Maintenance
- Unit 8: Countryside Estate Maintenance.

You will be required to choose two from three optional units:

- Unit 5: Countryside Access and Recreation
- Unit 6: Introduction to Game Management
- Unit 7: Land-based Machinery Operations.

You will also enhance your broader skills in literacy and numeracy, which will help you to progress. You will develop other transferable technical and practical skills in communication (working with colleagues, customers and clients), and research and project work (giving you with an opportunity to demonstrate your reflective practice by suggesting alternative approaches to a problem).

What could this qualification lead to?

Achieving this qualification will give you an advantage when applying for a job in the countryside sector. The types of role you will be supported to progress to include:

- junior estate operative
- junior reserve warden.

When studied as part of a full study programme, this qualification also gives you a sound basis to progress further in the countryside sector to a Level 3 qualification such as a Pearson BTEC Level 3 National Diploma in Countryside Management.

About the countryside sector

Working in the countryside sector is often overlooked as a career. However, it has a wide range of progression and job opportunities. The sector employs approximately 73,000 people in the UK, with approximately 31,000 people employed in the countryside sector. The number of people working in this area is expected to grow each year and employment opportunities can be found in both urban and rural areas. The countryside sector also includes the game and wildlife industry, which involves management of upland, lowland, woodland and wetland game and wildlife species.

2 Structure

Total Qualification Time (TQT)

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 tutors and assessors in teaching, supervising and invigilating learners.

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

The Pearson BTEC Level 2 Technical Diploma in Countryside Studies is a qualification that has:

- Total Qualification Time: 552 hours
- Guided Learning: 360 hours.

Centres should take note of these hours in planning their programme but should also use their professional judgement to determine the provision of guided learning and study time across the units.

Qualification structure

Learners are required to complete and achieve all mandatory units and two optional units in the qualification.

Pearson BTEC Level 2 Technical Diploma in Countryside Studies				
Unit number	Unit title	GLH	Type	How assessed
1	Introduction to Working in Land-based Industries	60	Mandatory	Internal
2	Introduction to Plant and Soil Science	60	Mandatory	Internal
3	Countryside Work Placement	60	Mandatory	Internal
4	Habitat Maintenance	60	Mandatory	Internal
5	Countryside Access and Recreation	30	Optional	Internal
6	Introduction to Game Management	30	Optional	Internal
7	Land-based Machinery Operations	30	Optional	Internal
8	Countryside Estate Maintenance	60	Mandatory	Internal Synoptic

This qualification has 83.3% mandatory content and 16.66% optional content.

These qualifications are not eligible for performance tables in England.

Qualification and unit content

Pearson has developed the content of this qualification in collaboration with employers and representatives from relevant professional bodies and further education providers. In this way, we have ensured that content is up to date and that it includes the knowledge, technical and practical skills and behaviours required to work in the sector and occupational area.

Of the content in this qualification, 83% is mandatory, which provides a balance of breadth and depth, ensuring that all learners develop the technical and practical skills required in the occupational area. Learners are then given the opportunity to develop a range of transferable skills and attributes expected by employers. It is expected that learners will apply their learning to relevant employment and sector contexts during delivery, and that they will have opportunities to engage meaningfully with employers.

BTECs 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 practical, work-related tasks that encourage the development of appropriate work-related behaviours (the affective domain) and transferable skills. Transferable skills are those such as communication, teamwork, planning and completing tasks to a high standard, all of which are valued in the workplace.

Our approach provides rigour and balance and promotes the ability to apply learning immediately in new contexts.

Some of the units in this 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 this qualification in, subject to confirmation by your Standards Verifier.

Assessment

Assessment is designed to fit the purpose and objective of the qualification. It includes a range of assessment types and styles suited to skills and occupationally-based qualifications at this level.

Internal assessment

Units 1, 2, 3, 4, 5, 6, 7 and 8 are assessed through internal assessment. Internal assessment allows learners to apply technical knowledge and demonstrate mastery of practical and technical skills through realistic tasks and activities. This style of assessment promotes deep learning through ensuring the connection between knowledge and practice.

Internal assessment is through assignments that are subject to external standards verification. We provide suggestions in each unit for setting assignments. This means that you can adapt materials to your local contexts and assess assignments that provide the valid and rigorous final assessment for each unit.

You will make grading decisions based on the requirements and supporting guidance given in the units. Learners must achieve all the internally-assessed units at Pass grade or above to achieve the qualification. For further information on internal assessment, including resubmissions, see *Section 6 Internal assessment*.

Internal synoptic assessment

There is one internally-assessed unit that provides the main synoptic assessment for this qualification. This synoptic assessment is designed to take place towards the end of the programme and draws on the learning throughout. The design of this assessment ensures that there is sufficient stretch and challenge, enabling the assessment of sector-related knowledge and technical and practical skills at the end of the learning period.

The synoptic assessment for this qualification is based on *Unit 8: Countryside Estate Maintenance* and takes the form of a practical demonstration of an outdoor maintenance duties project that requires learners to consider and select content that will enable them to apply their knowledge and skills from Units 1, 2, 3, 4, 5, 6 and 7 in an integrated way to a realistic work situation. For Unit 8, learners undertake practical selection, use and storage of tools and equipment to install and repair boundaries, surfaces and/or structures. This draws together underpinning knowledge of maintenance methods and techniques, along with the practical skills of repair and installation in different situations.

Learners approach their often outdoor estate maintenance duties project having completed study of key land-based working practices and essential plant and soil science in *Unit 1: Introduction to Working in Land-based Industries* and *Unit 2: Introduction to Plant and Soil Science*. They will utilise the skills of responding to estate habitat work and use of materials around the estate as developed in *Unit 4: Habitat Maintenance* as well as the practical skills needed to work with others around the estate through their learning from *Unit 5: Countryside Access and Recreation*, *Unit 6: Introduction to Game Management* and/or *Unit 7: Land-based Machinery Operations*. Learners' completion of real-life working, as required by *Unit 3: Countryside Work Placement*, means they will use the experience and understanding of working in and around an estate environment.

In delivering the unit, you need to encourage learners to draw on their broader learning so that they are prepared for the assessment.

Language of assessment

Assessment of the internally-assessed units for this qualification will be available in English. All learner work must be in English. A learner taking the qualification may be assessed in British Sign Language where it is permitted for the purpose of reasonable adjustment. For information on reasonable adjustments see *Section 7 Administrative arrangements*.

Grading of the qualification

Achievement in the qualification requires a demonstration of depth of study in each unit, assured acquisition of the practical skills required for employment in the specific sector and successful development of transferable skills.

Units are assessed using a grading scale of Distinction, Merit, Pass and Unclassified. All units in the qualification contribute proportionately to the overall qualification grade.

The qualification is graded using a scale of PP to DD. Please see *Section 9 Understanding the qualification grade* 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.

Employer involvement

Employer involvement in the delivery and/or assessment of technical qualifications provides a clear 'line of sight' to work, enriches learning, raises the credibility of the qualification in the eyes of employers, parents and learners, and furthers collaboration between the learning and skills sector and industry.

You need to ensure that all learners have the opportunity to undertake meaningful activity involving employers during their course.

Examples of 'meaningful activity' include:

- structured work experience or work placements that develop skills and knowledge relevant to the qualification/industry
- project(s), exercise(s) and/or assessment(s)/examination(s) set with input from industry practitioner(s)
- units delivered or co-delivered by an industry practitioner(s); this could take the form of masterclasses or guest lectures
- industry practitioners operating as 'expert witnesses' who contribute to the assessment of a learner's work of practice, operating within a specified assessment framework; this may be a specific project(s), exercise(s) or all assessments for a qualification.

Meaningful employer involvement, as defined above, must be with employers from the countryside sector and should contribute significantly to at least one mandatory unit.

For this qualification, the following unit has specified mandatory requirements for employer involvement in delivery and/or assessment:

- *Unit 3: Countryside Work Placement* – the assessment for this unit must take place in a real work environment. Learners must have a work placement to facilitate this assessment. Please see the unit for information on the requirements for work placement.

In all units we have also provided suggestions on how employers could become involved in the delivery and/or assessment of this qualification.

These are suggestions only and there will be other possibilities at local level. Centres may choose to use other approaches but must ensure that they meet the requirement for meaningful employer involvement as defined above. Centres must have an employer involvement plan in place at the start of the programme. It must detail their approach to employer involvement and how it will add value to the delivery and assessment of the qualification.

Each centre's approach to employer involvement will be monitored in two ways. It will be monitored at centre level as part of the annual quality-management review process and captured as part of the standards verification 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 also be monitored 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 that additional activities can be scheduled where necessary so that learners are not disadvantaged, see *Section 9 Quality assurance*.

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 internal unit in the specification is set out in a similar way. This section explains how the units work. It is important that all tutors, assessors, internal verifiers and other staff responsible for the programme read and are familiar with the information given in this section.

Internally-assessed units

Section	Explanation
Unit number	The number is in a sequence for the qualification.
Unit title	This is the formal title of the unit and appears on certificates.
Level	All units are at Level 2 on the national framework.
Unit type	This says if the unit is mandatory or optional for the qualification. See <i>Section 2 Qualification structure</i> for details.
Assessment type	This says how the unit is assessed – i.e. whether it is internal or synoptic internal. See <i>Section 2 Qualification structure</i> for details.
GLH	Units have a GLH value of 30 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 developing and demonstrating their skills or where they should be actively researching or reviewing.
Unit summary	This section helps tutors to see at a glance the main content areas against the learning aims and the structure of the assessment. 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 assessment criteria to explain the achievement required to obtain Pass, Merit and Distinction grades.
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. It is important that this is used carefully alongside the assessment criteria.
Assessment activity	This section provides information, suggested scenarios and tasks for summative assessment activities.
Further information for tutors and assessors	This section gives you information to support the delivery and assessment of the unit.
Delivery guidance	This section offers suggestions of ways of delivering the unit. It offers ideas on practical activities in a sector context that can be used to help develop relevant skills and to encourage progress.
Essential 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 <i>Section 10 Resources and support</i> .
Links to other units	This section shows you the main relationships of units to other units. This can help you to structure your programme and make the best use of available materials and resources.
Employer involvement	This section gives you information on the units that can be used to involve learners with employers. This information will help you to identify the kind of involvement that is likely to be successful.

Units

This section contains all the units developed for this qualification.

Unit 1: Introduction to Working in Land-based Industries	11
Unit 2: Introduction to Plant and Soil Science	25
Unit 3: Countryside Work Placement	39
Unit 4: Habitat Maintenance	51
Unit 5: Countryside Access and Recreation	63
Unit 6: Introduction to Game Management	75
Unit 7: Land-based Machinery Operations	87
Unit 8: Countryside Estate Maintenance	99

Unit 1: Introduction to Working in Land-based Industries

Level: **2**

Unit type: **Mandatory**

Assessment type: **Internal**

Guided learning hours: **60**

Unit in brief

In this unit, learners will develop their knowledge and understanding of factors that influence working practices within land-based industries.

Unit introduction

In this unit, you will learn about key job roles in land-based industries and the exciting activities these include. You will consider how laws and other important guidance ensure that working in land-based industries is safe and puts workers' needs first. You will look at how land-based industries can diversify by offering new products and services to the public and different ways in which land-based industries can increase their sustainability by reducing the impacts they have on the environment.

In this unit, you will learn about the professional behaviour and conduct to use when working in land-based industries and the health and safety legislation that affects the way we work within the land-based industries. In order to work at an operational level within these industries, it is essential you have the knowledge and understanding to apply safe and professional working to different situations.

The land-based industries are based on traditional occupations and in order to succeed in this area you need to be able to diversify to utilise opportunities, while also being considerate to the environment. You will learn about diversification and sustainability to give you the knowledge and understanding required for this and to enable you to work responsibly to protect the environment.

Learning aims

- A** Investigate working in the land-based sector
- B** Carry out safe working in the land-based sector
- C** Demonstrate responsible environmental working practices.

Unit summary

Learning aim	Key teaching areas	Summary of suggested assessment evidence
A Investigate working in the land-based sector	A1 Land use A2 Diversification in land-based Industries A3 Key job roles by industry	A written report including case studies Photographic/video evidence of learners carrying out land-based tasks in a safe and environmentally responsible manner, supported by observation records. Learners will also need to include reflections on safe and environmentally responsible working practices.
B Carry out safe working in the land-based sector	B1 Fundamentals of working safely B2 Working safely	
C Demonstrate responsible environmental working practices	C1 Waste Management C2 Sustainability C3 Environmental responsibilities	
Key teaching areas in this unit include:		
Sector skills	Knowledge	Transferable skills/behaviours
<ul style="list-style-type: none"> • Identification of land use types • Correct selection and use of tools, equipment, materials and PPE to ensure safe working 	<ul style="list-style-type: none"> • Health and Safety legislation • Waste management legislation and codes of practice 	<ul style="list-style-type: none"> • Developing practical and technical skills • Working with others • Problem solving • Self-management and development

Unit content

Knowledge and sector skills

Learning aim A: Investigate working in the land-based sector

A1 Land use

Understand the features and characteristics that influence land use.

- Land-based industries including: agriculture, horticulture, forestry and arboriculture, water supply, mineral extraction.
- The social, ecological and aesthetic use and values of the landscape, including:
 - managing landscapes
 - maintaining countryside character
 - preserving and protecting rural landscapes
 - reducing pollution
 - protecting wildlife
 - reducing flood risk
 - recreation, transport.

A2 Diversification in land-based industries

Purposes, advantages and disadvantages of diversification.

- Opportunities for land-based businesses:
 - sport and leisure, e.g. mountain biking, walking, hiking, climbing, paintballing, off-road vehicles, water sports, angling, golf, shooting, canine and equine activities
 - tourism, e.g. country houses and gardens, camping/glamping, farm parks, retail and food, tea shops, gift shops
 - energy production, e.g. biofuel, wind and solar farms
 - education, e.g. school activity holidays/centres, rural crafts, environmental awareness and
 - conservation strategies.
- Implementation of diversification:
 - planning considerations, e.g. access, impact on local services, aesthetic/environmental impacts
 - sources of funding, e.g. government schemes, commercial partnerships, private investment, charitable grants.

A3 Key job roles by industry

- Understanding the skills, qualifications, key responsibilities required, and career pathways and progression for different types of jobs, within the relevant land-based industry.
 - Agriculture, e.g. stock/herdsperson, farm worker, crop technician, machinery operator
 - Countryside, e.g. park ranger, education officer, estates officer, game keeper, water bailiff
 - Horticulture, e.g. greenkeeper, grounds person, nursery worker, garden centre assistant, gardener, landscaper
 - Forestry and Arboriculture, e.g. arborist, tree surgeon, ground maintenance operative, plant operator, forest craftsman.

Learning aim B: Carry out safe working in the land-based sector

B1 Fundamentals of working safely

Understand the essential principles of safe working in land-based environments and the extent to which care can be given in emergency scenarios.

- Working safely with machines, chemicals, livestock and equipment:
 - following policies and procedures
 - promoting safe working and healthy conditions
 - assessing risks
 - undertaking safety training.
- Appropriate actions, reporting procedures and legal responsibilities for accident and emergency situations:
 - lines of reporting (supervisor, manager, healthcare professional, emergency services)
 - common accident scenarios and their responses e.g. shock, cuts, bleeding, fracture, burns, poisoning, stings/bites, road traffic accident, severe allergies, tourniquets, splinting, large wounds)
 - initial and follow-up responses to chemical spills or ingestion, fire, disease outbreak, escape of livestock.
- Basic first-aid principles:
 - aims of first aid and how to apply it in different situations e.g. prevent further harm, relieve pain, promote recovery, protect the unconscious
 - legal limitations and implications of first aid
 - key contents of first-aid box e.g. bandages, dressings, surgical tape, cotton wool, towel, scissors, disposable gloves, tweezers; personal first-aid kit with large wound dressing.

B2 Working safely

Procedures and requirements for working safely while carrying out tasks, including relevant responsibilities of employers and employees when working in land-based industries.

- Responsibilities of employers and employees for maintaining health and safety including the role of the Health and Safety Executive.
- Current relevant legislation and codes of practice.
- Using risk assessments.
- Dynamic risk assessment while working.
- Additional risks associated working in the land-based sectors to include:
 - lone working
 - working near water
 - working with animals; animal health and their transport
 - slurry pits
 - farm machinery.
- Purpose, selection, pre-use checks and use of personal protective equipment (PPE) according to task including:
 - eye/face e.g. goggles, safety glasses, visor, full face shield
 - head e.g. full face shield, hard hat
 - ear protection e.g. earplugs, earmuffs
 - hand protection e.g. padded gloves, rubber gloves, heavy duty gloves, chainsaw gloves
 - protective clothing e.g. overalls, reflective safety clothing, chainsaw trousers, chemical resistant coveralls/aprons)

- protective footwear e.g. latex/rubber footwear, steel toe-capped boots, chainsaw boots
- respiratory protection, dust masks
- working at height safety equipment e.g. harnesses and ropes.
- Health and safety signs and symbols relevant to the UK including the UK Health and Safety Executive, International Organization for Standardization (ISO):
 - mandatory e.g. wear protective footwear, protective clothing, eye protection, hand protection, ear protection, head protection, face mask, respirator
 - prohibition e.g. no admittance to unauthorised personnel, not drinking water, do not run, do not enter, no naked flames
 - safe condition e.g. first aid, fire exit, emergency shower, emergency eye wash, emergency stop, disabled refuge point, assembly point
 - fire equipment e.g. fire alarm, fire hydrant, fire hose reel, fire extinguisher
 - warning e.g. general warning, electricity, hot surface.

Learning aim C: Demonstrate responsible environmental working practices

C1 Waste management

The main features, purpose and legislative requirements of waste management including:

- Principles of managing waste and the waste hierarchy and pyramid of recycling, including: disposal, energy from waste, 3 Rs – Reduce, Reuse, Recycle.
- Categories of controlled waste, including solid waste, liquid waste and hazardous waste e.g. asbestos, chemicals, batteries, solvents, pesticides, oils, clinical.
- Methods of dealing with different types of waste, for example use of colour coding or other methods of segregating.
- Recycling opportunities and activities:
 - composting of organic materials
 - irrigating using grey water
 - recycling of used plastic in the industry e.g. bale wrap, crop cover.
- UK Health and Safety Executive hazard pictograms relevant to waste management:
 - toxic material, oxidising material, hazardous to the environment, flammable materials, corrosive, irritant, explosive material, slippery surface.
- Current legislation regarding waste management e.g. use of waste management hierarchy, consideration of waste management options, declaration that waste management hierarchy has been considered including versions by UK country.
- Documents associated with waste management and disposal documents e.g. Duty of Care: Waste Transfer Notes, Hazardous Waste Consignment note, waste exemptions.
- Areas that require special care: Nitrate Vulnerable Zones (NVZs), groundwater Source Protection Zones (SPZs).

C2 Sustainability

Key principles of sustainability, benefits and disadvantages of utilising sustainable practices in land-based businesses.

- The 3 Ps of sustainability: people, planet, profit.
- Understanding 'carbon footprint' and carbon footprint assessment to:
 - reduce fuel consumption
 - conserve energy resources
 - facilitate carbon sequestration.
- Calculate basic carbon footprint/sequestration.

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- Financial, environmental, health and political benefits and disadvantages to adopting sustainable practices.
- Activities and practices that may increase sustainability and/or reduce reliance on natural resources:
 - solar and wind farms
 - production of biofuels
 - short rotation coppice, soil management
 - production forecasting and sustainable yield management in forestry
 - reductions and efficiencies in water, energy use, oil and fossil fuel use
 - organic farming.

C3 Environmental responsibilities

Potential and probable impacts of land use, land-based practices and mitigating actions to protect the environment.

- Intensive farming systems and responsible use of medications and chemicals.
- Forestry including use of exotic species, monoculture.
- Urban and transport network development, use of land for recreation.
- Causes and consequences of loss, fragmentation or removal of habitats:
 - boundary removal
 - introduction and spread of non-native invasive plant and animal species
 - food production
 - reduced biodiversity
 - wetland drainage.
- Advantages and disadvantages of adopting environmentally responsible practices.
- Use of Environmental Impact Assessments.

Transferable skills

Developing practical and technical skills

- Demonstrate techniques/skills/processes.
- Use equipment safely and appropriately.

Self-management and development

- Working in a professional environment.
- Planning own time.
- Reviewing own progress.
- Working under pressure to meet professional deadlines.
- Thinking skills/adaptability.

Working with others

- Listening and working as a team.

Problem solving

- Carrying out practical tasks.
- Identifying and choosing the right equipment.

Assessment criteria

Pass	Merit`	Distinction
Learning aim A: Investigate working in the land-based sector		
A.P1 Identify land use in a given context.	A.M1 Describe factors affecting land use and job roles in a given context.	A.D1 Evaluate land use and job roles in a given context.
A.P2 List job roles in land use in a given context.		
Learning aim B: Carry out safe working in the land-based sector		
B.P3 Carry out safe working practices when carrying out work in a land-based environment.	B.M2 Carry out and explain the reasons for safe working practices in a land-based environment.	B.D2 Carry out and assess the importance of safe working practices in a land-based environment.
Learning aim C: Demonstrate responsible environmental working practices		
C.P4 Carry out waste management practices to demonstrate some environmental awareness.	C.M3 Demonstrate and explain the reasons for environmentally responsible and sustainable working practices.	C.D3 Demonstrate and assess the importance of responsible environmental working practices on the environment.
C.P5 Outline sustainable and environmentally responsible working practices.		

Essential information for assessment decisions

Learning aim A

For distinction standard, learners will:

- use findings and own observation to comprehensively report on the features, characteristics and values, of different land uses and connected job roles within their chosen sector. Learners will cover a minimum of three specific land uses. They will include informed references to diversification for a minimum of three land-based industries in their chosen sector, citing advantages and disadvantages for each. They will justify the relationships between these land uses, related job roles and associated diversified activities by providing sound reasons and further possibilities for diversification in the land-based industries they are covering.

For merit standard, learners will:

- use findings and own observations to describe the features, characteristics and values, of different land uses and connected job roles within their chosen sector. They will cover a minimum of three specific land uses. Learners will include some references to diversification in a minimum of three land-based industries in their chosen sector. Learners will give some reasons for the relationships between these land uses, related job roles and associated activities.

For pass standard, learners will:

- use findings, own observations and research and provide a summary of the features, characteristics and values, of a minimum of three different land uses including for each an example of one appropriate job and one example of diversification within their chosen sector.

Learning aims B

For distinction standard, learners will:

- carry out three specified tasks safely, fully adhering to relevant safety legislation and procedures. They consistently ensure the health and safety of self and others. They routinely assess the risks before and while they are carrying out the work. They consistently check and use relevant personal protective equipment as the work requires. They determine the importance of safe working practices by justifying why they worked in this way and what would happen with non-adherence to safety.

For merit standard, learners will:

- carry out three specified tasks safely, adhering to relevant legislation and procedures, most of the time. They work in a safe manner to ensure safety of self and others most of the time. They check and use relevant personal protective equipment most of the time. They give reasons for safe working practices.

For pass standard, learners will:

- carry out three specified tasks. They work in a safe manner to ensure safety of self and others but may need prompting in order to do so. They use Personal protective equipment but may need prompting in selecting the relevant equipment.

Learning aims C

For distinction standard, learners will:

- adopt consistent, sustainable and environmentally responsible working practices. They always, dispose of waste safely and correctly, fully abiding to the principles, waste hierarchy and pyramid of recycling of waste management. They show full awareness of environmental responsibility while working, by taking mitigating actions to protect the environment. They determine the importance of environmental responsibility by justifying why they have worked in a certain way as well as the disadvantages to the environment should they not.

For merit standard, learners will:

- adopt sustainable and environmentally responsible working practices. They dispose of waste safely by abiding by the principles, waste hierarchy and pyramid of recycling of waste management most of the time. They show awareness of environmental responsibility most of the time, while working, by taking some actions to protect the environment. They determine the importance of environmental responsibility by justifying why they have worked in a certain way.

For pass standard, learners will:

- carry out the three tasks showing some concern for the sustainability and awareness for the environment. They dispose of waste showing some awareness of the principles, waste hierarchy and pyramid of recycling of waste management. They outline a minimum of three environmental working practices which may not be related to their tasks.

Assessment activity

The summative assessment activity takes place after learners have completed their formative development. The activity should be practical, be set in a realistic scenario and draw on learning from the unit, including the transferable skills. You will need to give learners a set period of time and number of hours in which to complete the activity. *Section 6* gives information on setting assignments and there is further information on our website.

A suggested structure for summative assessment is shown in the *Unit summary* section, along with suitable forms of evidence. This is for illustrative purposes only and can therefore be adapted to meet local needs or to assess across units where suitable opportunities exist. The information in the *Links to other units* section will be helpful in identifying opportunities for assessment across units.

The following scenario could be used produce the required evidence for this unit. Centres are free to use comparable scenarios or other forms of evidence provided that it meets the assessment requirements of the unit.

Suggested scenario

You are working in a land-based sector and have been asked to identify what the land usage and related jobs are and how this can be diversified for the land to be used more profitably. You have also be asked to carry out three tasks which you need to ensure you do safely. You need to ensure that you consider sustainable and environmental practices while carrying out your work.

If a retake is necessary, an alternative example must be used. The following is an example of a retake assessment activity.

Three different tasks within the land-based sector must be used.

Further information for tutors and assessors

Delivery guidance

The following are examples of practical activities and workshops that tutors could use when developing sector and transferable skills in the delivery of this unit. Wherever possible, practical activities should be used to help learners develop both personal and sector skills in preparation for the final assessment. These suggestions are not intended as a definitive guide to cover the full GLH of the unit.

Introduction to unit

Tutor introduces the main concepts contained within the unit through a series of presentations, class-based activities and practical work. Case studies should be used and visits or field work could be considered.

The main concepts to be covered are:

- Types of land use. Using photographs, land use maps and field work, learners explore the range of land use and their characteristics.
- The 'value' of landscapes, for example, social, economic, recreational.
- Job roles. Learners consider the job roles associated with types of land use. The job roles may be specific, for example, farm manager, countryside warden or general, for example, animal transport driver, agricultural surveyor. Learners would benefit from guest speakers in this respect.
- Diversification. Learners should consider how land use changes and the factors that influence this change. Diversification in response to economic, social and environmental factors should be considered.
- Sustainability and environmentally responsible practice. Learners should understand the need for promoting and adopting working practice and waste management strategies that are both sustainable and environmentally sound. Reference to global issues, for example, climate change, and local issue, for example, river pollution or flood alleviation, should be made.
- The need for learners to work safely – all the time - is essential and tutors must emphasise that this encompasses a wide range of responsibilities to self, other people, animals and the environment.

Suggested time: about 8 hours.

Activity: Exploring land use

Learners should use maps, research, visits and personal experience to investigate three specific land uses. The land chosen should reflect the learner's own interest and sector, (for example, forestry, horticulture, arboriculture, countryside management). At least one of the land uses chosen should reference diversification. Examples of land use might include:

- Mixed lowland farm
- Forest Park
- Upland sheep farm.

For each land use, learners should provide a case study that explores the characteristics of the land use, the job roles specifically associated with the land use, and examples of sustainable and environmentally responsible practice. For diversification learners could examine specific examples, for the actual use of farm buildings for holiday lets or the potential for diversification.

Suggested time: about 8 hours.

Activity: Working Safely

Learners should be introduced to the need to work safely. Case studies could be used to illustrate the consequences of unsafe working and the high occurrence of incidents in the land-based industries.

The legal framework needs to be examined using examples of sector relevant current legislation together with the need to understand employer and employee responsibilities.

Learners should understand the purpose and use of prepared risk assessments and the need to monitor safe working while undertaking tasks (dynamic risk assessment). Tutors should also consider creating scenarios where immediate first aid is required. These can be reinforced while undertaking practical tasks.

Suggested time: about 8 hours.

Activity: Working with Waste

Learners should, through classroom-based instruction and practical tasks, become familiar with current licensing/regulations relating to waste disposal and that they can undertake practical waste disposal that is fully compliant.

Suggested time: about 8 hours.

Activity: Working Sustainably

Through classroom instruction and practical tasks, learners should understand the need to manage resources and the advantages and disadvantages of adopting sustainable working practices.

Learners should explore, at a variety of scales, methods and technologies that reduce the reliance on natural resources. Examples to illustrate this could include, large offshore wind farms, short rotation coppicing, conversion of methane to bio fuels.

Learners should undertake basic carbon footprint calculations, sequestration potentials

Suggested time: about 8 hours.

Activity: Working Responsibly

Through classroom instruction and practical tasks, learners should understand the need to manage the environment responsibly. Learners could investigate sector specific threats and the measures taken to mitigate environmental loss or damage, developing case studies to illustrate. Learners should explore specific working practices that promote good environmental husbandry, for example:

- Scrub clearance to remove invasive plant species.
- Creation of flood alleviation dams on upland streams.
- Use of GIS (Geographic Information Systems) to target chemical applications on crops.

Suggested time: about 8 hours.

Activity: Practical Activities and Assessment

Tutors should ensure that learners undertake relevant, sector specific practical tasks to demonstrate they can:

- Work safely.
- Manage waste correctly.
- Adopt sustainable practices.
- Maintain good environmental standards.

Tutors could consider other areas of the programme that provide suitable learning and assessment opportunities, for example, work experience, practical units running concurrently.

Suggested time: about 14 hours.

UNIT 1: INTRODUCTION TO WORKING IN LAND-BASED INDUSTRIES

Essential resources

For this unit, learners will need access to

- Suitable tools, materials and equipment to carry out practical tasks.

Links to other units

This unit draws on the knowledge and skills taught in:

- Unit 3: Countryside Work Placement
- Unit 4: Habitat Maintenance
- Unit 5: Countryside Access and Recreation
- Unit 6: Introduction to Game Management
- Unit 7: Land-based Machinery Operations
- Unit 8: Countryside Estate Maintenance.

Employer involvement

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

- guest speakers
- design/ideas to contribute to unit assignment/case study/project materials
- work experience
- own business materials as exemplars
- support from local business staff as mentors.

Unit 2: Introduction to Plant and Soil Science

Level: **2**

Unit type: **Mandatory**

Assessment type: **Internal**

Guided learning hours: **60**

Unit in brief

Learners develop skills and knowledge to understand the importance of plant and soil science when working in land-based sectors.

Unit introduction

Plants really are amazing; they supply the oxygen we breathe, provide us with food and resources and enhance our beautiful landscapes over many years. Having a clear understanding of how plants grow, what they need to stay healthy and the role soil plays in their success is essential when working in any of the land-based sectors.

In this unit, you will learn just how amazing plants are and what they need to survive. You will explore internal structures of plants from cells to transport systems and external plant structures including stems, roots, leaves and flowers, looking at their functions and characteristics. You will also investigate soil types, texture, structure, pH, nutrients and care.

Whether you decide to gain employment in agriculture, horticulture, countryside, forestry and arboriculture or continue your study on to a level three qualification, understanding plant processes and soil requirements will be a huge advantage to your next steps.

Learning aims

- A** Investigate plant structure, growth and development
- B** Investigate plant life cycles and adaptations to the environment
- C** Investigate soil characteristics and effects on plant health.

Unit summary

Learning aim	Key teaching areas	Summary of suggested assessment evidence
<p>A Investigate plant structure, growth and development</p>	<p>A1 Plant structure A2 Plant processes</p>	<p>The learners will build a portfolio of evidence from working with given plant species and soil from a specified area, supplemented by practical laboratory work and/or producing models of cell structure.</p>
<p>B Investigate plant life cycles and adaptations to the environment</p>	<p>B1 Plant growth and development B2 Plant adaptations and modifications</p>	
<p>C Investigate soil characteristics and effects on plant health</p>	<p>C1 Soil characteristics C2 Soil textures and structure of cells C3 Soil water, PH and nutrients C4 Soil care</p>	
<p>Key teaching areas in this unit include:</p>		
Sector skills	Knowledge	Transferable skills/behaviours
<ul style="list-style-type: none"> • Soil and plant testing • Experiment skills • Machinery and tool operation • Health and safety 	<ul style="list-style-type: none"> • Reliability of data recorded • Plant structures and functions • Soil types, texture and structure 	<ul style="list-style-type: none"> • Communication • Working with others • Thinking skills/adaptability • Problem solving • Management of information • Self-management and development

Unit content

Knowledge and sector skills

- Working safely – operating machinery and tools with due regard for safety of self and others.

Learning aim A: Investigate plant structure, growth and development

A1 Plant structures

Features of the plant and their location within the plant structure to develop understanding of how plants grow and develop and how the growth patterns can then be manipulated. Internal and external parts of plants, where they can be found, and their functions.

- Cell structures, key features of plant cells and identification of organelles:
 - cell wall, cell membrane, nucleus, vacuole, cytoplasm, mitochondria, chloroplasts
 - reproduction of cells, cell division, process of mitosis and meiosis and where these take place.
- Internal parts of plants, location, functions and characteristics:
 - xylem
 - phloem
 - cambium
 - experiments to determine the role of the vascular bundle.
- External parts of plants, characteristics, function and component parts:
 - roots e.g. root cap, root hairs, primary root, lateral roots, intake of water and minerals, anchorage
 - shoots: tropisms, e.g. geotropism, phototropism
 - stems: structure, growth, strength, nodes, leaf buds
 - leaves: simple, compound, needles, scales, lamina, stoma, guard cells, veins, petiole
 - flowers: types, including: angiosperms, gymnosperms; pollination methods, e.g. wind pollinated, insect pollinated, water pollinated; inflorescence types, e.g. petals, tepals, sepals, male organs: microstrobili, stamen, anther and filament, female organs: ovary, stigma, style, macrostrobili.

A2 Plant processes

Plant processes, the factors that affect and influence their rates, and how each of these affect plant growth and development.

- Photosynthesis:
 - equation for process, (CO₂ to produce glucose and oxygen)
 - how plant canopies optimise the interception of sunlight
 - required factors e.g. water, carbon dioxide and light
 - limiting factors, e.g. light intensity, carbon dioxide concentration and temperature.
- Respiration:
 - equation for process
 - optimum conditions for respiration to take place
 - limiting factors, e.g. waterlogged soils, temperature, carbon dioxide concentration.
- Transportation, role of the vascular bundles that include:
 - xylem – moves water and minerals from roots upwards
 - phloem – moves glucose throughout the plant
 - transpiration – role of stomata in exhaling water evaporation.

UNIT 2: INTRODUCTION TO PLANT AND SOIL SCIENCE

- Diffusion:
 - definition of movement of molecules in and out of cells.
- Osmosis:
 - definition of movement of water through semi-permeable membranes.

Learning aim B: Investigate plant life cycles and adaptations to the environment

B1 Plant growth and development

Discovering how plants, trees and crops grow and reproduce, with reference to their life cycles and key terminology.

- Plant and crop types and life cycles, e.g. ephemeral, annual, biennial, herbaceous perennial, perennial; evergreens and deciduous plants.
- Planting times linked to plant types.
- Plant and crop features relevant to the industry and location, e.g. conifers and forestry:
 - monocotyledon characteristics: roots, foliage, stem and flower
 - dicotyledon characteristics: roots, foliage, stem and flower
 - gymnosperm, roots, foliage, stem and flower.
- Flower and crop structures, roles and processes:
 - parts of the seed: e.g. cones, microstrobilie, microsporophylls, megasporophyll, megasporangium, testa, cotyledons, epicotyl, plumule, hypocotyl, radicle.
- Germination testing e.g. percentage germination, seed viability, seed health
 - types of pollination and characteristics: self-pollination, cross-pollination, wind pollination, insect pollination
 - process of fertilisation, seed and fruit production
 - seed dispersal: animals, insects, wind, rain, environmental changes and temperature, reasons for dispersal, dormancy
 - types of germination: epigeal, hypogeal.
- Woody perennials e.g. trees, shrubs and hedgerows features and structures, roles and processes:
 - structure to include: inner/outer bark, cambium, sapwood, heartwood
 - growth processes in branch, trunk, roots, including function of apical meristem, vascular meristem/cambium, xylem/phloem
 - extent and process of root growth
 - tree ring analysis to determine structure and variation in growth rates due to differentiation in species, damage, obstruction and seasonal/climatic differences.
- Asexual and vegetative reproduction:
 - meristems, cell division, formation of roots
 - underground storage organs, e.g. rhizomes, bulbs, corms, tubers, tap roots.

B2 Plant adaptations and modifications

How plants, trees and crops adapt to their environment and modify component parts for survival and growth, to ensure healthy plant growth.

- Optimum conditions for healthy plants, taking into account:
 - Topography: aspect
 - exposure to elements e.g. sun, wind, and rain
 - spacing requirements for plants, trees and crops
 - threats to growth from pests and diseases.
- Role of plant parts in adapting to changes in environment e.g. roots, stem, leaves.

- Environmental conditions affecting adaptations and modifications:
 - arid
 - wetland
 - tropical
 - woodland
 - effects of temperature.
- Plant modifications in different environmental conditions: e.g. roots for climbing or storage, leaves, shoots and stems: succulents, spines, tendrils, thorns for protection and scrambling.

Learning aim C: Investigate soil characteristics and effects on plant health

C1 Soil formation, weathering and erosion

Process of soil formation, soil components and soil erosion.

- Soil formation and weathering:
 - parent rock and minerals – igneous, sedimentary, metamorphic, silica, silicates
 - organic matter, decaying plant material, humus, animal matter, animal life, micro-organisms, water, air.
- Soil pit.
- Components of soil e.g.; air, aggregates; organic matter; water.
- Processes of soil weathering e.g.; physical, chemical and biological processes.
- Soil erosion and movement:
 - water, wind, steep slopes, tillage
 - terracettes, rills and gullies, tilting of fence posts, exposed roots, wind-borne particles.

C2 Texture and structure of soils

Recognising soil type by identifying characteristics of texture and structure and how human and environmental activities can impact on growth and development.

- Soil types e.g. sand, silt, clay, aggregate size.
- Soil texture:
 - proportions of sand, silt, and clay.
- Soil characteristics affected by texture:
 - drainage, particle size, colour, nutrients, how it feels, fertility.
- Soil structure: blocky, angular, platy
 - soil profiles, horizons and organic matter.
- Human and environmental influences on soil structure that affect plant growth and development:
 - identify compaction by machinery, use of penetrometer
 - crop rotation and cultivation techniques, effects of cultivation
 - poor drainage
 - weather conditions
 - low nutrient content
 - surrounding mature trees.

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C3 Soil water, pH and nutrients

The importance of water in soil, water-holding capacity and its availability to plants and crops, including interpretation of visual evidence and experiments.

- Water availability in soils: percolation, infiltration, water content:
 - saturation point – gravitational water
 - field capacity – capillary water
 - permanent wilting point – hygroscopic water
 - removal of soil water: drainage, ditch and pond clearance
 - visual signs of water accumulation in field.
- Soil pH:
 - importance of soil pH on plant health and root growth
 - the soil pH scale and how to test soil pH, e.g. test kits, soil probe, laboratory analysis
 - reliability and validity of pH testing
 - effects of varying pH levels e.g. stunted growth, distorted foliage and discoloured foliage
 - how to manage and control levels of pH.
- Soil nutrients:
 - the roles of major plant nutrients: nitrogen (N), phosphorus (P), potassium (K), calcium (Ca), magnesium (Mg), sulphur (S)
 - micro plant nutrients: boron (B), chlorine (Cl), copper (Cu), iron (Fe), manganese (Mn), molybdenum (Mo), zinc (Zn)
 - interpreting nutritional information e.g.; fertiliser bags, soil analysis results
 - recognising and managing nutrient deficiencies of major and secondary plant nutrients.

C4 Soil care

The importance of soil care and management to improve soil texture, structure and plant health.

- Management of soil erosion:
 - monitor growth and development of plants in the field.
- Benefits of crop rotation e.g. improving soil erosion, use of cover crops, companion plants, mulching.
- Methods of reducing compaction
 - establishing shelter belts, planting hedgerows.
- Improvement of soil texture and structure:
 - mulching
 - incorporation of organic material e.g. straw
 - breaking-up of a compaction
 - cultivation methods.
- Management of soil nutrients with fertiliser:
 - how and why fertilisers are used in soil care.
- Interpreting nutritional information e.g.; fertiliser bags, soil analysis results.
- Types of fertiliser e.g. straights, compounds liquid, suspensions, prills, granules, slow release, and availability to plants:
 - organic fertilisers e.g. compost and leaf mulch, green manure and farmyard manures
 - inorganic (synthetic) fertilisers e.g. nitrogen, phosphorus, potassium, iron, sulphate of ammonia, sulphate of potash, iron sulphate NH_4NO_3 , Muriate of Potash, Triple Super Phosphate.

- Soil mapping to determine fertiliser application rates.
- Common soil problems and how these are managed:
 - poor drainage and waterlogging
 - drought
 - nutrient deficiency.

Transferable skills

Preparing for work

- Research skills – locating relevant information and presenting in a suitable manner
- Working in a team – sharing responsibilities, gathering and sharing information.

Developing practical and technical skills

- Managing information – gathering detail for a purpose and recording accordingly, health and safety regulations.

Assessment criteria

Pass	Merit	Distinction
Learning aim A: Investigate plant structure, growth and development		
A.P1 Identify the cell structures of specified plants.	A.M1 Explain how plant cell structures, and internal and external characteristics of plants influence processing for nutrition and respiration.	A.D1 Analyse how plant cell structures, internal and external characteristics influence how plants meet their nutrition and respiratory requirements.
A.P2 Outline the internal and external characteristics and components of specified plants.		
A.P3 Outline the processes plants use, to meet nutritional and respiratory requirements.		
Learning aim B: Investigate plant life cycles and adaptations to the environment		
B.P4 Explore the growth and development of specified plants.	B.M2 Explain the growth and development of specified healthy plants and how plants adapt to their environments.	B.D2 Assess how growth and development of healthy plants are dependent on environmental factors.
B.P5 Outline how specified plants adapt to environmental conditions.		
Learning aim C: Investigate soil characteristics and effects on plant health		
C.P6 Carry out tests to determine given soil characteristics, water availability, PH and nutrients.	C.M3 Explain the effects that soil characteristics have on specified plants' health and this can be improved.	C.D3 Evaluate the relationship between soil characteristics and care and health of a specified plant.
C.P7 Outline how to improve soil texture and structure for a specified plants' health.		

Essential information for assessment decisions

Learning aim A

For distinction standard, learners will:

- provide thorough, clearly labelled, annotated and accurate diagrams of cell structures and internal and external parts of plants, including flowers. They discuss all the plant processes for nutrition and respiration comprehensively, explaining in detail how and where these take place. Learners discuss at least two limiting factors of the processes and make suggestions on how to overcome these. They provide accurate details on how plants transport nutrients and water. Learners consistently use correct biological names. They show clear links between the processes and the cell structures and internal and external parts of plants.

For merit standard, learners will:

- provide annotated labelled diagrams of cell structures and, internal and external parts of plants, including flowers. They explain most of the plant processes and how and where these take place. Learners give detail on at least two limiting factors of the processes. They explain how plants transport nutrition and water. Learners use correct biological names most of the time. They show some links between the processes and the cell structures and internal and external parts of plants.

For pass standard, learners will:

- present outline labelled diagrams of cell structures and, internal and external parts of plants, including flowers. They summarise the plant processes and how and where these take place but may only cover two processes. Learners provide at least one limiting factor of the processes. They summarise how plants transport nutrition and water. They use limited biological names but may not always be relevant to the structure or part of the plant. Learners may make some links between the processes and the cell structures and internal and external parts of plants but these may not always be clear.

Learning aim B

For distinction standard, learners will:

- provide accurate comprehensive detail on the plant type and how its life style affects planting times. They explain germination by providing either an accurate fully annotated illustration or accurate details on the development and growth processes for specified plants/trees/crops. Learners clearly distinguish between the development and growth processes showing full understanding of the differences between the two, by providing valid and accurate examples. They explain in detail all the optimum conditions for the development of healthy specified plants/crops/trees. They provide clear examples of environmental conditions affecting the plant/crop/tree growth, clearly explaining why it is important to choose the correct conditions for the particular plant/crop/tree. They provide relevant examples of how plants adapt to environments by modifying themselves e.g. thorns, scrambling.

For merit standard, learners will:

- provide mostly accurate details on the plant type and how its life style affects planting times. They describe germination by providing either an annotated illustration or details on the development and growth processes for specified plants/trees/crops most of the time. Learners distinguish between the development and growth processes, showing some understanding of the differences between the two by using examples. They describe at least two the optimum conditions for the development of healthy specified plants/crops/trees. They provide some examples of environmental conditions affecting the plant/crop/tree growth. They give at least two reasons why it is important to choose the correct conditions for the particular plant/crop/tree. They provide at least two examples of how plants adapt to environments by modifying themselves e.g. thorns, scrambling.

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For pass standard, learners will:

- explore a species of plant/crop/tree and outline the plant type and when the most conducive planting times are. They outline the germination process by providing either a basic annotated illustration or a summary on the development and growth processes for specified plants/trees/crops. Learners show some understanding of the differences between the development and growth processes. They outline a minimum of two optimum conditions for the development healthy specified plants/crops/trees. They provide at least one example of an environmental condition affecting the plant/crop/tree growth. They provide at least one example of how plants adapt to environments by modifying themselves e.g. thorns, scrambling.

Learning aim C

For distinction standard, learners will:

- accurately determine all the characteristics of the soil. They will describe the texture and structure, water availability/absorbency, PH and nutrients, by providing accurate examples of each. Learners will make valid recommendations for soil improvement to accommodate the given plant/crops/trees health, providing valid and well thought out ideas. This could be in the context of maintaining soil fertility optimising the yield of a crop or reducing the fertility of any area to establish a community of flowers to enhance biodiversity.

For merit standard, learners will:

- determine most of the characteristics of soil from the tests they conduct. They will describe the texture and structure, water availability/absorbency, PH and nutrients, by providing examples for most of them. Learners will show that they understand how the soil accommodates the given plant/crops/trees health by providing some examples. They make some recommendations on how the soil can be improved.

For pass standard, learners will:

- carry out simple tests to determine soil texture, structure, including checking for compaction, and pH for a given site. They will provide a list of the findings for at least three characteristics e.g. soil type, components, texture and structure, drainage, water availability, PH and nutrient value. They will be able to state why they are carrying out or recommending the actions undertaken.
- provide at least two ways that soil texture, structure and plant health could be improved.

Assessment activity

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The following scenario could be used to produce the required evidence for this unit. Centres are free to use comparable scenarios or other forms of evidence provided that they meet the assessment requirements of the unit.

Suggested scenario

You are working on a farm which also has a small horticultural nursery as well as an established woodland. The farm would like to develop the range of crops they are growing as well as introduce some new species to the woodland. You need to gather a portfolio of evidence on plant growth and development and carry out practical assessments to understand the soil type. Your work will include developing an understanding the structure of plants and how each part functions to ensure good plant growth. You will need to collect the soil and complete a series of soil tests to determine the soils characteristics. You would then make recommendations on how to improve the soil for better plant health.

If a retake is necessary, an alternative example must be used. The following is an example of a retake assessment activity.

Use of different species and soil within the portfolio.

Further information for tutors and assessors

Delivery guidance

The following are examples of practical activities and workshops that tutors could use when developing sector and transferable skills in the delivery of this unit. Wherever possible, practical activities should be used to help learners develop both personal and sector skills in preparation for the final assessment. These suggestions are not intended as a definitive guide to cover the full GLH of the unit.

Introduction to unit

Covered by lectures, tutor led discussions and presentations to explain what the unit content contains, how it will be delivered and assessed. Assessment of prior knowledge to ascertain a start point for all learners. An induction to laboratory procedures may be necessary as will covering the health and safety aspect of this unit including handling of soils.

Suggested time: about 4 hours.

Activity: Plant practical sessions

Tutor led visits/practical activities to identify a range of plants and crops. This can take place in the field, nursery or woodland depending on the resources available. Group discussions on the types of plants seen and their growth patterns. Learners will carry out germination testing to support theory; learners can research nutritional disorders of plants as well as see examples that occur in plants and crops growing in the fields. Learners will use knowledge gained from other units to develop awareness of when and where crops and plants should be grown.

Suggested time: about 15 hours.

Activity: Plant experiments

Tutor led experiments to develop knowledge on cell structure, plant processes e.g. photosynthesis, respiration and transpiration. Learners can create a slide of a plant cell and look at this under the microscope and draw the findings. Recording and reflecting on evidence to contribute to assessment.

Suggested time: about 10 hours.

Activity: Soil practical sessions

Learners will access an area which can be cultivated offering the chance to see the benefits of cultivation on different soil types. Carry out cultivation operations to improve soils using a range of hand-held tools or machinery to identify the changes made to the soil structure. Observe visual signs of compaction through use of a penetrometer and record findings. Tutor led visit to observe drainage being carried out to prevent water stress.

Suggested time: about 15 hours.

Activity: Soil experiments

Tutor led laboratory / in field practical sessions to conduct soil tests working in small groups to carry out pH of soil. They can carry out a visual appraisal of soil type, texture and structure through a tutor led practical.

Suggested time: about 8 hours.

Essential resources

For this unit, learners will need access to

- A range of plants, woody perennials and crops.
- Simple laboratory equipment suitable to test soil, and plants.

Links to other units

This unit draws on the knowledge and skills taught in:

- Unit 4: Machinery Operations in Agriculture
- Unit 7: Crop Production.

This unit has strong links to:

- Unit 1: Introduction to working in land-based industries
- Unit 3: Agriculture Work Placement.

Employer involvement

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

- guest speakers
- practical sessions
- visits to local science laboratories to observe soil/ plant testing
- design/ideas to contribute to unit assignment/case study/project materials
- work experience
- own business materials as exemplars
- support from local business staff as mentors.

Unit 3: Countryside Work Placement

Level: **2**

Unit type: **Mandatory**

Assessment type: **Internal**

Guided learning hours: **60**

Unit in brief

Learners develop skills and behaviours required for successful working in the countryside sector.

Unit introduction

Do you think you can work well in the countryside sector? Work placement gives a unique insight into working life and is extremely important in helping you to work out the exact area in which you might want to work – as well as in what job role. Added to that, it also gives you the opportunity to learn and try out new skills in communication and teamwork, all of which will enhance your curriculum vitae (CV).

In this unit you will learn new skills and experience, hands-on, and what it is like to apply this learning to the countryside sector. You will have the time to develop these skills, enabling you to perform confidently and to a high standard, and apply them in a working environment. You will look for, and take part in, a work placement which is, ideally, in a countryside industry that appeals to you. Talking to, listening to and watching those in the industry is the best way of truly learning about the work involved and what is required of an employee.

This unit will give you the fundamental work skills needed to apply for and gain employment as a countryside worker. The unit includes 75 hours of real-life work experience.

Learning aims

In this unit you will:

- A** Investigate and apply for a countryside work placement
- B** Demonstrate work skills relevant to a countryside work placement
- C** Review own countryside work placement.

Unit summary

Learning aim	Key teaching areas	Summary of suggested assessment evidence
A Investigate and apply for a countryside work placement	A1 Investigating a work placement A2 Applying for a work placement	A portfolio of work-related research and completed application documents evidenced by observation records or video evidence.
B Demonstrate work skills relevant to a countryside work placement	B1 Professional behaviours B2 Communication skills B3 Safe working around the estate	A work placement report supported by: <ul style="list-style-type: none"> • observation records/witness statements • video and/or photographic evidence of all practical activities • reported evidence of appropriate work skills and hours.
C Review own countryside work placement	C1 Review work placement C2 Self-development and areas for improvement	Written evidence of review, reflection and self-development/areas for improvement.

Key teaching areas in this unit include:

Sector skills	Knowledge	Transferable skills/behaviours
<ul style="list-style-type: none"> • Job searching • Work research/application processes • Workplace behaviour/techniques • Work skills 	<ul style="list-style-type: none"> • Effective teamwork • Effective communication • Self-development 	<ul style="list-style-type: none"> • Communication • Problem solving • Self-management and development • Thinking skills/adaptability • Working with others

Unit content

Knowledge and sector skills

Learning aim A: Investigate and apply for a countryside work placement

A1 Investigating a work placement

- Work search resources, e.g. industry magazines, newspapers, internet job sites, social media, local advertisements.
- Documents:
 - job advertisement
 - job/role description
 - essential and desirable personal requirements
 - using these documents in an appropriate way.
- Identifying skills required to work in the sector, e.g. interpersonal skills, communication, technical knowledge, practical skills.

A2 Applying for a work placement

- Different methods of applying, e.g. application forms, CVs, covering letters, online applications, telephone enquiries, applying in person.
- How and where to find work application information, e.g. from human resources (HR) departments, company/organisation websites, job websites, local and national information sources, media, employment agencies.
- Job research: paying attention to all details of the job application so that nothing relevant is left out, ordering different types of information in a logical manner in the application document, checking whether or not to include supporting documents, e.g. work permits, certificates, personal identification, using personal statements to create positive impression of skills and interests.

Learning aim B: Demonstrate work skills relevant to a countryside work placement

B1 Professional behaviours

- Working environment skills: appropriate attendance, appropriate personal presentation, positive attitude (appropriate demeanour, use of own initiative).
- Time management, including arriving at work on time, completing tasks in allocated time, e.g. checking crop growth or reporting to supervisors.
- Administrative skills, e.g. maintaining records, using email/phone, using workplace documents, using electronic equipment.
- Problem solving, e.g. finding alternative solution to problems, using technology to work more efficiently.
- Working with others, e.g. team briefing, completing maintenance and practical tasks, handling, communicating and implementing changes.
- Appreciation of others' needs and points of view, respecting equality laws/social diversity in the workplace.

UNIT 3: COUNTRYSIDE WORK PLACEMENT

B2 Communication skills

- Interpersonal skills, including appropriate speaking and listening skills.
- Use of appropriate and professional language.
- Use of initiative/asking for advice if unsure.
- Ability to receive and follow instructions.
- Interacting with visitors and staff appropriately.
- Communicating tasks completed.

B3 Safe working around the estate

- Safe working following protocols, following other work placement policies and procedures.
- Working within legal/good practice frameworks, e.g. Health and Safety at Work etc. Act 1974, Control of Substances Hazardous to Health (COSHH) Regulations 2002 etc.
- Use of personal protective equipment (PPE).
- Safe handling procedures.
- Safe working with tools and equipment.
- Risk assessment.

Learning aim C: Review own countryside work placement

C1 Review work placement

- SWOT (strengths, weaknesses, opportunities and threats) relating to work placement.
- Identifying what went well and what did not go so well, including time taken to complete tasks, interaction with supervisors/managers, how well tasks were completed, factors taken into account when working outdoors.
- Using feedback from employers when evaluating performance.

C2 Self-development and areas for improvement

- Self-development:
 - identifying own training and development needs, e.g. skills audit
 - meeting/discussion with supervisor
 - review and reflection.
- Areas for improvement: based on own reflection, assessment (and feedback from others, if appropriate), e.g. get feedback and suggestions from all team members before deciding on solution to problem in the team task.

Transferable skills

Communication

- Verbal, written and face-to-face communication with colleagues and tutors.
- Applying for placements in appropriate formats.
- Reviewing own performance.
- Reading feedback from employers.
- Speaking to customers/clients.

Problem solving

- Solving customers' problems.
- Carrying out practical tasks.
- Identifying and choosing the right equipment.

Self-management and development

- Reviewing own performance after a placement.
- Identifying areas for improvement.
- Creating personal action plans for development.

Thinking skills/adaptability

- Tackling job advertisements.
- Using information and relating own skills.
- Identifying own skills and areas for improvement.

Working with others

- Working with individuals or teams while on work placement.

Assessment criteria

Pass	Merit	Distinction
Learning aim A: Investigate and apply for a countryside work placement		
A.P1 Demonstrate appropriate investigation for a work placement.	A.M1 Demonstrate effective use of search and application documents for a work placement.	A.D1 Justify work placement search and application activities carried out, recommending improvements.
A.P2 Use appropriate application skills for a work placement.		
Learning aim B: Demonstrate work skills relevant to a countryside work placement		
B.P3 Demonstrate adequate use of communication skills and practices during own work placement.	B.M2 Demonstrate appropriate use of work skills and practices, working effectively with others during the work placement.	B.D2 Demonstrate confident use of work skills and practices, working confidently with others to achieve effective outcomes during the work placement.
B.P4 Demonstrate adequate behaviours during the work placement.		
Learning aim C: Review own countryside work placement		
C.P5 Describe own tasks and activities carried out during own work placement.	C.M3 Describe own performance during tasks and activities carried out, using relevant examples to demonstrate strengths and areas for improvement.	C.D3 Explain own performance, using examples to identify strengths, areas for improvement and appropriate training and self-development needs in response to feedback from others.
C.P6 Identify own strengths and areas for improvement during a work placement.		

Essential information for assessment decisions

Learning aim A

For distinction standard, learners will:

- show understanding of their own limitations during a work application process and of how their work application skills could be improved moving forward
- provide evidence of their suitability for the work placement in question.

For merit standard, learners will:

- use skills to provide an appropriate and developed CV and letter of application for a suitable work placement.

For pass standard, learners will:

(Note: application for, as opposed to securing, a work placement is the focus of assessment for pass.)

- use work searching skills to locate two appropriate work advertisements and job descriptions
- use work-searching skills to find one potential countryside work placement
- use skills to apply for a relevant work placement
- provide a CV and completed application form for a work placement
- demonstrate acceptable use of spelling, grammar and word sense.

Learning aims B and C

It is a requirement that all learners complete 75 hours of valid work placement in an external setting. This must be in addition to the 60 guided learning hours required for delivery of this unit. Work placement need not be limited to one provider, however work placement in agricultural working environments run by, and/or on the site of, the centre are not appropriate. Suggested evidence records for the work placement can found on the Pearson website.

For distinction standard, learners will:

- show evidence of consistently appropriate personal presentation and positive attitude during work placement
- show evidence of excellent time-management and problem-solving skills
- need little, if any, intervention by supervisor(s)
- demonstrate effective working with others in the work placement and have full appreciation of others and different points of view
- show effective safe working consistently
- show clear awareness of strengths and areas for improvement and development, with reference to examples of working practice and behaviour
- show clear understanding of how feedback from others can shape self-development needs constructively.

UNIT 3: COUNTRYSIDE WORK PLACEMENT

For merit standard, learners will:

- show evidence of appropriate personal presentation and positive attitude during work placement
- show evidence of appropriate time management and problem solving skills
- need some intervention by supervisor(s)
- demonstrate working appropriately with others in the work placement and have some appreciation of others and different points of view
- show effective safe working in and around agricultural environments
- show awareness of strengths and areas for improvement with reference to examples of working practice and behaviour
- provide reflective information on how they could benefit from training and development, justified in relation to their own career aspirations, using feedback from others.

For pass standard, learners will:

- evidence adequate use of professional behaviours, communication skills and safe working skills as listed in the unit content
- require much intervention from supervisor(s)
- provide information on the tasks and work activities they carried out, their strengths, areas for improvement and how they worked in respect of legal rights and responsibilities, as detailed in unit content
- include evidence of interpersonal and communication skills, time management and teamwork.

Assessment activity

The summative assessment activity takes place after learners have completed their formative development. The activity should be practical, be set in a realistic scenario and draw on learning from the unit, including the transferable skills. You will need to give learners a set period of time and number of hours in which to complete the activity. *Section 6* gives information on setting assignments and there is further information on our website.

A suggested structure for summative assessment is shown in the *Unit summary* section, along with suitable forms of evidence. This is for illustrative purposes only and can therefore be adapted to meet local needs or to assess across units where suitable opportunities exist. The information in the *Links to other units* section will be helpful in identifying opportunities for assessment across units.

Learners should look for a work placement in a working environment appropriate to the countryside sector and investigate the steps involved in applying for a placement and how this could be improved. Once on a work placement, each learner will show that they have the appropriate skills and behaviours that an employer would expect. When the placement is completed, learners will review their experience and consider appropriate training and development they could take advantage of. Learners need to take account of feedback received from others, for example workplace supervisors and tutors.

Further information for tutors and assessors

Delivery guidance

The following are examples of practical activities and workshops that tutors could use when developing sector and transferable skills in the delivery of this unit. Wherever possible, practical activities should be used to help learners develop both personal and sector skills in preparation for the final assessment. These suggestions are not intended as a definitive guide to cover the full GLH of the unit.

<p>Introduction to unit Poster making; work skills and behaviours for employment in the countryside sector. Suggested time: about 4 hours.</p>
<p>Activity: Job applications Small group work/teamwork on scenario-based projects, searching for, and applying for jobs of interest in the industry sector. Suggested time: about 8 hours.</p>
<p>Activity: Developing skills Holding scenario-based group meetings, such as recruitment within a sector business, to develop communication and team working skills. Suggested time: about 4 hours.</p>
<p>Activity: Developing other working skills and behaviours Role play developing other working skills and behaviours in varying scenarios. Suggested time: about 3 hours.</p>
<p>Activity: Reviewing performance Work placement review of own performance. Suggested time: about 4 hours.</p>

Essential resources

For this unit, learners must have access to:

- a suitable site(s) for work placement
- appropriate transport to suitable sites (centres may need to organise)
- first-aid facilities and appropriately trained staff (wherever practical activities are undertaken).

Links to other units

This unit has strong links to:

- Unit 1: Introduction to Working in Land-based Industries
- Unit 2: Introduction to Plant and Soil Science
- Unit 7: Land-based Machinery Operations
- Unit 8: Countryside Estate Maintenance.

Employer involvement

This unit requires employer involvement in the form of fit-for-purpose work placements.

Delivery of this unit would benefit from employer involvement in the form of:

- guest speakers
- design/ideas to contribute to unit assignment/case study/project materials
- work experience
- own business materials as exemplars
- support from local business staff as mentors.

Unit 4: Habitat Maintenance

Level: **2**

Unit type: **Mandatory**

Assessment type: **Internal**

Guided learning hours: **60**

Unit in brief

Learners will study UK habitats and develop their practical and research skills to plan and carry out habitat maintenance.

Unit introduction

Habitats in the UK are rarely, if ever, natural. They are maintained by people, often volunteers, for commercial, conservation or recreation purposes. Without this maintenance, habitats would lose their unique characteristics, and many plant and animal species would disappear.

In this unit, you will develop the practical and planning skills needed to maintain habitats. You will carry out tasks that can improve public access, encourage plant and animal species, and promote biodiversity. The practical work that you carry out will require you to develop your research skills. You will also develop your problem-solving and teamwork skills to maintain habitats safely and efficiently.

This unit is essential for those wanting to work in habitat conservation. The combination of practical and research skills will help you develop solutions that will allow habitats to thrive, meeting the needs of plants and animals, industry, and people wanting to enjoy the outdoors. It offers a good insight into the work of ecologists, countryside managers and environmentalists.

Learning aims

In this unit you will:

- A** Understand habitat maintenance for the purpose of countryside management
- B** Plan tasks for the purpose of habitat maintenance
- C** Undertake practical tasks to maintain habitats.

Unit summary

Learning aim	Key teaching areas	Summary of suggested assessment evidence
A Understand habitat maintenance for the purpose of countryside management	A1 Types of habitat and their key characteristics A2 Reasons for habitat maintenance A3 The scope and purpose of habitat-maintenance tasks	Evidence could include: <ul style="list-style-type: none"> • logbooks/blogs • witness/observation records • specifications • reports • maps/plans/sketches/diagrams.
B Plan tasks for the purpose of habitat maintenance	B1 Using habitat survey findings to plan tasks B2 Tools, materials and equipment for habitat maintenance	
C Undertake practical tasks to maintain habitats	C1 Working safely C2 Carrying out habitat-maintenance tasks C3 Reviewing habitat-maintenance tasks	
Key teaching areas in this unit include:		
Sector skills	Knowledge	Transferable skills/behaviours
<ul style="list-style-type: none"> • Interpreting survey plans • Tools, materials and equipment selection, and their use for habitat maintenance • Drawing up and/or working to habitat-maintenance specifications 	<ul style="list-style-type: none"> • UK habitats and their characteristics • Habitat-maintenance tasks 	<ul style="list-style-type: none"> • Working with others • Managing information • Thinking skills/adaptability and problem solving

Unit content

Knowledge and sector skills

Learning aim A: Understand habitat maintenance for the purpose of countryside management

Learners will explore the distribution and key characteristics of UK habitats, the reasons for and scope of tasks concerned with habitat maintenance.

A1 Types of habitat and their key characteristics

- Major UK habitats, including:
 - terrestrial, for example:
 - woodlands
 - moorland, heathland and grassland
 - mountains
 - aquatic, for example:
 - intertidal
 - marine
 - lakes, ponds, rivers.

A2 Reasons for habitat maintenance

- Conservation, including the protection of plant and animal species, for example ancient semi-natural woodland, stag beetles, dormice, English bluebells.
- Amenity and recreation, for example forest trails, coastal footpaths.
- Commercial, e.g. coppicing wood products, freshwater fisheries, marine fishing.
- Sustainability, e.g. forest stewardship, fishing quotas.

A3 The scope and purpose of habitat-maintenance tasks

- Tree works, including removal, pruning, coppicing and thinning in order to maintain plant health.
- Scrub removal, including brush cutting and strimming to improve public access.
- Removal of non-native invasive plant species to improve natural biodiversity, e.g. Spanish bluebells, rhododendron and Japanese knotweed.
- Removal of non-native animal species, for example grey squirrels, American mink, and signal crayfish, in order to protect native species.
- Hedging and fencing, to prevent human and animal access to ecologically sensitive areas.
- Drainage and ditch clearance to reduce waterlogging.
- Wildlife installation measures, for example nesting boxes to promote biodiversity.
- Stiles, signage and information boards to inform and assist public access.

Learning aim B: Plan tasks for the purpose of habitat maintenance

Learners will develop skills in planning the tasks to maintain habitats in response to habitat surveys.

B1 Using given habitat survey findings to plan tasks

- Research habitat species to identify specific habitat-maintenance tasks, for example researching stag beetles to build a 'hotel' (refuge).
- Identify non-species (or general) related tasks, e.g. improving access, signage.
- Drawing up specifications for habitat tasks, to include:
 - overview of task
 - purpose of task
 - location
 - timescale for task completion
 - tools, equipment, materials
 - sequencing of tasks
 - scheduling, including taking account of seasonality, e.g. avoiding nesting season.
- Justifying tasks:
 - relating tasks to the needs of plant and animal species
 - relating tasks to improving public access.

B2 Tools, materials and equipment for habitat maintenance

Learners are required to select the appropriate tools, materials and equipment needed for the tasks identified for habitat maintenance.

- Tools:
 - hand tools, e.g. loppers, bow saw, billhook, pond rakes
 - power tools, e.g. brush cutter, strimmer, drill, chainsaw.
- Materials:
 - fencing materials, e.g. posts, wire, mesh, staples, nails
 - surface materials, e.g. woodchip, aggregate, grass, artificial compounds
 - construction materials, e.g. wood, concrete
 - coatings and finishes, e.g. paints, preservatives, varnishes.
- Equipment:
 - power units, chippers, winches, ATVs
 - ropes, nets, warning signs.
- Checking tools, materials and equipment for safe and efficient use:
 - inspection/adjustment of tools, e.g. sharpening
 - security of containers, e.g. paint
 - suitability of materials, e.g. correct size and condition of wood
 - fuels and fluids, e.g. chainsaw fuel and chain oil
 - operator checks on power units.

Learning aim C: Undertake practical tasks to maintain habitats

Learners will carry out appropriate habitat-maintenance tasks and review outcomes.

C1 Working safely

- Risk assessing tasks, including before and during task completion.
- Health and safety legislation, including use of personal protective equipment (PPE), Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) 2013, Control of Substances Hazardous to Health (COSHH) Regulations 2002.
- Safe manual handling.
- Wildlife licensing.
- Minimising environmental impacts during task completion.

C2 Carrying out habitat-maintenance tasks

- Transport of tools, equipment and materials.
- Preparation of a safe working area.
- Using tools, equipment and materials safely, correctly and efficiently.
- Working to a standard.
- Monitoring progress, e.g. risk assessing, problem solving.
- Minimising environmental impacts.
- Safe and correct disposal of waste.

C3 Reviewing habitat-maintenance tasks

- Assessing completed task against the specification.
- Reviewing the process of task completion.
- Identifying improvements.

Transferable skills**Working with others**

- Working with others to carry out practical habitat maintenance.

Managing information

- Using research, fieldwork and survey information to plan habitat-maintenance tasks.

Thinking skills/adaptability and problem solving

- Using skills to identify and overcome problems that occur while carrying out practical tasks.

Assessment criteria

Pass	Merit	Distinction	
Learning aim A: Understand habitat maintenance for the purpose of countryside management			
A.P1 Identify UK habitats and their key characteristics.	A.M1 Describe the range of tasks used to maintain UK habitats, with reference to the purpose and outcomes.	A.D1 Explain the range of tasks used to maintain UK habitats, clearly justifying the purpose, general and specific outcomes.	
A.P2 Describe the tasks used to maintain UK habitats and give reasons for each.			
Learning aim B: Plan tasks for the purpose of habitat maintenance			
B.P3 Carry out a basic habitat investigation and maintenance planning for UK habitats.	B.M2 Demonstrate effective use of survey findings and own research when investigating and maintenance planning for UK habitats.	B.D2 Carry out relevant practical tasks in response to planned activities, demonstrating confident use of tools, materials and equipment needed for the maintenance of specific terrestrial and aquatic habitats, assessing outcomes and justifying improvements.	
B.P4 Select tools, materials and equipment for maintenance tasks.			
Learning aim C: Undertake practical tasks to maintain habitats			
C.P5 Carry out basic practical habitat maintenance for UK habitats.	C.M3 Carry out practical habitat maintenance effectively for UK habitats with competent use of tools, materials and equipment.		
C.P6 Carry out a basic review of habitat-maintenance tasks undertaken.	C.M4 Carry out effective assessment and a review of practical tasks with reference to a plan, suggesting areas for improvement.		

Essential information for assessment decisions

Learning aim A

For distinction standard, learners will:

- use findings, own observations and research to provide in-depth evidence on how environmental characteristics are indicative of different habitats. This is done in relation to three terrestrial habitats and one aquatic habitat. Gives evidence that is fully justified with valid reasoning
- produce comprehensive information on key habitat-maintenance tasks, relating them to intended outcomes that include general outcomes, for example improving public access, and specified outcomes for named animal or plant species. They will give reasons for their choices.

For merit standard, learners will:

- use findings, own observations and research to provide evidence in some detail on the signs that indicate three terrestrial habitats and one aquatic habitat
- produce detailed information on key habitat-maintenance tasks for major UK terrestrial and aquatic habitats, relating them to the purpose of the task and expected outcomes.

For pass standard, learners will:

- produce basic information on the key characteristics of the major UK habitats
- produce basic information on two maintenance tasks relevant to a terrestrial and an aquatic UK habitat, and reasons for their maintenance.

Learning aims B and C

For distinction standard, learners will:

- use survey findings, their own observations and research to plan habitat-maintenance tasks for a specified and located terrestrial habitat, and a specified and located aquatic habitat, with minimal assistance. Planning will include health and safety considerations, environmental impacts, the correct selection of tools, equipment and materials and the production of specifications or other instruction sets detailing the tasks
- review task progress and outcomes of habitat-maintenance tasks they have carried out, giving well-reasoned explanations. They will identify and justify improvements to both the process of task completion and task outcomes.

For merit standard, learners will:

- use survey findings, own observations and research to plan two habitat-maintenance tasks each for a selected terrestrial habitat and a selected aquatic habitat, with some assistance
- give reasons for their decisions and choices of tools, equipment and materials
- carry out two practical habitat-maintenance tasks with some assistance for a specified and located terrestrial habitat and a specified and located aquatic habitat
- minimise negative environmental impacts and dispose of waste according to regulations
- discuss the tasks completed, justifying improvements.

For pass standard, learners will:

- use survey findings and their own research to identify and plan two habitat-maintenance tasks for a selected terrestrial habitat and two for a selected aquatic habitat, with assistance
- correctly select appropriate tools, equipment and materials needed to carry out tasks
- carry out two practical habitat-maintenance tasks each for a specified and located terrestrial habitat and a specified and located aquatic habitat, with assistance
- avoid negative environmental impacts, and dispose of waste according to regulations
- consider the tasks completed, identifying few improvements.

Assessment activity

The summative assessment activity takes place after learners have completed their formative development. The activity should be practical, be set in a realistic scenario and draw on learning from the unit, including the transferable skills. You will need to give learners a set period of time and number of hours in which to complete the activity. *Section 6* gives information on setting assignments and there is further information on our website.

A suggested structure for summative assessment is shown in the *Unit summary* section, along with suitable forms of evidence. This is for illustrative purposes only and can therefore be adapted to meet local needs or to assess across units where suitable opportunities exist. The information in the *Links to other units* section will be helpful in identifying opportunities for assessment across units.

The following scenario could be used to produce the required evidence for this unit. Centres are free to use comparable scenarios or other forms of evidence, provided that they meet the assessment requirements of the unit.

Suggested scenario

You are part of a team of volunteer conservationists tasked with maintaining a popular beauty spot that includes chalk downland, with areas of ancient semi-natural woodland interspersed with hazel and chestnut coppice. There is a small stream flowing through the area with a cascade of large and small ponds.

The area is well known for its bluebells, and also contains several endangered animal species, including stag beetles and dormice.

Detailed ecological surveys have been carried out by the county ecologist, working with a local university.

Your team will carry out a variety of tasks to promote public access, maintain the natural habitats, and encourage key species. In particular, your aims will be to:

- maintain the public paths, signs and information boards
- improve habitats to encourage stag beetles and dormice
- maintain the flow of water through the cascade of ponds
- remove invasive Spanish bluebells.

You will need to ensure that maintenance is planned and carried out where it is most needed, and explain to the other volunteers and members of the public the need for the maintenance, and how it will help achieve your aims. To help you do this you will need to use:

- ecological surveys
- your own fieldwork
- your own research on specific plants, animals and habitats.

You will need to work with other volunteers to carry out the tasks, and in addition you will need to review the tasks to see if they have been achieved and if any improvements could be made to them.

You will need to also provide a factsheet for volunteers and members of the public that describes the characteristics of the habitats, the work being carried out and what you are trying to achieve.

If a retake is necessary, an alternative example must be used. The following is an example of a retake assessment activity.

Learners will carry out similar tasks for different species/habitats.

Further information for tutors and assessors

Delivery guidance

The following are examples of practical activities and workshops that tutors could use when developing sector and transferable skills in the delivery of this unit. Wherever possible, practical activities should be used to help learners develop both personal and sector skills in preparation for the final assessment. These suggestions are not intended as a definitive guide to cover the full GLH of the unit.

Introduction to unit

Learners are introduced to the unit through practical activities that require them to investigate habitats in the field. They should look at a variety of habitats, including aquatic and terrestrial. Two key areas for teaching include:

- the nature and characteristics of the habitats
- opportunities that exist for habitat maintenance.

Learners would find it useful to pin their practical experience to particular species, as this will guide them to particular maintenance tasks. For example:

- where stag beetles are found
- where Spanish and English bluebells are found
- where hazel coppicing takes place.

Suggested time: about 6 hours.

Activity: The art of habitat maintenance

Learners need to understand the variety of UK habitats and their maintenance needs, bearing in mind there are few, if any habitats that do not exist without human intervention. Exploring this should take place through a combination of the following.

- Practical habitat investigations:
 - practical investigations will help learners identify habitat characteristics, recognise species and understand what maintenance is required and how this should be targeted towards specific purposes.
- Classroom-based knowledge:
 - this should add the breadth and depth to learners' practical investigations. Concepts not easily explained in the field should be explored.
- Individual research related to the needs of particular species:
 - individual research should focus on good-quality sources that relate habitat maintenance to specific plants and animals. This will encourage learners to develop tasks that address specific habitat needs in addition to more general needs.

Suggested time: about 8 hours.

Activity: Planning habitat maintenance – 1

The most useful experience learners can gain is through working alongside professionals engaged in habitat maintenance. There are many organisations that would welcome learners and the involvement of centres. Care must be taken to ensure learners gain a variety of experiences that should include:

- interpreting surveys to determine practical tasks
- organising tasks
- developing and using risk assessments
- safe and efficient use of tools, materials and equipment
- environmental awareness.

Suggested time: about 8 hours.

Activity: Planning habitat maintenance – 2

Practical experience gained by learners needs to be shaped into specific plans for both a terrestrial and an aquatic habitat. The end result will be specifications drawn up by learners for a variety of tasks, underpinned by sound research.

This will probably take place through classroom teaching and tutorials, to work with individuals as they develop their skills at drawing up specifications.

The specifications will be working documents that will guide all aspects of the work to be carried out. In addition, learners should be able to produce reports that justify the work identified and described through the specifications. Learners will need to understand that unless habitat maintenance is supported by sound research and scientific principles, habitats can be harmed. Investigating invasive species will help reinforce this.

Suggested time: about 8 hours.

Activity: Carrying out habitat maintenance

Learners should gain practical experience of carrying out habitat maintenance. Again, this can be achieved effectively through working alongside volunteer groups, giving learners a variety of experiences, including:

- selection and transport of tools, equipment and materials
- preparing the work area
- experience of handling and using a variety of tools
- safe working practices, including lone working and working near water
- problem solving
- minimising environmental impacts
- clearing the work area and disposal of waste.

Learners should develop the habit of keeping a logbook, blog or other record of the tasks they carry out, and these can be used for formative assessment.

Learners will need to gain experience of different habitats and, for assessment purposes, need to explore aquatic and terrestrial habitats. Examples could include:

- aquatic:
 - clearing ponds
 - building dipping platforms
 - removing invasive crayfish from rivers (under licence)
- terrestrial
 - coppicing hazel
 - installing bird boxes
 - clearing woodland 'rides'.

Learners will need to practise reviewing the work carried out, and relating outcomes to intended aims. For example:

- improving access
- encouraging specific plants/animals
- removing invasive species.

Suggested time: about 12 hours.

Essential resources

For this unit, learners will need access to:

- a variety of UK habitats that includes both terrestrial and aquatic ecosystems
- tools, equipment and materials suitable for habitat-maintenance tasks
- survey findings of the study area(s).

Links to other units

This unit has strong links to:

- Unit 1: Introduction to Working in Land-based Industries
- Unit 2: Introduction to Plant and Soil Science
- Unit 3: Countryside Work Placement
- Unit 5: Countryside Access and Recreation
- Unit 6: Introduction to Game Management
- Unit 7: Land-based Machinery Operations
- Unit 8: Countryside Estate Maintenance.

Employer involvement

Delivery of this unit would benefit from employer involvement in the form of:

- guest speakers and practitioners
- work experience, in particular placements with conservation organisations.

Unit 5: Countryside Access and Recreation

Level: **2**

Unit type: **Optional**

Assessment type: **Internal**

Guided learning hours: **30**

Unit in brief

Learners will develop their skills in countryside access and recreation, exploring how the countryside is used and protected.

Unit introduction

In this unit, you will learn about the reasons people visit the countryside and why rural recreation is becoming increasingly popular. You will learn about the activities that the countryside offers and the impacts that visitors can have on the countryside. You will explore organisations and laws that promote and protect the countryside. With this, you will produce countryside access planning and an itinerary for a successful countryside activity for a chosen site.

Do you know the types of places you can visit in the countryside and the activities that are on offer? From active sports, like mountain biking to more relaxed activities such as birdwatching, recreational use of the countryside is growing and attracts different types of people from all walks of life. If you plan to work in countryside management, you need to know why access and recreation are important as well as the impacts that these have on the countryside.

The knowledge and skills you gain in this unit can be applied to a range of countryside worker job roles, for example a countryside tourism officer, coastal officer, park ranger, conservation officer, woodland manager, farm park officer, project officer, recreation and tourism officer, and roles in organisations such as the Royal Society for the Protection of Birds (RSPB) and the National Trust.

Learning aims

In this unit you will:

- A** Explore countryside recreation and its impacts
- B** Explore how the countryside can be promoted and protected
- C** Carry out countryside access planning for a countryside visit.

Unit summary

Learning aim	Key teaching areas	Summary of suggested assessment evidence
A Explore countryside recreation and its impacts	A1 Reasons why people visit the countryside A2 Factors responsible for increased use of the countryside A3 Impacts of countryside access and recreation	Written report, verbal presentation supported by text and images. Survey results with authenticated photographic evidence of the site and research notes.
B Explore how the countryside can be promoted and protected	B1 Types of countryside sites and activities that may be offered B2 How legislation can protect the countryside B3 How organisations can promote the countryside	
C Carry out countryside access planning for a countryside visit	C1 Visiting, researching and surveying a countryside site C2 Reviewing ways to limit negative impacts of visitors C2 Producing a plan and itinerary for a selected countryside site visit	Plan and itinerary that includes relevant factors. Information leaflet for visitors that shows how they can limit any negative impact during their visit.
Key teaching areas in this unit include:		
Sector skills	Knowledge	Transferable skills/behaviours
<ul style="list-style-type: none"> • Countryside management • Record keeping and report writing • Project planning • Surveying • Production of visitor information 	<ul style="list-style-type: none"> • Range of countryside venues and activities • Types of visitors to the countryside • Impacts of countryside recreation • Legislation protecting the countryside 	<ul style="list-style-type: none"> • Problem solving and communication • Managing information • Self-management and development

Unit content

Knowledge and sector skills

Learning aim A: Explore countryside recreation and its impacts

A1 Reasons why people visit the countryside

- Sporting and wellbeing activities, e.g. running/jogging, hiking, dog walking, horse riding, biking, skiing, golf, fishing.
- Adventure pursuits, e.g. caving, rock climbing, mountaineering.
- Nature-focused activities, e.g. birdwatching, badger watching, wildlife photography, wildlife studies, study/experience of the natural world.
- Trips and holidays, e.g. cycling, camping, picnicking, barbecuing, caravanning.
- Vehicle-based activities, e.g. off-roading, car rallying, green laning, motocross, quad biking.

A2 Factors responsible for increased use of the countryside

- Demographics, e.g. early retirement, greater life expectancy and awareness, healthy living, city/urban populations wanting to escape to the countryside.
- Land use and accessibility, e.g. improvements in roads and accessibility, increase in areas of land available for access, increase in farms open to visitors (farm parks).

A3 Impacts of countryside access and recreation

- Positive impacts
 - benefits to local economy, e.g. job creation and opportunities offered at countryside sites and local areas
 - infrastructure improvement as access improved
 - increased income for local services and transport links
 - benefits to visitor attractions in the countryside due to increased visitor revenue
 - health benefits of countryside activities
 - positive feedback effect as increased visitor usage leads to support for conservation of countryside sites.
- Negative impacts:
 - environmental threats, e.g. damage/disturbance of wildlife and habitats
 - high footfall causing damage to paths
 - congestion and pollution at popular sites
 - criminal usage, e.g. fly-tipping, littering, vandalism, dog fouling
 - conflict over land usage, e.g. farmland adjacent to countryside, pressure from developers.

Learning aim B: Explore how the countryside can be promoted and protected

B1 Types of countryside sites and activities that may be offered

- World Heritage Sites, e.g. National Parks, Jurassic coast, land and coastal nature reserves, ancient woodlands.
- Nature reserves:
 - birdwatching, wildlife studies
 - walking, hiking, orienteering
 - picnicking
 - horse riding (if permitted).
- Lakes and reservoirs:
 - watersports, birdwatching
 - walking, hiking.
- Parks:
 - walking, running/jogging, cycling, picnicking, bonfires/barbecuing, if permitted.
- Wildfowl & Wetlands Trust (WWT) and Royal Society for the Protection of Birds (RSPB) reserves:
 - birdwatching, wildlife watching, nature trails, guided tours.
- Natural heritage countryside attractions:
 - farm parks – domestic animal care and feeding, interaction, education
 - wildlife parks – animal watching, interaction, education
 - National Trust/English Heritage sites – walking, picnicking, education.
- Countryside sport venues:
 - golf courses
 - horse riding and trekking centres.
- Vehicle-based countryside attractions:
 - 4×4 tracks for off-roading and green laning
 - quad bike venues.

B2 How legislation can protect the countryside

- Current relevant acts, e.g. National Parks and Access to the Countryside Act 1949, Countryside Act 1968, Marine and Coastal Access Act 2009, Countryside and Rights of Way (CROW) 2000, Commons Act 2006, Natural Environment and Rural Communities Act 2006, Hunting Act 2004.
- Relevant codes of practice, e.g. the Countryside Code.
- Relevant byelaws, e.g. Tunbridge Wells Borough Council (Kent) byelaw for the protection of the nature reserve at Barnett's Wood.

B3 How organisations can promote the countryside

- Department for Environment, Food and Rural Affairs (Defra).
- Environment Agency.
- The Forestry Commission.
- Natural England.
- Royal Society for the Protection of Birds (RSPB).
- Others, e.g. Countryside Alliance, British Waterways, the Canal & River Trust, the Wildfowl & Wetlands Trust, wildlife and safari parks, farm parks, rare breeds centres, local councils, local charitable organisations, volunteer groups.

Learning aim C: Carry out countryside access planning for a countryside visit

Developing the skills to survey countryside sites in order to plan and organise activities which attract visitors.

C1 Visiting, researching and surveying a countryside site

- Research and survey a selected countryside site:
 - reason for visit
 - visitor profile (leisure, educational, commercial, age)
 - facilities
 - costs.
- Survey of site:
 - initial environmental conditions
 - overall condition of site, e.g. signs of visitor impact
 - means of access to site
 - visitors (numbers, behaviours, typical lengths of stay).

C2 Reviewing ways to limit negative impacts of visitors

- Numbers of visitors and expected footfall:
 - litter
 - erosion
 - congestion
 - pollution
 - wildlife and habitat disturbance.
- Measures to limit impacts, e.g. controlled/timed entry to the site, increased entry fees, guided tours, educational leaflets/talks, restricted areas, sturdy trails, birdwatching hides, clear signage and interpretation, plenty of litter bins.

C3 Producing a plan and itinerary for a selected countryside site visit

- Plan and itinerary should show how factors above have been considered and incorporated.
- Presentation in suitable formats for visitors.

Transferable skills

Problem solving and communication

- Determining and meeting visitor needs, effectively communicating to visitors to ensure successful visit with limited negative impact to the site.

Managing information

- Using information from own research and survey to produce a visit plan and itinerary.

Self-management and development

- Development of skills in planning a countryside visit that balances demands of the visitor with conservation of the countryside venue.

Assessment criteria

Pass	Merit	Distinction
Learning aim A: Explore countryside recreation and its impacts		
A.P1 Identify reasons for countryside visits.	A.M1 Describe reasons why people visit the countryside, including their positive and negative impacts.	A.D1 Explain factors that attract people to the countryside and how increasing popularity can bring positive and negative impacts.
A.P2 Identify positive and negative effects of visitors on the countryside.		
Learning aim B: Explore how the countryside can be promoted and protected		
B.P3 Identify types of countryside sites, activities and facilities.	B.M2 Describe how positive use of the countryside is promoted through legislation and organisations with reference to contrasting countryside sites, activities and facilities.	B.D2 Explain how positive use of the countryside is promoted through legislation and organisations with reference to contrasting countryside sites, activities and facilities.
B.P4 Describe the effectiveness of countryside protection through legislation and regulation.		
B.P5 Describe the effectiveness of countryside promotion by organisations.		
Learning aim C: Carry out countryside access planning for a countryside visit		
C.P6 Undertake limited countryside surveying relating to access and facilities.	C.M3 Undertake countryside surveying, describing access, facilities planned and some ways to measure visitor impacts.	C.D3 Undertake detailed countryside surveying, justifying access and facilities planned and measuring most visitor impacts.
C.P7 Carry out basic itinerary planning for a countryside visit.		

Essential information for assessment decisions

Learning aim A

For distinction standard, learners will:

- use findings, own observations and research to provide in-depth evidence on the reasons why people visit the countryside linked to sporting, nature-related, adventure and holiday pursuits
- give fully justified evidence, with valid reasoning, as to the short- and long-term impacts of visitors on rural areas, with full reference to changes in demographics and changes in land use.

For merit standard, learners will:

- use findings, own observations and research to provide descriptive information in some detail on why people visit the countryside linked to sporting, nature-related, adventure and holiday pursuits
- produce descriptive information in some detail on the reasons for and the short- and long-term impacts of visitors on rural areas, with some relation to demographics and changes in land use.

For pass standard, learners will:

- produce simplistic indicative points on draws of the countryside linked to sporting, nature-related, adventure and holiday pursuits
- produce basic information on indicative factors related to the obvious impacts of visitors on rural areas.

Learning aim B

For distinction standard, learners will:

- produce in-depth information comparing and contrasting three free and three paid-for types of countryside site in terms of the activities and facilities offered
- produce in-depth information that assesses how three acts of legislation and two different organisations encourage the positive use of the countryside through promotion and education.

For merit standard, learners will:

- describe the use of three free and three paid-for types of countryside site that draw visitors and provide detailed information on some of the facilities and activities on offer
- produce detailed information on how three legislative acts, the Countryside Code and one localised byelaw provide protection for countryside areas
- produce detailed information on how the purposes and roles of two different organisations promote use of the countryside.

For pass standard, learners will:

- identify three free and three paid-for types of countryside site that draw visitors and provide information on a few of the facilities and activities on offer. Evidence relies largely on online research with limited first-hand research
- produce some information on how three legislative acts, the Countryside Code and one localised byelaw provide protection for countryside areas
- produce some information on how the purposes and roles of two different organisations promote use of the countryside.

UNIT 5: COUNTRYSIDE ACCESS AND RECREATION

Learning aim C

For distinction standard, learners will:

- carry out a comprehensive survey of a selected countryside site that provides in-depth information on all features, detailing most potential negative impacts of visitors on the condition of the site
- produce a detailed plan, itinerary and visitor information for the chosen site, providing information on how these meet the outcomes of the survey, minimise negative impacts and meet the needs of two different visitor types to the site. This will include detailed research of site, costs, length of stay, facilities and activities.

For merit standard, learners will:

- carry out an appropriate survey of a selected countryside site that provides information on the features, identifying some potential negative impacts of visitors to the site. The survey will provide information on access routes and facilities available
- produce an appropriate plan and itinerary for a visit to the chosen site, providing information on how potential negative impacts can be minimised and how the visit will meet the needs of two different visitor types.

For pass standard, learners will:

- carry out a basic survey of a selected countryside site that gives a general overview of the condition and environment of the site, identifying few potential negative impacts of visitors to the site. The survey notes access routes to the site and facilities available with gaps
- produce a basic plan and itinerary for a specific visit to the selected site that meets the needs of two different visitor types.

Assessment activity

The summative assessment activity takes place after learners have completed their formative development. The activity should be practical, be set in a realistic scenario and draw on learning from the unit, including the transferable skills. You will need to give learners a set period of time and number of hours in which to complete the activity. *Section 6* gives information on setting assignments and there is further information on our website.

A suggested structure for summative assessment is shown in the *Unit summary* section, along with suitable forms of evidence. This is for illustrative purposes only and can therefore be adapted to meet local needs or to assess across units where suitable opportunities exist. The information in the *Links to other units* section will be helpful in identifying opportunities for assessment across units.

The following scenario could be used to produce the required evidence for this unit. Centres are free to use comparable scenarios or other forms of evidence, provided that they meet the assessment requirements of the unit.

Suggested scenario

You have been employed as an assistant to a countryside ranger at a popular nature reserve in an ancient woodland. The reserve is popular because it has very good facilities and offers many activities, such as birdwatching, walking, cycling, horseback riding and picnicking. You have been asked to give a pre-visit introductory talk to Year 8 pupils (12–13-year-olds) who will be visiting the reserve with their school. Your talk should cover your job role, activities and facilities offered, typical visitor impacts that are managed, and how organisation and legislation affect the reserve. The school wants you to produce a plan and itinerary for the visit that includes a self-guided tour to ensure the visit will have minimal negative impacts on the reserve.

If a retake is necessary, an alternative example must be used. The following is an example of a retake assessment activity.

As above but at a different countryside site, for example a coastal reserve or lake that offers water sports.

Further information for tutors and assessors

Delivery guidance

The following are examples of practical activities and workshops that tutors could use when developing sector and transferable skills in the delivery of this unit. Wherever possible, practical activities should be used to help learners develop both personal and sector skills in preparation for the final assessment. These suggestions are not intended as a definitive guide to cover the full GLH of the unit.

Introduction to unit

Tutor-led discussion on countryside recreation and access that reviews the reasons people visit the countryside and the types of impact (positive and negative) that countryside recreation/tourism has. Discussion around the factors that have increased the use of the countryside and how this increased use has impacts on the countryside (positive and negative). Discussion on legislation created to protect countryside sites.

Learners research a variety of countryside sites assessing their popularity and activities offered, visitor types and the impacts visitors have on the sites they have researched.

Suggested time: about 4 hours.

Activity: Visiting countryside sites

Tutor-led visit to two different types of countryside sites to allow comparison, for example attractions with entry fees such as a farm park, safari park or trekking centre versus a site with free access such as a National Park (New Forest) or nature reserve/woodlands (Blean Woods National Nature Reserve). If rangers or education/tourism officers are available at the sites, they should be booked to give talks either before the visits take place or at the sites. Learners will be able to study the activities/facilities at the sites and the impact of visitors on the sites, noting visitor behaviour and numbers. These visits would be followed by a reflective session that compares and contrasts the two sites, taking into consideration the above factors.

Suggested time: about 9 hours.

Activity: Countryside organisations

Tutor-led introduction to the organisations that actively support the countryside. This would be further supported by guest speakers from and visits to those organisations that manage local reserves and centres, for example the RSPB, the Woodland Trust, the Wildfowl & Wetlands Trust (WWT), local wildlife trusts and by learner attendance at events and workshops, if offered.

Learners work in groups to research specific organisations and then present the information to the class using suitable media, for example presentation software, posters, photographs.

Suggested time: about 7 hours.

Activity: Survey a countryside site

Learners will survey a chosen countryside site. They will include in their survey the general overview of the condition and environment of the site, identify any negative impacts of visitors to the site, for example trail degradation, litter, wildlife or plant disturbance. The survey should note access to the site and facilities available at the site, for example signage, litter bins. They will also note the types of visitors and their activities and behaviour at the sites, as well as visitor numbers.

Suggested time: about 5 hours.

Activity: Plan a countryside visit

After undertaking the survey, learners will produce a plan, itinerary and visitor information for the chosen countryside site. They will consider how the information they produce meets the outcomes of their survey, and reduces any negative visitor impacts they noted during their survey. They will also consider how their plan, itinerary and information meet the demands of visitors to the site.

Suggested time: about 5 hours.

UNIT 5: COUNTRYSIDE ACCESS AND RECREATION**Essential resources**

For this unit, learners will need access to at least two contrasting countryside sites where recreation is undertaken.

Links to other units

This unit has strong links to:

- Unit 1: Introduction to Working in Land-based Industries
- Unit 2: Introduction to Plant and Soil Science
- Unit 3: Countryside Work Placement
- Unit 4: Habitat Maintenance
- Unit 6: Introduction to Game Management
- Unit 7: Land-based Machinery Operations
- Unit 8: Countryside Estate Maintenance.

Employer involvement

Delivery of this unit would benefit from employer involvement in the form of:

- the development of links with countryside recreational sites local to the centre
- guest speakers from local countryside sites and organisations such as countryside or coastal rangers, education officers, woodland managers etc.
- work experience/volunteering at a local countryside site, for example farm park, nature reserve, RSPB reserve.

Unit 6: Introduction to Game Management

Level: **2**

Unit type: **Optional**

Assessment type: **Internal**

Guided learning hours: **30**

Unit in brief

Learners will study the theoretical, legislative and practical aspects of game management in the UK, including the different game species that can be found and how habitats are managed to benefit them.

Unit introduction

The game industry in the UK is ever increasing in size and popularity, and it is an important component of UK land-based industries. The shooting industry contributes significantly to the UK economy. Heather moorland habitats are so important for grouse shooting that they are often seen as rarer than rainforests, and deer management provides many jobs just in Scotland alone.

In this unit, you will have a broad introduction to the game-management industry of the land-based sector. By using communication skills and working effectively with colleagues, you will have a chance to experience practical real-life scenarios, from day-to-day tasks through to organised shoot days, and you will develop the skills required to manage game and provide good sporting opportunities. You will gain knowledge of UK game species, and learn the techniques used to manage and protect the habitats they live in.

On completion of this unit, you will have the knowledge and skills necessary for entry to employment in the game-management sector, in roles such as assistant underkeeper, game-farm assistant and assistant deer keeper.

Learning aims

In this unit you will:

- A** Investigate game species in the UK
- B** Explore the role of a game manager
- C** Carry out game-management tasks.

Unit summary

Learning aim	Key teaching areas	Summary of suggested assessment evidence
A Investigate game species in the UK	A1 Identification of UK game species A2 Basic ecology of game species	A learner-produced written assignment such as a factsheet, to cover UK game species and their ecology.
B Explore the role of a game manager	B1 Sporting B2 Habitat management B3 Pest and predator control	A real-life, scenario-based case study produced to cover the role of game managers and the preparations required for a shoot day.
C Carry out game-management tasks	C1 Risk assessments C2 Apply practical skills	Photographic/video evidence of learners carrying out practical game-management tasks, supported by observation records and verbal/written learner accounts of tasks carried out and a written risk assessment.
Key teaching areas in this unit include:		
Sector skills	Knowledge	Transferable skills/behaviours
<ul style="list-style-type: none"> • Practical game management • Pest and predator control techniques • Habitat-management techniques • Using tools and equipment • Risk assessing activities 	<ul style="list-style-type: none"> • Species identification and ecology • Relevant legislation • Health and safety requirements 	<ul style="list-style-type: none"> • Preparing for work • Managing information

Unit content

Knowledge and sector skills

Learning aim A: Investigate game species in the UK

A1 Identification of UK game species

Learners will explore lowland and upland game species, developing their understanding of species' identification features and ecology.

- Identification of the main UK lowland and upland game bird species, to include:
 - pheasant
 - partridge
 - grouse
 - ptarmigan
 - waterfowl.
- Identification of UK ground game species, to include:
 - rabbit
 - hare.
- Identification of six UK deer species, to include:
 - roe
 - sika
 - red
 - muntjac
 - Chinese water deer
 - fallow.
- Features used to identify game species such as:
 - colour
 - size
 - habitat/area of the UK that they are found in
 - behaviour
 - sounds/mating calls.

A2 Basic ecology of game species

Learners will explore the ecology of the species specified in A1, including where in the UK they can be found.

- Breeding ecology, to include:
 - annual cycles
 - mating behaviour.
- Diet, to include differing requirements at different life stages and time of year.
- Location of species in the UK, to include:
 - preferred habitat type
 - adaptations to habitats.

Learning aim B: Explore the role of a game manager**B1 Sporting**

Learners will develop an understanding of the knowledge required for shoot management by exploring the different elements of a commercial shoot.

- Open/closed seasons for game birds, ground game and deer species.
- Finances and resources, e.g. vehicles, cover crops, staffing.
- The role of staff on a shoot, e.g. head keeper, underkeeper, beat keeper, beaters, shoot captain.
- Game-bird rearing, e.g. catching up, incubation, rearing sheds.

B2 Habitat management

Learners will develop an understanding of the skills used to manage habitats for game in a relevant local setting, by covering the theory behind the techniques.

- Reasons for habitat management for game species and deer.
- Woodland management for game, to include:
 - coppicing
 - clearing (including flushing points)
 - protection of woodland from deer species.
- Moorland management for game, to include:
 - heather burning/swaling
 - grazing.
- grassland/farmland, to include:
 - targeted habitats, e.g. beetle banks, birdseed mixes, pollen mixes
 - cover crops, e.g. plant species which can be used, sowing and management, benefits.

B3 Pest and predator control

Learners will develop the skills needed to identify pest and predator species, and carry out lethal and non-lethal methods of control.

- Identification of the main pest and predator species in the UK, to include:
 - corvids/birds
 - mammalian, e.g. fox, rat, squirrel, rabbit.
- Lethal methods of control, to include the stages of:
 - free-running snares
 - spring traps, e.g. fenn traps, mole traps
 - Larsen traps.
- Non-lethal methods of control, to include:
 - live traps
 - visual, audible and scent deterrents.
- Legislation, e.g. Wildlife and Countryside Act 1981, Wild Mammals (Protection) Act 1996, Pests Act 1954, regional variations in legislation.

Learning aim C: Carry out game-management tasks

C1 Risk assessments

Learners will develop an awareness of the risks and identification of control measures associated with game management, including devising risk assessments for specified tasks.

- Health and safety in the workplace, e.g. lone working, use of tools (powered and non-powered), personal protective equipment (PPE) etc.
- Awareness of biohazards in a game-management setting, e.g. animal faeces/fluids, contaminated soils.
- Firearms safety, e.g. legislation, safe handling, storage and transportation, requirements on a shoot day.
- Risk assessments, to include:
 - identification of hazards
 - identification of control measures.

C2 Apply practical skills

Learners will apply practical skills to complete practical tasks associated with game management.

- Habitat management, e.g. creating flushing points, coppicing, heather burning.
- Pen construction, e.g. release pens, catch up pens.
- Care of game, e.g. feeding/watering, installing gritting stations.
- Pest and predator control, e.g. setting traps, building a Larsen trap.
- Shoot day preparation and running, e.g. putting out pegs, clearing rides, maintaining/constructing shooting butts.
- Follow instructions accurately.
- Use of effective teamwork, communication and professional behaviour.

Transferable skills

Preparing for work

- Investigating case studies and learning about real-life scenarios.

Managing information

- Using information to ensure correct practice, for example species identification, current legislation.

Assessment criteria

Pass	Merit	Distinction
Learning aim A: Investigate game species in the UK		
A.P1 Identify UK game bird and deer species.	A.M1 Describe the identifying features of a range of UK game bird and deer species, and their dietary requirements.	A.D1 Explain the identifying features of a range of UK game bird and deer species, giving a detailed description of their dietary and habitat requirements and breeding ecology.
A.P2 Outline the dietary and habitat requirements of a range of UK game bird and deer species.		
Learning aim B: Explore the role of a game manager		
B.P3 Outline commercial-shoot staff roles, and the resources required.	B.M2 Describe pest and predator species, control methods and managed habitats.	B.D2 Explain the control of pest and predator species in managed environments, justifying the methods selected.
B.P4 Outline the ways in which habitats can be managed to benefit game species.		
B.P5 Identify pest and predator species and the methods used to control them.		
Learning aim C: Carry out game-management tasks		
C.P6 Carry out a risk assessment for a given game-management task.	C.M3 Demonstrate effective application of practical game- and risk-management skills, commenting on areas for improvement.	C.D3 Demonstrate confident application of practical game- and risk-management skills, justifying own performance and areas for improvement.
C.P7 Demonstrate game-management skills reflecting on own performance.		

Essential information for assessment decisions

Learning aim A

For distinction standard, learners will:

- with minimal support, select and use information from different sources to be able to describe in detail the identifying common features of three UK game species and three UK deer species (species specified by tutor with relevance to locality and resources), which enable them to be identified accurately 'in the field'
- describe in detail the dietary and habitat requirements of each specified species
- describe in detail the breeding ecology of each specified species, with reference to seasonality
- organise the information in an accurate and logical way, using appropriate IT software
- show depth and breadth in their knowledge and understanding, using technical language appropriately with very few language errors.

For merit standard, learners will:

- collect information from different sources to be able to describe the identifying features of three UK game species and three UK deer species (species specified by tutor with relevance to locality and resources), which enable them to be identified accurately 'in the field'
- state where each specified species can be found in the UK
- identify the relevance of the information they have found, and present it by selecting and using appropriate IT software
- show breadth, but limited depth, in their knowledge and understanding, using technical language that is mostly appropriate and with limited language errors.

For pass standard, learners will:

- be able to identify three UK game species and three UK deer species as a minimum (species to be specified by the tutor with relevance to locality and resources)
- use a range of given information from different sources to learn the identifying features, in order to be able to apply their knowledge in correctly identifying species
- state the dietary and habitat requirements for each of the species identified
- present this information using basic IT skills and software
- show limited depth and breadth in their knowledge and understanding, with limited use of technical language and persistent language errors.

Learning aim B

For distinction standard, learners will:

- be able to independently select and use relevant and appropriate information from different sources to produce a plan for a given commercial shoot. The plan will identify one given mammalian pest or predator and one given bird pest or predator, and will describe in detail the control methods appropriate to each one
- demonstrate an awareness of the relevant legislation for each species covered, making clear links to the responsibilities and the implications for not adhering to legislative requirements
- organise and present the information accurately by selecting appropriate IT formats, and will demonstrate competent knowledge of newly learned occupational techniques.

UNIT 6: INTRODUCTION TO GAME MANAGEMENT

For merit standard, learners will:

- collect and present relevant and appropriate information from different sources to produce a plan for a given commercial shoot. The plan will identify one given mammalian pest or predator and one given bird pest or predator, and will describe the control methods appropriate to each one
- present the information by selecting appropriate IT formats, and will demonstrate knowledge of some newly learned occupational techniques.

For pass standard, learners will:

- provide relevant and appropriate information about the resources required to run a commercial shoot, with an emphasis on staffing and the roles available in the game-management industry
- use a case-study scenario to apply their knowledge of work contexts in order to state the physical resources required for a specified commercial shoot selected by the tutor
- be able to state the role of staff in the specified commercial shoot, showing an awareness of the qualities and attributes of staff in the game-management sector
- be able to state the ways in which a minimum of two specified habitats (depending on centre resources) can be managed to benefit game species
- use a range of given information sources, including information from practical tasks and visits, to complete this task
- demonstrate knowledge of relevant and current occupational techniques
- use given information from different resources to identify one given mammalian pest or predator and one given bird pest or predator, and will apply their knowledge to identify the appropriate methods used to control each one
- organise and present the information using IT, and will demonstrate knowledge of a few newly learned occupational techniques.

Learning aim C

For distinction standard, learners will:

- carry out two game-management practical tasks with some assistance, demonstrating some new skills appropriately. Learners' activities should be two from the following: trapping, habitat maintenance, fencing repairs, pen construction, care of reared game species, or being activity involved in a shoot day. Learners will work with a high level of independence and limited tutor direction
- work confidently in a team, completing tasks satisfactorily and to specified timescales with limited supervision
- follow instructions and make realistic and appropriate problem-solving decisions, coming up with innovative problem-solving ideas
- be able to select and use appropriate equipment safely for all aspects of each task
- be flexible in their approach to tasks set, and can demonstrate knowledge and understanding in practical-task scenarios
- communicate effectively when carrying out a practical task, and they will exhibit the qualities required for work in the game-management sector
- use feedback to evaluate their strengths and areas for improvement in each task
- give evidence for two practical tasks.

For merit standard, learners will:

- carry out two game-management practical tasks with some assistance, demonstrating some new skills appropriately. Learners' activities should be two from the following: trapping, habitat maintenance, fencing repairs, pen construction, care of reared game species, or being activity involved in a shoot day. Learners will work with some independence and limited tutor direction
- work collaboratively in a team, completing tasks satisfactorily and to specified timescales
- follow instructions and can make decisions that could solve a problem, using a variety of approaches
- be able to select and use appropriate equipment safely
- be flexible in their approach to tasks set, and can demonstrate knowledge in practical-task scenarios
- communicate with others (listening and showing respect) when carrying out a practical task, and they will exhibit the main qualities required for work in the game-management sector
- use feedback to independently review their performance in each task, identifying areas for self-improvement
- give evidence for two practical tasks.

For pass standard, learners will:

- carry out two game-management practical tasks with some assistance, demonstrating some new skills appropriately. Learners' activities should be two from the following: trapping, habitat maintenance, fencing repairs, pen construction, care of reared game species, or being activity involved in a shoot day. Learners will work with very little independence, requiring tutor direction
- work as part of a team positively, and communicate with others effectively
- follow instructions, using some basic problem-solving skills, and be able to use simple equipment safely and appropriately
- behave in a flexible way, with some guidance, and can show awareness of the personal qualities required for work in the game-management sector
- review their performance with others and suggest ways in which they can improve
- give evidence for two practical tasks.

Assessment activity

The summative assessment activity takes place after learners have completed their formative development. The activity should be practical, be set in a realistic scenario and draw on learning from the unit, including the transferable skills. You will need to give learners a set period of time and number of hours in which to complete the activity. *Section 6* gives information on setting assignments and there is further information on our website.

A suggested structure for summative assessment is shown in the *Unit summary* section, along with suitable forms of evidence. This is for illustrative purposes only and can therefore be adapted to meet local needs or to assess across units where suitable opportunities exist. The information in the *Links to other units* section will be helpful in identifying opportunities for assessment across units.

The following scenario could be used to produce the required evidence for this unit. Centres are free to use comparable scenarios or other forms of evidence, provided that they meet the assessment requirements of the unit.

Suggested scenario

You are working for a commercial lowland shoot as an underkeeper and it is the end of the pheasant-shooting season. As you will be working in a variety of habitats on the shoot, you will also need to be familiar with, and be able to identify, different game and deer species in the UK. You will need to plan pest control in readiness for the breeding season. You will need to plan and carry out some habitat management and practical work to support the release of poults to the pens later in the year. While planning the practical work you must be aware of any risks involved. With the head keeper and shoot owner, you will review the success of the season and identify the resources required for the following season.

If a retake is necessary, an alternative example must be used. The following is an example of a retake assessment activity.

It is the middle of the pheasant-shooting season on the lowland shoot on which you are a beat keeper. On the last shoot day, some of the beaters need help with identifying a species they saw on the day and you have offered to help them with this by producing a factsheet ready for the next shoot day. You have had a problem with predator species on your beat, and you must plan a way in which to deal with the issue. You have also noticed some practical woodland work that needs completing in order to make one of the drives more successful, and a release pen that needs repair. The head keeper has asked you to assess the risks before starting the tasks. The owner of the shoot has also agreed to invest more money in the resources required, so you have been asked by the head keeper for your views on this.

Further information for tutors and assessors

Delivery guidance

The following are examples of practical activities and workshops that tutors could use when developing sector and transferable skills in the delivery of this unit. Wherever possible, practical activities should be used to help learners develop both personal and sector skills in preparation for the final assessment. These suggestions are not intended as a definitive guide to cover the full GLH of the unit.

Introduction to unit

A broad introduction to the shooting industry with reference to deer management. Learners can explore resources such as The British Association for Shooting and Conservation (BASC) and Game & Wildlife Conservation Trust (GWCT) websites to collate facts and information on the current popularity of game shooting in the UK. Working in groups, learners can produce a presentation or factsheet that highlights the importance of the game-management industry to the rural economy, and the longevity of habitats maintained for game.

Suggested time: about 3 hours.

Activity: Visit to a commercial shoot

A visit led by the tutor to a commercial shoot, either during or out of season, where learners can experience the day-to-day running of a shoot or an actual shoot day. Staff can demonstrate the practical work, resources required, and the daily routine to support classroom-based activities and assessment. Learners can see the resources and staff required to successfully run a commercial shoot and will have access to the issues faced in the daily management of the shoot. This activity would be best placed at the start of the unit to underpin the unit content.

Suggested time: about 3 hours.

Activity: Identifying game and deer species

The tutor will use good-quality images and videos to enable learners to identify UK game and deer species effectively. If possible, time in the field could be used to identify species in their natural habitat. Learners can carry out research to describe the features used to identify the species. Items such as deer antlers can be used in a classroom setting to enhance the activity.

Suggested time: about 3 hours.

Activity: How to manage habitats for game

A tutor-led activity to address each of the main habitats managed for game. The focus will be on why the habitat needs managing, the technique used, and specifically how it benefits game and other wildlife species. After using resources provided by the tutor, such as videos and presentations/handouts, learners can work in groups to research a habitat and report back to the class with their findings. A full range of both lowland and upland habitats must be covered.

Suggested time: about 8 hours.

Activity: Practical game-management tasks

Using a centre-based resource or a real-life shoot setting, learners can carry out practical tasks that directly link to the management of game and work-based scenarios. A range of tasks should be available to learners before the summative assessment.

Suggested time: about 8 hours.

UNIT 6: INTRODUCTION TO GAME MANAGEMENT**Essential resources**

For this unit, learners will need access to:

- a working game shoot (upland or lowland) for visits, employer engagement/involvement, and practical work scenarios, delivery and assessments
- relevant game habitats to work with and maintain for delivery and assessment
- equipment and resources for practical tasks.

Links to other units

This unit has strong links to:

- Unit 1: Introduction to Working in Land-based Industries
- Unit 2: Introduction to Plant and Soil Science
- Unit 3: Countryside Work Placement
- Unit 4: Habitat Maintenance
- Unit 7: Land-based Machinery Operations
- Unit 8: Countryside Estate Maintenance.

Employer involvement

Delivery of this unit would benefit from employer involvement in the form of:

- guest speakers from the game-management industry
- visits to different game-management businesses, including, if possible, a game larder and game farm
- provision of work-based scenarios to support delivery and assessment.

Unit 7: Land-based Machinery Operations

Level: **2**

Unit type: **Optional**

Assessment type: **Internal**

Guided learning hours: **30**

Unit in brief

Learners develop the skills needed to prepare, operate safely and maintain land-based machinery for use in countryside and horticulture sectors.

Unit introduction

In the land-based sector, there are many activities that require the safe and responsible use of machinery to carry out work effectively and complete routine tasks. Due to the range of activities which can be undertaken it is important that learners are aware of how to operate a range of machinery safely and responsibly, following operational guidelines and instructions.

In this unit, you will explore a range of machinery used for routine activities across countryside and horticulture industries. You will develop the skills to identify the correct equipment to use, carry out initial preparation, routine maintenance and safe operation to complete tasks effectively.

Completion of this unit will develop your skills to meet industry expectations, allowing you to work safely and responsibly with land-based machinery. It will support a move to a higher Level 3 course or to an Apprenticeship as a trainee park ranger, gardener, local council worker, tractor driver, sprayer operator, contractor, or nursery person.

Learning aims

In this unit you will:

- A** Explore machinery that can be used for land-based activities, their purpose and operation
- B** Prepare and maintain machines for land-based activities
- C** Carry out safe and responsible machine operation for routine land-based activities.

Unit summary

Learning aim	Key teaching areas	Summary of suggested assessment evidence
A Explore machinery that can be used for land-based activities, their purpose and operation	A1 Land-based machinery A2 Operational methods, engines and mechanics	Written diary of activities undertaken with video evidence of learners identifying, preparing, maintaining and operating common machinery.
B Prepare and maintain machines for land-based activities	B1 Prepare machinery B2 Maintenance of machinery	
C Carry out safe and responsible machine operation for routine land-based activities	C1 Operating machinery C2 Post-activity machinery checks and aftercare	
Key teaching areas in this unit include:		
Sector skills	Knowledge	Transferable skills/behaviours
<ul style="list-style-type: none"> • Planning to use and preparing machinery for safe use • Identifying correct machinery for routine tasks • Operating machinery responsibly and safely • Basic maintenance of routine machinery • Operational checks pre- and post-machinery use 	<ul style="list-style-type: none"> • Professional practice • Safe practice • Following operational instructions • Farm worker responsibilities • Health and safety • Basic mechanical understanding of machinery 	<ul style="list-style-type: none"> • Problem solving and communication • Self-management and development • Preparing for work • Managing information

Unit content

Knowledge and sector skills

Learning aim A: Explore machinery that can be used for land-based activities, their purpose and operation

Learners will develop an understanding of the machines used in the land-based sector and underlying principles of operation.

A1 Land-based machinery

- Land-based machinery, such as: tractors, trailers, harrows, forklifts, flail mowers, telescopic handlers, lawnmowers, rotavators, quads and buggies, cutting and pruning machinery.
- Land-based activities, such as: hedge laying, grass cutting, spraying.
- Use of equipment:
 - understand operational manuals
 - use operational manuals
 - requirements of different types of equipment per manufacturer/industry guidelines
 - review ground conditions for equipment used, e.g. tractors not being suitable for heavily saturated ground, stability.
- Licensing conditions such as:
 - requirements of operator, e.g. tractor licence and relevant tickets
 - weight limits of loads.

A2 Operational methods, engines and mechanics

Learners will develop an understanding of the operation of engines and mechanical components of land-based machinery.

- Combustion engines such as:
 - compression ignition (CI) and spark ignition (SI) engines
 - 2 stroke and 4 stroke cycles
 - diesel, petrol, bio-products, lubricants
 - air and liquid cooling systems
 - cold start systems.
- Emissions legislation.
- Electric engines, including batteries and electrical motors.
- Component parts such as: cylinder block and head, flywheel, clutch assemblies, crankshaft, pistons and rings, connecting rod and bearings, valves and springs, gaskets and seals, cooling system components, fuel system components, lubrication oil filters, starter motor, generators.
- Engine use such as: self-propelled units, handheld equipment, static units, drive systems, clutches, shafts, belts and chains, transmission gearbox, compressed air and hydraulics, engine speed, power and torque.

Learning aim B: Prepare and maintain machines for land-based activities**B1 Prepare machinery**

- Awareness of common hazards such as: exhaust fumes, heat, noise, vibrations, stored energy, sparks, and machine stability.
- Personal safety requirements such as: PPE – footwear, personal clothing protection, barrier cream, gloves, eye protection, ear defenders, chemicals protection (apron) and risk assessments.
- Safe working principles.
- Starting procedures and pre-start checks, such as:
 - tractor/power unit preparation, oil, coolant, diesel, tyres, battery
 - mounting and dismounting procedures
 - cold starting
 - fuelling procedures; keep tank full overnight, bleeding air from pipes
 - interpret decals
 - interpret odometer
 - locate main controls, e.g. gauges, levers, buttons for electronics, pedals, dipsticks
 - appropriate speeds.

B2 Maintenance of machinery

- Maintenance tools, such as:
 - selection and safe use of hand tools
 - measuring equipment
 - use of manufacturers' service literature
 - lubrication oils data
 - daily and periodic checks and maintenance schedules.
- Maintenance checks of machinery, such as:
 - basic checks:
 - oil changes
 - tyre pressures and changing tyres
 - fan belt checks
 - battery checks and changes
 - replacing filters
 - complex checks:
 - grease clutch
 - check hydraulic pump
 - fuel change
 - bleeding radiators
 - identification of necessary repairs
 - cooling and charging system maintenance
 - waste disposal
 - current regulations and legislation.

Learning aim C: Carry out safe and responsible machine operation for routine land-based activities

C1 Operating machinery

- Selecting and using machine(s) for specific activities and, where appropriate, relevant attachments (e.g. trailers, sprayers, rotavators, hedge cutters, mowers).
- Following correct procedure and operation guidelines (e.g. switching on the machine, carrying out initial checks).
- Demonstrating awareness of health and safety, e.g. correct PPE and adherence to safe working practices and operational guidelines.
- Power unit operation: selection of appropriate gear to match ground/road conditions; transport safely to site; warning signals.
- Considering physical and natural conditions (e.g. weather conditions, different ground conditions, such as clay, sand, peat) and how to adapt.
- Correct safe and responsible operation of driven machinery and handheld machinery.

C2 Post-activity machinery checks and aftercare

Learners will understand the necessary steps following completion of an activity.

- Cleaning machines after use where appropriate (e.g. power washing the combine after use, removing mud from tyres so as not to drop it on the road, removing dirt from equipment – especially fans and filters, lubrication of engines, removal of any leftover chemicals, e.g. sprayers, inspect equipment for any damage).
- Storage and parking (e.g. safe storage, security, correct parking of vehicles).
- Completion of records, reporting maintenance requirements following use, e.g. driver/vehicle logs, maintenance schedules.

Transferable skills

Problem solving and communication

- Working as a team.
- Preparing, maintaining and operating equipment/identifying problems with machinery and developing solutions.

Self-management and development

- Working in a professional environment, managing own time, reviewing own progress, working under pressure and working with limited supervision.

Preparing for work

- Communicating with others in tasks.
- Planning practical tasks and verbally communicating actions.
- Give reasons for using certain methods, techniques and decisions made.
- Undertaking practical routine machinery maintenance.
- Developing practical and technical skills.
- Demonstrating methods used to maintain machinery equipment.

Managing information

- Interpreting and understanding industry and manufacturer instructions and guidelines.
- Relating legislation and codes of practice to practical situations.

Assessment criteria

Pass	Merit	Distinction
Learning aim A: Explore machinery that can be used for land-based activities, their purpose and operation		
A.P1 Identify types of machines used to complete routine land-based activities.	A.M1 Describe the types of machines used for routine land-based activities and relative operational methods.	A.D1 Compare and contrast the types of machines and operational methods used to carry out routine land-based activities.
A.P2 Outline how to operate land-based machines.		
Learning aim B: Prepare and maintain machines for land-based activities		
B.P3 Carry out appropriate preparation and maintenance of land-based machinery.	B.M2 Carry out effective preparation and maintenance of land-based machinery.	B.D2 Carry out competent and confident preparation and maintenance of land-based machinery.
Learning aim C: Carry out safe and responsible machine operation for routine land-based activities		
C.P4 Demonstrate safe use of land-based machinery for routine activities.	C.M3 Demonstrate effective use of land-based machinery and post activity checks and aftercare for routine activities.	C.D3 Demonstrate confident use of land-based machinery and post activity checks and aftercare for routine activities.
C.P5 Demonstrate basic post-activity checks and aftercare.		

Essential information for assessment decisions

Learning aim A

For distinction standard, learners will:

- show comprehensive understanding of the similarities and differences between at least two types of machines, clearly identifying the type of machine with the relevant routine activities and associated operational methods
- make relevant connections between uses of types of machinery with reference to appropriate land-based activities, ground stability factors and regulatory requirements
- demonstrate a robust understanding of the operation of engines and mechanical components of machinery used routinely in the industry
- demonstrate depth and breadth in their understanding of engines and mechanics, for example how petrol, diesel engines and electric motors work
- demonstrate comprehensive and appropriate use technical language.

For merit standard, learners will:

- show understanding of the difference between at least two types of machines, identifying the type of machine, the routine land-based activities they can be used for and associated operational methods
- make connections between types of machinery, and the operational conditions that determine the activities being undertaken, such as ground conditions, weather and licensing
- show appropriate understanding of the operation of engines and mechanical components of machinery used routinely in the industry
- show depth and breadth in their understanding of engines and mechanics, for example how petrol, diesel engines and electric motors work
- use relevant technical language.

For pass standard, learners will:

- show a basic understanding of the difference between at least two types of machines, with reference to routine land-based activities and associated operational methods
- list some of the operational conditions that determine machine activities, such as ground conditions, weather and licensing
- have a basic understanding of the operation of engines and mechanical components of machinery used routinely in the industry
- show some understanding of engines and mechanics, for example how petrol, diesel engines and electric motors work
- use mostly non-technical language with some inaccuracies in terminology choice and use.

Learning aim B

For distinction standard, learners will:

- work, requiring limited assistance, to demonstrate a robust performance in preparation and maintenance of at least two items of relevant up-to-date machinery in land-based practices
- demonstrate a strong awareness of common hazards (mentioned in the unit content) present, suggesting measures to reduce risk of such hazards
- carry out detailed and logical preparation for tasks, showing breadth and depth in understanding the importance of correct preparation
- carry out routine maintenance on at least two items of machinery. The maintenance will be logical, well developed and accurate in its execution, requiring limited tutor involvement

UNIT 7: LAND-BASED MACHINERY OPERATIONS

- give consistent explanation of the practical process while carrying out routine maintenance, covering safe and correct tool selection and comprehensive maintenance checks, as per the unit content.

For merit standard, learners will:

- work, requiring some level of tutor assistance, to demonstrate an effective approach in preparation and maintenance of at least two items of relevant up-to-date machinery in land-based practices
- demonstrate an awareness of common hazards (mentioned in the unit content) present, suggesting variable measures to reduce risk of such hazards
- carry out logical preparation tasks, showing understanding of the importance and accuracy of preparation of machines prior to use
- carry out routine maintenance on at least two items of machinery. The maintenance will be logical and accurate but not fully developed in its execution, requiring some tutor involvement
- give detailed explanation of the practical process while carrying out routine maintenance, covering safe and correct tool selection and reasonably accurate maintenance checks, as per the unit content.

For pass standard, learners will:

- work, requiring a significant level of tutor assistance, to demonstrate a simplistic approach in preparation and maintenance of at least two items of relevant up-to-date machinery in land-based practices
- demonstrate some awareness of common hazards (mentioned in the unit content) present, with limited suggestions of variable measures to reduce risk of such hazards
- carry out preparation tasks showing limited breadth and understanding of the importance and accuracy of machine preparation prior to use, making some mistakes in procedure
- carry out basic routine maintenance on at least two items of machinery
- provide some explanation of the practical process while carrying out routine maintenance, covering safe and correct tool selection and mostly accurate maintenance checks, as per the unit content.

Learning aim C

For distinction standard, learners will:

- competently select and use appropriate machines for specific land-based activities, accurately following correct procedures and adhering to necessary operational guidelines
- demonstrate safe and responsible use of at least two items of machinery when carrying out land-based activities
- demonstrate a robust understanding of the need to care for machinery following use, giving comprehensive explanations for the required cleaning, storage and record completion required for each individual piece of equipment
- cover at least two items of machinery routinely used in land-based activities, showing a comprehensive understanding of requirements and confident reasoning for carrying out aftercare of machinery
- select appropriate techniques for aftercare, supported by well-developed reasoning for choices made.

For merit standard, learners will:

- select and use machines for specific land-based activities, following correct procedures and operational guidelines
- demonstrate safe and responsible use of at least two items of machinery when carrying out land-based activities
- demonstrate an effective understanding of the need to care for machinery following use, giving detailed explanations for the required cleaning, storage and record completion required for each individual piece of equipment
- cover at least two items of machinery routinely used in land-based activities, showing a detailed understanding of requirements and some reasoning for carrying out aftercare of machinery
- select appropriate techniques for aftercare, supported by limited reasoning for choices made.

For pass standard, learners will:

- use machines for specific land-based activities, following some correct procedures and operational guidelines
- demonstrate safe use of at least two items of machinery with guidance when carrying out routine land-based activities
- demonstrate a limited understanding of the need to care for machinery following use, giving some explanations for the required cleaning, storage and record completion required for each individual piece of equipment
- cover at least two items of machinery routinely used in land-based activities, showing a limited understanding of requirements with poorly developed reasoning for carrying out aftercare of machinery
- select mostly appropriate techniques for aftercare, supported by poorly developed reasoning for choices made.

Assessment activity

The summative assessment activity takes place after learners have completed their formative development. The activity should be practical, be set in a realistic scenario and draw on learning from the unit, including the transferable skills. You will need to give learners a set period of time and number of hours in which to complete the activity. *Section 6* gives information on setting assignments and there is further information on our website.

A suggested structure for summative assessment is shown in the *Unit summary* section, along with suitable forms of evidence. This is for illustrative purposes only and can therefore be adapted to meet local needs or to assess across units where suitable opportunities exist. The information in the *Links to other units* section will be helpful in identifying opportunities for assessment across units.

The following scenario could be used to produce the required evidence for this unit. Centres are free to use comparable scenarios or other forms of evidence, provided that they meet the assessment requirements of the unit.

Suggested scenario

You are working in the land-based industry as a grounds worker. You are required to plan, risk assess, prepare, maintain and operate a minimum of two pieces of machinery for specific land-based activities.

If a retake is necessary, an alternative example must be used. The following is an example of a retake assessment activity.

Two different pieces of machinery must be used.

Further information for tutors and assessors

Delivery guidance

The following are examples of practical activities and workshops that tutors could use when developing sector and transferable skills in the delivery of this unit. Wherever possible, practical activities should be used to help learners develop both personal and sector skills in preparation for the final assessment. These suggestions are not intended as a definitive guide to cover the full GLH of the unit.

Introduction to unit

Tutor-led discussion on the different types of machinery relevant to a range of operations within the industry, for example mowing, pruning, rotavating and spraying. The different roles in the sector should be addressed and how the roles are different, for example countryside and horticulture. Learners could spend time researching a range of roles and what their responsibilities would be in regards to the use of machinery. The relevant industry requirements could also be included, for example tractor licences. A broad range of possible machinery should be covered across petrol and diesel engines.

Suggested time: about 4 hours.

Activity: Preparing machinery

Tutor-guided sessions on the procedure and practices used to prepare machinery for safe use. The sessions could start with some initial theory followed by practical learner-focused delivery using different types of petrol and diesel machinery routinely used in the industry. Learners develop and use pre-start checklists and carry out activities to develop skills in groups, assessing actions and decisions made in their preparations.

Suggested time: about 6 hours.

Activity: Using and maintaining machinery

This activity can include demonstrations by staff members as well as external speakers from machinery companies. The learners should be shown how each piece of equipment should be used. This could be through practical demonstrations or via videos and other educational methods such as observation. A discussion should take place prior to each demonstration to identify when it is suitable to use each piece of machinery and when it is not appropriate.

Once the learners have been shown how to use each piece of equipment they will be required to observe the relevant maintenance procedures. Following this, the learners would then be expected to practically carry out full routine maintenance, covering the unit content.

The relevant health and safety considerations should be highlighted throughout.

Suggested time: about 10 hours.

Activity: Operation and aftercare of machinery

Learners should now be given the opportunity to operate relevant land-based machinery. It is imperative that the learners are shown how to use each piece of machinery before being given the opportunity to operate it. They would be expected to do this first with support before being able to operate each piece independently. The machinery can belong to the establishment or this activity could be undertaken during visits or while on placement. Tutor sessions on aftercare could be combined with practical operation sessions for consistency.

Suggested time: about 10 hours.

UNIT 7: LAND-BASED MACHINERY OPERATIONS

Essential resources

For this unit, learners will need access to:

- up-to-date and relevant land-based machinery
- mechanical workshops, tools and equipment
- suitable spaces to operate machinery.

Links to other units

This unit has strong links to:

- Unit 1: Introduction to Working in Land-based Industries
- Unit 3: Countryside Work Placement
- Unit 4: Habitat Maintenance
- Unit 8: Countryside Estate Maintenance.

Employer involvement

Delivery of this unit would benefit from employer involvement in the form of:

- demonstrations, for example classes to demonstrate a range of machinery and equipment
- work experience
- visits
- support from local business staff as mentors.

Unit 8: Countryside Estate Maintenance

Level: **2**

Unit type: **Mandatory**

Assessment type:

Guided learning hours: **60**

Unit in brief

Learners will study how to carry out the repair, maintenance and installation of boundaries, surfaces, structures and services. This includes installing gates and understanding plant and soil structures to maintain habitats and environments found in the countryside industries.

Unit introduction

Working in the countryside often involves basic tasks including repairing fences, installing gates and maintaining habitats. These are tasks requiring estate skills and they are common to many land-based industries.

In this unit you will learn how to carry out inspections, and to select, use and maintain tools, equipment and materials to carry out estate tasks safely and efficiently. You will learn how to work to a standard expected in industry and you will be able to review your work, identifying improvements. This unit is synoptic, which means you will use the skills and knowledge developed from other units. The tasks you carry out, for example building and repairing fences and installing and maintaining habitats such as beetle banks and hedgerows, will link to the work you have completed elsewhere in this qualification.

This unit is essential for those wanting to work in the countryside. The skills and knowledge are equally important if you want to work in forestry, agriculture or horticulture. This unit also gives you a valuable insight into the skills needed to keep a range of natural habitats (including heathland, moorland, woodland and coastal zones) working and in good order. It also supports environmental practices.

Learning aims

In this unit you will:

- A** Carry out inspections to plan countryside maintenance, repair and installation tasks
- B** Select and prepare materials, tools and equipment for countryside maintenance, repair and installation tasks
- C** Undertake countryside maintenance, repair and installation tasks.

Unit summary

Learning aim	Key teaching areas	Summary of suggested assessment evidence
A Carry out inspections to plan countryside maintenance, repair and installation tasks	A1 Inspecting for repair, maintenance and installation needs A2 Plan for repair, maintenance and installation needs	Evidence could include: <ul style="list-style-type: none"> • logbooks/blogs • witness/observation records • specifications • reports • maps/plans/sketches/diagrams.
B Select and prepare materials, tools and equipment for countryside maintenance, repair and installation tasks	B1 Selecting and preparing tools, equipment and materials B2 Health and safety	
C Undertake countryside maintenance, repair and installation tasks	C1 Carry out maintenance, repair and installation tasks C2 Review maintenance, repair and installation tasks	

Key teaching areas in this unit include:

Sector skills	Knowledge	Transferable skills/behaviours
<ul style="list-style-type: none"> • Inspection of a countryside estate to identify tasks • Tools, materials and equipment selection and use for estate tasks • Drawing up and/or working to habitat maintenance specifications 	<ul style="list-style-type: none"> • Boundaries such as fences, walls, hedges, ditches; surfaces, including boardwalks and pathways; structures such as tool stores, animal/plant housing; and services, including water, power and fuel • Use and purpose of tools, equipment and materials used for estate tasks • Safe working practices and be able to work safely, e.g. correct use of personal protective equipment (PPE) and precautions to protect other employees and the public 	<ul style="list-style-type: none"> • Communication • Developing practical and technical skills • Problem solving • Thinking skills/adaptability • Working with others

Unit content

Knowledge and sector skills

Learning aim A: Carry out inspections to plan countryside maintenance, repair and installation tasks

Learners will apply the knowledge and skills that they have developed in the qualification to assess and record the repair and maintenance needs of a selected area.

A1 Inspecting for repair, maintenance and installation needs

- Conducting surveys/inspections of:
 - boundaries, e.g. post and rail, electric, stock fencing, rabbit fencing
 - surfaces, e.g. woodchip, concrete, asphalt, grass, aggregate (type 1)
 - structures, e.g. shooting butts, stiles, gates, signs, picnic benches, rearing pens, bird pens
 - services, e.g. mains or temporary gas, water and electric
 - habitats, e.g. woodlands, grasslands, ponds/lakes/rivers, coastal zones, moorland/heathland.
- Conducting environmental surveys, e.g. for pollution, public access, water or air quality.
- Identifying the causes of damage, wear or poor condition, e.g. people, animals, weather.
- Identifying maintenance and repair, installation needs, e.g. 'wear and tear', damage, infestation, mould/fungus growth.
- Identifying the consequences if maintenance, repair or installation tasks are not carried out, e.g. risk to people, livestock, wild animals; environmental degradation/pollution.
- Recording findings using appropriate method and format, e.g. field notes/maps/sketches/photos.

A2 Plan for repair, maintenance and installation needs

- Identifying tasks including:
 - complex tasks needing multiple operations and a variety of tools, equipment and materials, e.g. making a stile, installing a footpath with steps
 - simple tasks needing few operations and a limited range of tools, equipment and materials, e.g. checking fuel oil levels, connecting a hose to a tap, replacing rails on a post and rail fence.
- Draw up specifications to include:
 - location, e.g. on maps, plans, use of GPS
 - timescale, e.g. duration, appropriateness of season
 - description of task, including standard required and working tolerances if appropriate
 - tools, materials, equipment needed
 - identified risks
 - identification of skill set (e.g. particular skills needed for the tasks identified)
 - oversight, e.g. person in charge of task/supervision.

Learning aim B: Select and prepare materials, tools and equipment for countryside maintenance, repair and installation tasks

Learners will apply knowledge and skills developed in the qualification to select and prepare appropriate materials, tools and equipment for specific tasks identified in the inspection report.

B1 Selecting and preparing tools, equipment and materials

- Factors influencing selection, e.g. simple or complex tasks such as making a bird box and a picnic table or installing a new habitat. Also consideration for site, location, cost, availability, skill.
- Consequences of correct/incorrect selection, e.g. poor-quality work, unsafe practice through use of inappropriate tools.
- Factors influencing preparation of tools, equipment and materials, e.g. condition, availability.
- Tools, e.g. saws, hammers, billhooks, rakes, spades/shovels, drills.
- Equipment, e.g. non-contact electrical test equipment, strimmers/brush cutters, wheelbarrows.
- Materials, e.g. nails, cement/concrete, woodchip, aggregates.
- Identifying skill set for use of tools, equipment, materials, e.g. chainsaw, driving skills.

B2 Health and safety

Learners will need to prepare a risk assessment before starting a task and risk assess during completion of listed maintenance tasks, applying, from the qualification, their knowledge and understanding of correct health and safety practices.

- Use and preparation of risk assessments to include the identification and assessment of hazards, risks and mitigating action in the following areas:
 - health and safety, e.g. safe use of tools, equipment and materials, protection of workers and the public, skill set of workers and equipment/task to be completed, e.g. use of chainsaw or brush cutter
 - animal welfare, e.g. reducing animal stress/disturbance
 - environmental protection, e.g. protection of habitat. waste disposal, e.g. plastics, discarded materials, waterway pollution, correct waste disposal.
 - safe manual handling, e.g. when lifting or using tools, equipment or materials
 - selection of personal protective equipment (PPE), both prior to and during work.
- Use of standard or generic risk assessments, e.g. when using chainsaws, wood preserver.
- In-work risk assessing, e.g. monitoring safe working practices, dealing with unexpected hazards.

Learning aim C: Undertake countryside maintenance, repair and installation tasks

Carrying out estate maintenance, repair and installation; reviewing the process of task completion and task outcomes.

C1 Carry out maintenance, repair and installation tasks

- Transporting tools, equipment, materials:
 - use of carry bags, toolboxes
 - transporting in vehicles, carrying tools and equipment safely
 - consequences of correct/incorrect transport.
- Establishing a safe working area, e.g. clearing scrub, isolating water, removing obstructions.

- Maintenance, repair or installation, such as:
 - boundaries, including:
 - stock fencing, e.g. straining, replacing posts or mesh, hedgerows, drystone walls, ditches
 - pest-prevention fencing, e.g. rabbit/deer fencing, electric fencing
 - post and rail fencing, e.g. use of wood preservers, replacement of worn or damaged parts
 - hedgerows, e.g. pruning, pollarding, hedge laying
 - surfaces, e.g. paths, tracks, boardwalks, hard standings, polytunnel/greenhouse standings/floorings, grass, decorative stone
 - structures, e.g. stiles, bird boxes, bird hides, picnic benches, gates, water troughs, finger posts, information boards
 - mains or temporary services (gas/oil, electric, water/sewerage) including:
 - location of underground services
 - electrical, e.g. basic circuit testing, provision of outdoor mains or temporary power using generators, extensions, waterproof/resistant fittings, isolation of electrical supply
 - water, e.g. field drains, outdoor taps and hoses, sprinklers, waste water removal/drainage, isolation of water supply
 - gas/oil, e.g. use of mains, butane or propane, and fuel oil for permanent or temporary heating, isolation of gas/oil supply
 - habitats and environments, including management for:
 - access, e.g. clearing paths, rides, bird 'flushes'
 - reduction of noise or visual pollution, e.g. planting shelter belts, barriers to prevent vehicle access
 - safety, e.g. removal of dangerous trees, removal of fly-tipped waste and litter
 - biodiversity, e.g. coppicing, hedge laying, pond clearing, habitat creation and maintenance
 - wildlife conservation and protection, e.g. improving habitats for stag beetles, dormice, bats.
- Working to a standard including:
 - working to time
 - achieving quality standard
 - working to specification.
- Monitoring progress, risk assessing, problem solving.
- Minimising environmental impacts and maintaining animal welfare.
- Correct waste disposal.
- Maintaining tools, equipment, materials:
 - assessing needs and carrying out maintenance of tools, equipment, materials
 - use of aids to maintenance, e.g. sharpening files/stones/guides, oils, tools required for disassembly/assembly
 - replacing parts, e.g. air filters, drill bits, bow saw blades
 - consequences of correct/incorrect maintenance.
- Storage of tools, equipment and materials:
 - storage for safety and security
 - storing to maintain condition
 - regulations governing storage, e.g. flammable liquids
 - consequences of correct/incorrect storage.

C2 Review maintenance, repair and installation tasks

- Assessing an outcome against the specification, e.g. with reference to the time taken and quality of the outcome
- Reviewing process, e.g. how confidently and efficiently the task was completed.
- Identifying improvements to both outcome and process, e.g. the use of different tools, improving skills, different sequence of operations.

Transferable skills

Communication

- Drawing up risk assessments and specifications.

Developing practical and technical skills

- Complete tasks requiring more than one person.

Problem solving

- Overcoming obstacles when carrying out tasks.
- In-work risk assessing.

Thinking skills/adaptability

- Carrying out inspections to determine needs.
- Formulating tasks based on maintenance, repair, installation needs.

Working with others

- Complete tasks requiring more than one person.

Assessment criteria

Pass	Merit	Distinction
Learning aim A: Carry out inspections to plan countryside maintenance, repair and installation tasks		
A.P1 Carry out habitat or environmental site inspections, recording simple maintenance, repair or installation needs.	A.M1 Carry out accurate habitat or environmental site inspections and use findings to plan complex maintenance, repair or installation tasks, producing specifications to an agreed standard.	A.D1 Carry out effective habitat or environmental site inspections, recording detailed needs and producing fully justified specifications for complex maintenance, repair or installation tasks.
A.P2 Plan simple habitat or environmental site maintenance, repair or installation tasks.		
Learning aim B: Select and prepare materials, tools and equipment for countryside maintenance, repair and installation tasks		
B.P3 Select tools, equipment and materials for specific habitat or environmental site maintenance, repair or installation tasks.	B.M2 Confidently select the correct tools, equipment, and materials, and produce detailed and accurate risk assessments for specified and complex habitat or environmental site maintenance, repair or installation tasks.	B.D2 Fully justify the selected tools, equipment, materials and risk assessments for specific, complex habitat or environmental site maintenance, repair or installation tasks, identifying improvements and explaining consequences of choices.
B.P4 Carry out risk assessments for specific, simple habitat or environmental site maintenance, repair or installation tasks.		
Learning aim C: Undertake countryside maintenance, repair and installation tasks		
C.P5 Carry out simple habitat or environmental site maintenance, repair or installation tasks.	C.M3 Carry out complex habitat or environmental site maintenance, repair or installation tasks, competently to industry standards, reviewing processes and outcomes with reference to the specification.	C.D3 Confidently and efficiently carry out complex habitat or environmental site maintenance, repair or installation tasks, reviewing processes and outcomes with reference to the specification and recommending improvements to inform future practice.
C.P6 Carry out a review of completed habitat or environmental site maintenance, repair or installation tasks.		

Essential information for assessment decisions

Learning aim A

For distinction standard, learners will:

- confidently carry out effective inspections and detailed recording of complex estate maintenance, repair and installation needs in a range of countryside settings such as woodland, and in specific habitats, for example hedgerow. Effective inspections will include the correct identification of needs for environmental or habitat purposes; and the causes of, for example, poor condition, wear or breakage. Findings will be clear and unambiguous
- use inspection findings and their own observations and research, to plan four specific estate maintenance, repair or installation tasks, producing specifications that are fully justified with valid reasons for their decisions.

For merit standard, learners will:

- carry out inspections and recording of complex estate maintenance, repair and installation needs for environmental or habitat purposes. Learners will confidently assess the needs and produce accurate findings
- use inspection findings, own observations and research, to plan four specific estate maintenance, repair or installation tasks that will include: a boundary, a mains or temporary service (for example gas/oil, electric, water), a juvenile game pen, a habitat and either a surface or a structure. Planning will include the production of specifications or other instruction sets, agreed with the tutor and detailing the tasks and the standards to be met
- achieve standards that are defined in the specification, including the expected quality of the finished product and the time taken. The tasks required will be complex, requiring multiple operations and a variety of tools, equipment or materials.

For pass standard, learners will:

- carry out inspections to identify and record simple, selected maintenance, repair and installation needs for habitat or environmental purposes
- plan simple, selected maintenance, repair and installation tasks requiring few operations and a limited range of tools, equipment or materials, including: a boundary, a mains or temporary service (for example gas/oil, electric, water), a juvenile game pen, a habitat and either a surface or a structure.

Learners will integrate their skills and understanding of safe working practices and sustainability and diversification objectives when carrying out site inspections from *Unit 1: Introduction to Working in Land-based Industries*; the use of equipment and machinery from *Unit 7: Land-based Machinery Operations* and maintenance, repair and installation planning from *Unit 3: Countryside Work Placement*, *Unit 4: Habitat Maintenance*, *Unit 5: Countryside Access and Recreation* and *Unit 6: Introduction to Game Management*.

Learning aim B

For distinction standard, learners will:

- produce detailed risk assessments and confidently select correct tools, equipment and materials for four specified, complex estate maintenance, repair or installation tasks, for example installation of a boardwalk or bird hide or construction of a picnic area. Learners will fully justify their selections giving valid reasons and identifying appropriate improvements. They will be able to explain how correct and incorrect risk assessments and selection of tools, equipment and materials can affect the progress and outcome of tasks.

For merit standard, learners will:

- produce detailed, accurate risk assessments and confidently select the correct tools, equipment and materials for four specified, complex estate maintenance, repair or installation tasks including: a boundary, a mains or temporary service (for example gas/oil, electric, water), a habitat and either a surface or a structure.

For pass standard, learners will:

- select tools, materials and equipment for four simple, selected maintenance, repair and installation tasks including: a boundary, a mains or temporary service (for example gas/oil, electric, water), a habitat and either a surface or a structure
- produce risk assessments for four simple, selected maintenance, repair and installation tasks; learners must identify critical hazards and correctly risk assess them.

Learners will integrate their understanding of risk assessment and its use in maintenance, repair and installation tasks from *Unit 1: Introduction to Working in Land-based Industries*; correct tool selection from *Unit 3: Countryside Work Placement*, *Unit 4: Habitat Maintenance* and *Unit 7: Land-Based Machinery Operations*.

Learning aim C

For distinction standard, learners will:

- carry out four complex estate maintenance, repair or installation tasks for example installation of a boardwalk or bird hide or construction of a picnic area, to an agreed specification working confidently and efficiently to industry standards
- review task progress and outcomes of estate maintenance, repair or installation tasks they have carried out giving well-reasoned explanations. Learners will identify improvements to both the process of task completion and task outcomes and explain how the identified improvements could affect future practice.

For merit standard, learners will:

- carry out complex maintenance, repair or installation tasks including: a boundary, a mains or temporary service (for example gas/oil, electric, water), a juvenile game pen, a habitat and either a surface or a structure. Learners will demonstrate their ability to work competently to an agreed specification and industry standard
- assess the progress and outcome of four complex maintenance, repair or installation tasks in relation to the agreed specification.

For pass standard, learners will:

- carry out simple maintenance, repair or installation tasks including: a boundary, a mains or temporary service (for example gas/oil, electric, water), a juvenile game pen, a habitat and either a surface or a structure. Learners will require little support in the execution of tasks
- review the process and outcome of simple maintenance, repair or installation tasks describing the quality of work produced and the methodology used.

Learners will integrate their skills and understanding of safe working practice during maintenance, repair and installation from *Unit 1: Introduction to Working in Land-based Industries*; understanding how the environment influences maintenance activities of plants and soils from *Unit 2: Introduction to Plant and Soil Science*; the various considerations required when carrying out maintenance and repair tasks from *Unit 3: Countryside Work Placement*, *Unit 4: Habitat Maintenance*, *Unit 5: Countryside Access and Recreation*, *Unit 6: Introduction to Game Management* and the use of equipment and machinery from *Unit 7: Land-based Machinery Operations*.

Assessment activity

The summative assessment activity takes place after learners have completed their formative development. The activity should be practical, be set in a realistic scenario and draw on learning from the unit, including the transferable skills. You will need to give learners a set period of time and number of hours in which to complete the activity. *Section 6* gives information on setting assignments and there is further information on our website. This unit could be assessed within the context of a work placement.

A suggested structure for summative assessment is shown in the *Unit summary* section, along with suitable forms of evidence. This is for illustrative purposes only and can therefore be adapted to meet local needs or to assess across units where suitable opportunities exist. The information in the *Links to other units* section will be helpful in identifying opportunities for assessment across units.

The following scenario could be used to produce the required evidence for this unit. Centres are free to use comparable scenarios or other forms of evidence, provided that they meet the assessment requirements of the unit.

Suggested scenario

You are a trainee in a maintenance team at a country estate that opens its grounds to the public. The estate has ponds and lakes, extensive formal and informal gardens, and woodlands, all linked by a network of paths and tracks.

Your task is to carry out inspections and report any maintenance, repair or installation requirements. You will need to plan and carry out tasks to ensure the boundaries, surfaces, structures and basic services function properly and that habitats are maintained.

If a retake is necessary, an alternative example must be used. The following is an example of a retake assessment activity.

Learners will carry out alternative inspections and undertake different tasks.

Further information for tutors and assessors

Delivery guidance

The following are examples of practical activities and workshops that tutors could use when developing sector and transferable skills in the delivery of this unit. Wherever possible, practical activities should be used to help learners develop both personal and sector skills in preparation for the final assessment. These suggestions are not intended as a definitive guide to cover the full GLH of the unit.

Introduction to unit

Learners are introduced to the unit through practical activities that require them to investigate boundaries, surfaces, structures and mains or temporary services in the field. This will broaden their experience and, if combined with simple tasks, develop their practical skills.

They should look at a variety of situations where they gain an understanding of the differences between:

- maintain = keep something in good working order, e.g. lubricate moving parts on a gate, re-strain top wire on a fence
- repair = replace worn, broken parts, e.g. fill in potholes on a track, replace a gate pintle
- install = move or place something in a new location, e.g. move an electric fence, place a water butt to collect rainwater from a roof, move bird release pens, put in a hedgerow.

The introduction is probably best carried out through tutor-led practical demonstrations.

As this is a synoptic unit, knowledge and skills from other units in the qualification will be essential and tutors may provide opportunities to deliver or expand on content in this unit. Similarly, this unit will underpin content from other units and may provide opportunities to support them.

Suggested time: about 6 hours.

Activity: Carrying out inspections, recording findings and task analysis

Learners should understand through their initial investigations, the difference between 'needs' and 'tasks'. For example:

1. A gate drags on the ground when opened – it 'needs' to hang properly.
Task = adjust the pintles to ensure it clears the ground when opened.
2. A member of the public has tripped over a broken, uneven paving stone – the path 'needs' to be safe.
Task = replace the broken paving stone with a new one, ensuring it is laid flat and level with the surrounding stones.

During these investigations learners need to develop their analytical and recording skills using a standard format that might include:

- field investigation of boundaries, surfaces, structures, services, habitats
- field discussion and recording of needs using photographs, sketches, maps, notebooks
- identification of causes of the needs and consequences of leaving them unmet
- classroom discussion of resulting tasks identifying tools, materials, equipment required
- identifying processes/steps to task completion, sequencing the task
- individual research/homework on construction methods, tools, equipment, materials.

Suggested time: about 10 hours.

Activity: Planning, specifications and risk assessments

Learners need to understand the use of specifications and risk assessments as part of planning maintenance, repair and installation tasks.

- Specifications should be regarded as an essential working document that would allow someone to carry out a task to a required standard, within a given timescale and with enough information to ensure smooth and orderly task completion.
- Learners should appreciate the need to anticipate hazards through the use of written risk assessments and workplace risk assessing.

This understanding should take place through a combination of the following.

- Practical investigations:
 - to help learners understand the need for specifications, identify hazards, discuss risk assessment and mitigation or control measures that could be taken.
- Classroom-based knowledge:
 - to add breadth and depth to learners' practical investigations. Learners should practise drawing up specifications for given tasks. They should be encouraged to develop a risk-assessment culture. Learners would benefit from an exploration of generic risk assessments, which are available online
 - classroom sessions should also underpin the practical aspects of risk assessing, taking into consideration the legislation that controls many practical activities. This could be done through scenario-based presentations and case studies.
- Individual research related to specific maintenance, repair and installation tasks:
 - this should focus on good-quality sources that relate to risk assessment and will offer further practice in developing specifications.

Suggested time: about 8 hours.

Activity: Selection of tools, equipment and materials

The most useful experience learners can gain is through working at practical maintenance, repair and installation tasks. This should be supported by classroom activities in which they discuss factors that influence selection. Care must be taken to ensure learners gain a variety of experiences that should include selecting:

- hand tools and power tools
- equipment, for example portable generators, concrete mixers
- different materials, for example cement, wood chip, polypropylene water pipe (MDPE)
- methods for storing, transporting and maintaining tools, equipment and materials.

Suggested time: about 10 hours.

Activity: Carrying out habitat maintenance

Learners should gain practical experience carrying out maintenance, repair and installation tasks. This experience should include:

- interpreting specifications and risk assessments in order to plan tasks
- selection and transport of tools, equipment and materials
- preparing the work area
- experience in handling and using a variety of tools, equipment and materials
- safe working practices, including lone working and working near water
- in-work risk assessing and problem solving
- minimising environmental impacts
- clearing the work area and the disposal of waste
- maintenance and storage of tools, equipment and materials.

The practical tasks should include:

- maintaining boundaries, surfaces, structures and mains or temporary services
- tasks that are simple – requiring few operations and limited tools, equipment and machinery
- tasks that are complex – requiring multiple operations and a variety of tools, equipment and machinery, for example construction of a bird hide, board walk, hedge laying or permanent stock fencing.

Ideally, the same task should provide both simple and complex experiences. For example, providing water to a glasshouse:

- the simple task might be to divert a downspout into a tank to collect water
- the complex task might be to run an MDPE pipe from an existing water supply and install a tap with hose attachment.

Learners should also experience a range of tasks, including maintenance, repair and installation.

Learners should develop the habit of keeping a logbook, blog or other record of the tasks they carry out, and these can be used for formative assessment.

Learners will need to practise reviewing the progress of the work carried out, relating outcomes to intended aims as expressed through the specification for the task. Important concepts include:

- working to a standard. Comparison with industry roles could be made, for example trainee, competent employee, professional in the field
- working to quality. This can be measured against instructions or tolerances in the specification, for example:
 - nails driven through must be bent over/filed flat
 - vertical alignments must be + or – 5 degrees
 - posts must be cut to identical lengths above the rail
 - two coats of preserver with no visible variation in application or brush marks.

In reviewing their tasks, learners also need to examine the methodology, including the use of tools, in-work risk assessing, or clearance of the site to find ways of improving the process.

A peer review or the involvement of professionals working in the field would be a good way to evaluate the progress of tasks and outcomes.

Suggested time: about 26 hours (including the time allocated for practical assessments).

UNIT 8: COUNTRYSIDE ESTATE MAINTENANCE

Essential resources

For this unit, learners will need access to:

- a variety of practical estate maintenance, repair and installation situations
- suitable tools, equipment and materials.

Links to other units

The table below illustrates how knowledge, understanding and skills from units across this qualification provide links to this unit.

Unit	Synoptic links to Unit 8: Countryside Estate Maintenance
Unit 1: Introduction to Working in Land-based Industries	<ul style="list-style-type: none"> • Using understanding of safe working practices on a countryside estate to plan maintenance. • Using understanding of sustainability when carrying out maintenance and repair on a countryside estate. • Using understanding of diversification when working on a countryside estate. • Understanding the risk assessment and its use in maintenance, repair and installation. • Understanding and carrying out pre-checks on PPE to carry out repair and maintenance.
Unit 2: Introduction to Plant and Soil Science	<ul style="list-style-type: none"> • Understanding and using knowledge of plant growth to maintain health during the growing season. • Understanding how the environment influences maintenance activities of plants and soils in rural locations.
Unit 3: Countryside Work Placement	<ul style="list-style-type: none"> • Carrying out maintenance, repair and installation activities on a countryside estate. • Understanding the relevant health and safety regulations and employer requirements when carrying out maintenance and repair. • Understanding the importance of communication with others when carrying out repair and maintenance works.
Unit 4: Habitat Maintenance	<ul style="list-style-type: none"> • Safely planning maintenance of habitats. • Safely maintaining habitats on and around the countryside estate. • Understanding the different types of habitats and using relevant skills to maintain them.
Unit 5: Countryside Access and Recreation	<ul style="list-style-type: none"> • Using the skills of preparing the estate for rural events. • Using skills and knowledge to maintain and repair the estate for access and recreation. • Understanding how access to the countryside will be affected when planning maintenance and repair.

Unit	Synoptic links to Unit 8: Countryside Estate Maintenance
Unit 6: Introduction to Game Management	<ul style="list-style-type: none"> • Understanding the species when planning maintenance and installation tasks. • Using understanding of sporting events and relevant skills to plan and maintain structures for shoot days. • Using relevant skills to install pest control measures.
Unit 7: Land-based Machinery Operations	<ul style="list-style-type: none"> • Safe use of machinery when working and carrying out repair and maintenance tasks on an estate. • Preparing, pre-start checks and maintaining machinery and equipment. • Correct storage of machinery and equipment used.

Employer involvement

Delivery of this unit would benefit from employer involvement in the form of:

- guest speakers and practitioners
- practical demonstrations
- work experience, in particular, placements with maintenance teams on large estates/farms/garden centres.

4 Planning your programme

Is there a learner entry requirement?

As a centre, it is your responsibility to ensure that recruited learners 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 1.

Learners are most likely to succeed if they have:

- three or four GCSEs at intermediate grades and/or
- BTEC qualification(s) achieved at least at Level 1
- at least Level 1 equivalent 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 this qualification – so that you are ready to assess learners and so that we can provide the support needed. Further information is given in *Section 7 Administrative arrangements*.

What level of sector knowledge is needed to deliver this qualification?

We do not set any requirements for tutors but expect centres to assess the overall skills and knowledge of the teaching team to ensure that they are relevant and up to date with current industry practice. This will give learners a rich programme to prepare them for progression.

What resources are required to deliver this qualification?

As part of your centre approval, you will need to show that the necessary material resources and workspaces are available to deliver the qualification. For some units, specific resources are required.

What makes good vocational teaching?

The approach to vocational teaching must be led by what is right for the particular sector. Therefore, each unit includes delivery guidance and suggested assessment tasks. Using the delivery guidance and suggested assessment tasks and our additional free delivery guidance and assignment briefs, you can build a course that contextualises learning in real-life and/or employment scenarios. This will naturally draw in the kind of broader attributes valued in the sector, for example teamwork, when repairing installations, as well as the more general skills needed in work that fit well with project-based learning, for example independent learning.

What are the requirements for meaningful employer involvement?

This qualification has been designed as a Technical Diploma qualification and as an approved centre you are required to ensure that during their study, every learner has access to meaningful activity involving employers. See *Section 2 Structure* and *Section 8 Quality assurance* for the requirements for employer involvement.

Support for employer involvement

It is important that you give learners opportunities which are of high quality and that are directly relevant to their study. We will support you in this through our guidance materials and by giving you examples of best practice. See *Section 10 Resources and support* for details of the support available, including the Work Experience Toolkit.

What support is available for delivery and assessment?

We provide a wealth of support materials, including schemes of learning, delivery plans, assignment briefs and examples of marked learner work.

To support you with planning your assessments, you will be allocated a Standards Verifier early in the planning stage. There will be extensive training programmes and support from our Subject Advisor team.

For further details see *Section 10 Resources and support*.

How will my learners become more employable through this qualification?

Learners will be acquiring the key technical and sector knowledge, and practical and technical skills that employers need. Employability skills, such as teamworking and communication, and completing realistic tasks have been built into the design of the learning aims and content. This gives tutors 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

The Pearson BTEC Level 2 Technical Diploma in Countryside Studies is assessed using *internal assessments* which are set and marked by tutors.

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

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.

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* available on our website. All members of the assessment team need to refer to this document.

For this qualification, 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. You 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

Our approach to internal assessment for this qualification 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 Units*, and the requirements for delivering assessment given in *Section 7 Administrative arrangements*.

Operating internal assessment

The assessment team

It is important that there is an effective team for internal assessment so that all assessment is planned and verified. For this qualification, it is likely that the team will be small but it is still necessary to ensure that the assessment process is followed. Full information is given in the *Pearson Quality Assurance handbook*.

The key roles are:

- the Lead Internal Verifier (Lead IV) for the qualification has responsibility for the planning, record keeping and standard setting for the qualification. The Lead IV registers with Pearson annually and organises training using our support materials
- Internal Verifiers (IVs) check that assignments and assessment decisions are valid and that they meet our requirements. In a small team, all people will normally be assessors and IVs. No one can verify their own actions as an assessor
- assessors set or use assignments to assess learners to national standards.

Planning and record keeping

The Lead IV should make sure that there is a plan for assessment of the internally-assessed units and 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*.

Effective organisation

Internal assessment needs to be well organised so that learners' progress 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 Resources and support* 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 qualification. 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 they 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.

You are encouraged to employ a range of formative assessment approaches before putting learners through to the assignments to formally assess the units. Formative assessment supports teaching and learning, and should be ongoing throughout the learning process. It enables tutors to enhance learning by giving learners constructive feedback so that they can identify their strengths and weaknesses, and to put measures in place to target areas that need work. Formative assessment approaches that incorporate reflective learning and regular skills assessment are important in encouraging self-development and reflective practice, to ensure that learners progress.

Setting assignments

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. This assignment will be separate from the practice and exploration activities that have been used during the learning period, and learners must understand that the assignment is being used to judge the learning aims. 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.

When setting your assignments, you need to work with the information given in the *Essential information for assessment decisions* and the *Assessment activity* sections of the units. You can choose to use the suggested scenarios or to adapt them to take account of local circumstances, provided that assignments are verified.

In designing your own assignment briefs you should bear in mind the following points.

- A learning aim must always be assessed as a whole and must not be spilt into two or more tasks.
- 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 to do so.
- Learners should be given clear tasks, activities and structures for evidence; the criteria should not be given as tasks.
- You must ensure that assignments for synoptic assessment are designed to enable learners to draw on the specific units identified and demonstrate that they can identify and use effectively an appropriate selection of skills, techniques, concepts, theories and knowledge in an integrated way. Assignments for the synoptic unit will be monitored at programme level as part of the standards verification process to ensure that they encourage learners to select and apply their learning from across the qualification in an integrated way.
- Where there is a requirement for assessment to be conducted in the real work environment (mandatory work placement), assignments must be designed to facilitate this. Where there is no mandatory requirement for workplace assessment but learners will be in work placement or work experience settings as a part of the programme, then it would be worthwhile if these assignments were also designed for completion in the real work environment. You must ensure that the work placement or work experience setting gives learners the opportunity to achieve at all grade levels.

As assignments provide a final assessment, they will draw on the specified range of teaching content for the learning objective. The specified teaching 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 a practical performance, then they must address all the relevant range of content that applies in that instance.

An assignment brief should have:

- a vocational scenario or context that motivates the learner to apply their learning through the assignment
- an audience or purpose for which the evidence is being provided
- clear instructions to the learner about what they are required to do, normally set out through a series of tasks.

Forms of evidence

The units allow for a variety of forms of evidence to be used, provided that they are suited to the type of learning aim and the learner being assessed. For most units, the practical demonstration of skills is necessary. The units give you information on suitable forms of evidence that would give learners the opportunity to apply a range of transferable and sector skills. Centres may choose to use different suitable forms for evidence to those proposed. Overall, learners should be assessed using varied forms of evidence.

The main forms of evidence include:

- observation and recordings of practical tasks or performance in the workplace with supporting evidence
- projects
- recordings of role play, interviews and other types of simulated activity
- oral or written presentations with assessor questioning
- work logbooks and reflective journals.

It is important to note that an observation record is a source of evidence and does not confer an assessment decision. It must be sufficiently detailed to enable others to make a judgement about the quality and sufficiency of the performance and must document clearly the rationale for the assessment decision. Observation records should be accompanied by supporting evidence, which may take the form of videos, audio recordings, photographs, preparation notes, learner logs and other similar types of record.

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
- the learner to produce evidence that is their own independent work
- a verifier to independently reassess the learner to check the assessor's decisions.

Centres need to take particular care in ensuring that learners produce independent work.

Making valid assessment decisions

Assessment decisions through applying unit-based criteria

Assessment decisions for this qualification are based on the specific criteria given in each unit and set at each grade level. The way in which individual units are written provides a balance of assessment of sector-specific knowledge, technical and practical skills, and transferable skills appropriate to the purpose of the qualification.

Pass, Merit and Distinction criteria all relate to individual learning aims. The assessment criteria for a unit are hierarchical and holistic where, in satisfying the M criteria, a learner would also have satisfied the P criteria. The unit assessment grid shows the relationships of the criteria so that assessors can apply all the criteria to the learner's evidence at the same time.

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 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 all 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 all 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 2 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.

Making assessment decisions using criteria

As an assessor, you review authenticated learner work and make judgements on standards using the assessment criteria and the supporting information provided in units and training materials. 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.

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

- the *Essential information for assessment decisions* section in each unit
- your Lead IV and assessment team's collective experience, supported by the standardisation materials we provide.

Once the team has agreed the outcome, a formal assessment decision is recorded and reported to learners. The information given:

- must show the formal decision and indicate where criteria have been met
- may show where attainment against criteria has not been demonstrated
- avoid giving direct, specific instructions on how the learner can improve the evidence to achieve a higher grade.

Authenticity of learner 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.

Once an assessment has begun, learners must not be given feedback that relates specifically to their evidence and how it can be improved, learners must work independently.

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 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 Administrative arrangements*.

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 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 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.

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 did not complete assignments by your planned deadline or an authorised extension deadline, if one was given for specific circumstances, may not have the opportunity to subsequently resubmit. Similarly, learners who submit work that is not their own should not be given an opportunity to resubmit.

The outcome of any resubmission of the assignment by the learner is then recorded as the final decision.

A learner who has not achieved their expected level of performance in the relevant learning aims **after resubmission** of an assignment may be offered a single retake opportunity using a new assignment. The highest grade that may be awarded is a Pass.

The Lead IV must authorise a retake with a new assignment only in exceptional circumstances and where 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* available on our website. We provide information on writing assignments for retakes on our website (please go to www.btec.co.uk/keydocuments).

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 assessment. You need to refer to our *Information Manual* for information on making registrations for the qualification.

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

Internal assessments need to be administered carefully to ensure that all learners are treated fairly and that results and certificates are issued on time to allow learners to progress to chosen progression opportunities.

Our equality policy requires that all learners 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 (as defined by the Equality Act 2010) 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 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 our *Information Manual*. Records must be maintained as specified as we may ask to audit them.

Reasonable adjustments to assessment

To ensure that learners have fair access to demonstrate the requirements of the assessments, a reasonable adjustment is one that is made before a learner takes an assessment. 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 adjustments 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 only 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 being conducted unfairly. 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 the document *Enquiries and appeals about Pearson vocational qualifications and end point assessment policy*.

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 our *Centre guide for dealing with malpractice and maladministration in vocational qualifications*, available on our website.

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. Our *Centre guide for dealing with malpractice and maladministration in vocational qualifications* 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.

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:

- 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 or 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 about Pearson vocational qualifications and end point assessment 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 units for a qualification, 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

Qualification results will be issued once a learner has completed all components of the qualification and you have claimed certification. 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.

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 and claiming certificates.
- 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 robust assessment, internal verification and planning of appropriate employer involvement.

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 Technical Certificate and Diploma qualifications 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
- undertaking an overarching review and assessment of a centre's strategy for ensuring sufficient and appropriate engagement with employers at the beginning of delivery of any BTEC programme(s)
- undertaking a review of the employer involvement planned at programme level to ensure its appropriateness at a time when additional activities can be scheduled where necessary
- 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.

Centres that do not fully address and maintain rigorous approaches to delivering, assessing and quality assurance cannot seek certification for individual programmes or for the BTEC Technical Certificate and Diploma qualifications. 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 providing an overall qualification grade for each learner. The final grade awarded for a qualification represents a holistic performance across all of 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 will be balanced by a lower outcome in others.

Eligibility for an award

In order to be awarded the qualification, a learner must complete all units and achieve a Pass or above in all units. See *Section 2 Structure* for full details.

To achieve the qualification grade, learners must:

- achieve and **report a grade** (D, M or P) for all units within a valid combination
- achieve the **minimum number of points** at a grade threshold.

Where there are optional units in a qualification, it is the responsibility of the centre to ensure that a correct unit combination is adhered to. Learners who do not pass all the required units shown in the structure will not achieve the qualification. For example, learners who have not taken enough mandatory or optional units will not achieve that qualification even if they have enough points.

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 (where available), 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.

The qualification is awarded at the grade ranges shown in the table below.

Qualification	Available grade range
Diploma	PP to DD

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. Our *Information Manual* gives full details.

Points available for internally-assessed units

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

	Unit size	
	30 GLH	60 GLH
U	0	0
Pass	8	16
Merit	12	24
Distinction	16	32

Claiming the qualification grade

Subject to eligibility, we will automatically calculate the qualification grade for your learners when the internally-assessed 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 table

Diploma	
Grade	Points threshold
PP	96
MP	112
MM	128
DM	152
DD	176

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 2018

Example 1: Achievement of a Diploma with a PP grade

Unit	GLH	Type	Grade	Points
1	60	Internal	Pass	16
2	60	Internal	Pass	16
3	60	Internal	Pass	16
4	60	Internal	Pass	16
6	30	Internal	Merit	12
7	30	Internal	Pass	8
8	60	Internal Synoptic	Pass	16
	360		PP	100

The learner has achieved a Pass or above in enough units.

The learner has sufficient points for a PP grade.

Example 2: Achievement of a Diploma with a DD grade

Unit	GLH	Type	Grade	Points
1	60	Internal	Distinction	32
2	60	Internal	Merit	24
3	60	Internal	Distinction	32
4	60	Internal	Merit	24
6	30	Internal	Distinction	16
7	30	Internal	Distinction	16
8	60	Internal Synoptic	Distinction	32
	360		DD	176

The learner has sufficient points for a DD grade.

Example 3: Achievement of a Diploma with an Unclassified result

Unit	GLH	Type	Grade	Points
1	60	Internal	Merit	24
2	60	Internal	Merit	24
3	60	Internal	Pass	16
4	60	Internal	Unclassified	0
6	30	Internal	Merit	16
7	30	Internal	Pass	8
8	60	Internal Synoptic	Distinction	32
	360		U	120

The learner has a U in Unit 4.

The learner has sufficient points for an MP but has not met the requirement for a Pass, or above, in all units.

10 Resources and support

Our aim is to give you support to enable you to deliver Pearson BTEC Level 2 Technicals with confidence. You will find resources to support teaching and learning, assessing, and professional development on our website.

Support for setting up your course and preparing to teach

Schemes of Learning

Our free Schemes of Learning give you suggestions and ideas for how to deliver the units in the qualifications, including opportunities to develop employability skills, tips on embedding mathematics and English, and how to link units through holistic assessments.

Delivery planner

High-level models showing how the course can be delivered over different timescales, for example six months, one year, two years.

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 BTEC qualifications 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 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.

Support for teaching and learning

Work Experience Toolkit

Our free Work Experience Toolkit gives guidance for tutors, assessors, work-based supervisors and learners on how to make the most of work placements and work experience.

Pearson Learning Services provides a range of engaging resources to support BTEC qualifications. Teaching and learning resources may also be available from a number of other publishers. Details of Pearson's own resources and of all endorsed resources are on our website.

Support for assessment

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.

We provide assignment briefs approved by Pearson Standards Verifiers.

Sample marked learner work

To support you in understanding the expectation of the standard at each grade, examples of sample marked learner work will be made available on our website.

Training and support from Pearson

People to talk to

There are lots of people who can support you and give you advice and guidance on delivering your Pearson BTEC Level 2 Technicals. They include the following.

- Standards Verifiers – they can support you with preparing your assignments, ensuring that your assessment plan is set up correctly, in preparing learner work and providing quality assurance through sampling.
- 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.
- Curriculum Development Managers (CDMs) – they are regionally based and have a full overview of 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

We provide a range of training and professional development events to support the introduction, delivery, assessment and administration of the Pearson BTEC Level 2 Technicals.

These sector-specific events, developed and delivered by specialists, are available both face to face and online.