

Level 3 Advanced Technical Certificate in Land and Wildlife Management (0173-30)

May 2019 Version 1.5

Qualification Handbook

Qualification at a glance

Industry area	Land - Countryside/Land and Wildlife
City & Guilds qualification number	0173-30
Age group	16-19 (Key stage 5), 19+
Entry requirements	Centres must ensure that any pre-requisites stated in the <i>What is this qualification about?</i> section are met.
Assessment	To gain this qualification, candidates must successfully achieve the following assessments: <ul style="list-style-type: none"> • Two externally set, externally moderated assignment • One externally set, externally marked exam, sat under examination conditions • One portfolio of evidence • Optional unit assessments as required
Additional requirements to gain this qualification	Employer involvement in the delivery and/or assessment of this qualification is essential for all candidates and will be externally quality assured.
Grading	This qualification is graded Pass/Merit/Distinction/Distinction* For more information on grading, please see Section 7: Grading.
Approvals	These qualifications require full centre and qualification approval
Support materials	Sample assessments Guidance for delivery Guidance on use of marking grids
Registration and certification	Registration and certification of this qualification is through the Walled Garden, and is subject to end dates.
External quality assurance	This qualification is externally quality assured by City & Guilds, and its internally marked assignments are subject to external moderation. There is no direct claim status available for this qualification.

Title and level	Size (GLH)	TQT	City & Guilds qualification number	Ofqual accreditation number
Level 3 Advanced Technical Certificate in Land and Wildlife Management	360	600	0173-30	601/7557/6

Version and date	Change detail	Section
1.1 May 2016	Small typographical errors	Throughout
	TQT added for qualifications Assessment component titles amended	1. Introduction
	Employer involvement guidance updated throughout	4. Employer involvement
	Summary of assessment methods and conditions	5. Assessment
	Moderation and standardisation of assessment updated throughout	6. Moderation and standardisation of assessment
	Awarding individual assessments Awarding grades and reporting results	7. Grading
	Enquiries about results Re-sits and shelf-life of assessment results Malpractice Access arrangements and special consideration	8. Administration
	1.2 January 2017	Units 301 assessment method changed, weighting updated
Unit 304 Learning outcome 4 updated		Units
Weightings in marking grid updated		5. Assessment
1.3 June 2017	Addition of the examination paper based module number	1. Introduction – Assessment requirements and employer involvement 5. Assessment 5. Assessment – exam Specification 7. Grading – Awarding grades and reporting results
	Removal of AO 6-8 from Synoptic Assignments	5. Assessment – Assessment Objectives
	Addition of Provisional Grade Boundaries for the Synoptic Assignment	7. Grading

	Revised Exam Specification, Exam Duration and AO weightings	5. Assessment – Exam Specification
	Branding Changes	Throughout
1.4 November 2018	Assessment method for unit 301 amended	1. Introduction 5. Assessment
1.5 May 2019	Wording changed regarding retakes	5. Assessment – Summary of assessment methods and conditions 8. Administration – Re-sits and shelf-life of assessment results

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1 Introduction

The following purpose is for the **Level 3 Advanced Technical Certificate in Land and Wildlife Management**

Area	Description
OVERVIEW	
Who is this qualification for?	This qualification is for you if you are 16 years or older and want to work in the countryside. It provides you with the core practical skills and knowledge which will equip you to seek employment or further learning and training within the land and wildlife management industries.
What does this qualification cover?	<p>This qualification enables you to gain the core skills and knowledge required for working in the countryside. Sound practical skills are really important when working in the countryside, on the land and when managing wildlife. You will learn about population surveys, ecology and conservation, estate maintenance skills such as boundary maintenance and fencing and knowledge of environmental processes. You will also learn to safely use and operate equipment and machinery.</p> <p>Centres and providers work with local employers who will contribute to the knowledge and delivery of training. Employers will provide demonstrations and talks on the industry and where possible work placements will also be provided by the employers. This practically based training is ideal preparation for gaining employment in the land and wildlife industries or specialist further study.</p>
WHAT COULD THIS QUALIFICATION LEAD TO?	
Will the qualification lead to employment, and if so, in which job role and at what level?	<p>You might progress into work as a:</p> <ul style="list-style-type: none"> • General estate worker • Apprentice in the game and wildlife sector
Why choose this qualification over similar qualifications?	<p>This qualification is typically delivered alongside other qualifications such as GCSEs, AS or A Levels. It provides an introduction to the core skills and knowledge required to enter employment in the land and wildlife industries and opens first steps to a career in working in the countryside. Working outdoors requires physical work and long hours, but is very rewarding and these core skills could set you off on your career.</p> <p>City & Guilds offers four sizes of Level 3 qualification in Land & Wildlife industries: Certificate, Diploma (540), Extended Diploma (720) and Extended Diploma (1080).</p> <p>You would take the Certificate if you want an introductory qualification to develop some of the core skills and knowledge required by employers in the land and wildlife industries. The</p>

Certificate is likely to be taken alongside other programmes such as GCSEs or AS Levels over a one-year course of study.

You would take the Diploma (540) if you want a qualification to develop some of the skills and knowledge that can lead to specific roles required by employers in the land and wildlife industries. The Diploma is likely to be taken alongside other programmes such as GCSEs or AS Levels over a one-year course of study.

You would take the Extended Diploma (720) if you want to specialise, to develop most of the skills and knowledge required by employers in the land and wildlife industries. The Extended Diploma (720) is likely to be taken as part of a full-time two year programme of study, or alongside other qualifications such as AS or A Levels over a longer period of time.

You would take the Extended Diploma (1080) if you want to specialise and develop the skills and knowledge required by employers in the land and wildlife industries. The Extended Diploma (1080) is likely to be taken as a full-time programme of study over two years. By taking this large qualification, you will be exposed to, and have the opportunity to gain experience in, the wider land and wildlife sector. This will enable you to progress to a diverse range of employment opportunities, as you will have gained hands-on experience over 2 years, which employers really value.

Will the qualification lead to further learning?

You may wish to learn more through an Advanced Apprenticeship in Environmental Conservation or Game and Wildlife Management, which allows you to combine working for a wildlife trust or estate, or a similar job, typically attending one day a week at college or with a training provider.

WHO SUPPORTS THIS QUALIFICATION?

Employer/Higher Education Institutions/Professional Membership Body

The British Association of Shooting and Conservation (BASC)

Qualification structure

For the **Level 3 Advanced Technical Certificate in Land and Wildlife Management** the teaching programme must cover the content detailed in the structure below:

Unit number	Unit title	GLH
Mandatory		
301	Principles of Health and Safety	30
302	Undertake and review work related experience in the land based industries	30
303	Land based industry machinery operations	60
304	Population surveys, ecology and conservation	60
310	Undertake estate skills	60
Optional – Learners must be taught at least 120 GLH from units 305 – 309, 311, 312, 320, 336, 338		
305	Countryside recreation	60
306	Principles of Physical and Biological Environmental Processes	60
307	Woodland habitat management	60
308	Pest and predator control	60
309	Use of Firearms in the Environmental and Land based Sector	60
320	Environmental interpretation in the land based sector	60
336	Fishery management	60
338	River Fishery Creation and Management	60

Total qualification time (TQT)

Total Qualification Time (TQT) is the total amount of time, in hours, expected to be spent by a Learner to achieve a qualification. It includes both guided learning hours (which are listed separately) and hours spent in preparation, study and assessment.

Title and level	Size (GLH)	TQT
Level 3 Advanced Technical Certificate in Land and Wildlife Management	360	600

Assessment requirements and employer involvement

To achieve the **Level 3 Advanced Technical Certificate in Land and Wildlife Management** candidates must successfully complete **all** the mandatory assessment components **as well as** the optional assessment components for their chosen optional units.

Component number	Title
Mandatory	
001 or 501	Level 3 Land and Wildlife Management - Theory exam (1)*
002	Level 3 Land and Wildlife Management - Synoptic assignment (1)*
301	Level 3 Principles of health and safety - Theory exam
302	Level 3 Undertake and review work related experience in the land-based industries - Portfolio
Optional	
305	Level 3 Countryside recreation - Assignment
306	Level 3 Principles of physical and biological environmental processes - Assignment
307	Level 3 Woodland habitat management - Assignment
308	Level 3 Pest and predator control - Assignment
309	Level 3 Use of firearms in the environmental and land-based sector - Assignment
320	Level 3 Environmental interpretation in land-based - Assignment
336	Level 3 Fishery management - Assignment
338	Level 3 River fishery creation and management - Assignment

In addition, candidates **must** achieve the mandatory employer involvement requirement for this qualification **before** they can be awarded a qualification grade. For more information, please see guidance in *Section 4: Employer involvement*.

Employer involvement

Component number	Title
Mandatory	
830	Employer involvement

**Number of mandatory assessments per assessment type*

2 Centre requirements

Approval

New centres will need to gain centre approval. Existing centres who wish to offer this qualification must go through City & Guilds' **full** Qualification Approval Process. There is no fast track approval for this qualification. Please refer to the City & Guilds website for further information on the approval process: www.cityandguilds.com

Resource requirements

Centre staff should familiarise themselves with the structure, content and assessment requirements of the qualification before designing a course programme.

Centre staffing

Staff delivering these qualifications must be able to demonstrate that they meet the following requirements:

- be technically competent in the areas in which they are delivering
- be able to deliver across the breadth and depth of the content of the qualification being taught
- have recent relevant teaching and assessment experience in the specific area they will be teaching, or be working towards this
- demonstrate continuing CPD.

Physical resources

Centres must be able to demonstrate that they have access to the equipment and technical resources required to deliver this qualification and its assessments.

Internal Quality Assurance

Internal quality assurance is key to ensuring accuracy and consistency of tutors and markers. Internal Quality Assurers (IQAs) monitor the work of all tutors involved with a qualification to ensure they are applying standards consistently throughout assessment activities. IQAs must have, and maintain, an appropriate level of technical competence and be qualified to make both marking and quality assurance decisions through a teaching qualification or recent, relevant experience.

Learner entry requirements

Centres must ensure that all learners have the opportunity to gain the qualification through appropriate study and training, and that any prerequisites stated in the *What is this qualification about?* section are met when registering on this qualification.

Age restrictions

This qualification is approved for learners aged 16 – 19, 19+.

3 Delivering technical qualifications

Initial assessment and induction

An initial assessment of each learner should be made before the start of their programme to identify:

- if the learner has any specific learning or training needs,
- support and guidance they may need when working towards their qualification,
- the appropriate type and level of qualification.

We recommend that centres provide an introduction so that learners fully understand the requirements of the qualification, their responsibilities as a learner, and the responsibilities of the centre. This information can be recorded on a learning contract.

Employer involvement

Employer involvement is essential to maximise the value of each learner's experience. Centres are required to involve employers in the delivery of technical qualifications at Key Stage 5 and/or their assessment, for every learner. This must be in place or planned before delivery programmes begin in order to gain qualification approval. See *Section 4: Employer involvement* for more detail.

Support materials

The following resources are available for this qualification:

Description	How to access
Sample assessments Guidance for delivery Guidance on use of marking grids	Available 2016 on the qualification pages on the City & Guilds Website: www.cityandguilds.com

4 Employer involvement

Employer involvement is a formal component of Key Stage 5 Technical qualifications. It does not contribute to the overall qualification grading, but is a mandatory requirement that all learners must meet. As such it is subject to external quality assurance by City & Guilds.

Department for Education (DfE) requirements state:

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 students and furthers collaboration between the learning and skills sector and industry.

[Technical qualifications] must:

- *require all students to undertake meaningful activity involving employers during their study; and*
- *be governed by quality assurance procedures run by the awarding organisation to confirm that education providers have secured employer involvement for every student.*

Extract from: **Vocational qualifications for 16 to 19 year olds, 2017 and 2018 performance tables: technical guidance for awarding organisations, paragraphs 89-90**

City & Guilds will provide support guidance and quality assurance of employer involvement.

Qualification approval

To be approved to offer City & Guilds technicals, centres must provide an Employer Involvement planner and tracker showing how every learner will be able to experience meaningful employer involvement, and from where sufficient and suitable employer representatives are expected to be sourced.

Centres must include in their planner a sufficient range of activities throughout the learning programme that provide a range of employer interactions for learners. Centres must also plan contingencies for learners who may be absent for employer involvement activities, so that they are not disadvantaged.

As part of the approval process, City & Guilds will review this planner and tracker.

Centres which cannot show sufficient commitment from employers and/or a credible planner and tracker will be given an action for improvement with a realistic timescale for completion. **Approval will not be given** if employer involvement cannot be assured either at the start of the qualification, or through an appropriate plan of action to address this requirement before the learner is certificated.

Monitoring and reporting learner engagement

Employer involvement is a formal component of this qualification and is subject to quality assurance monitoring. Centres must record evidence that demonstrates that each learner has been involved in meaningful employer based activities against the mandatory content before claiming the *employer involvement* component for learners.

Centres must record the range and type of employer involvement each learner has experienced and submit confirmation that all learners have met the requirements to City & Guilds. If a centre cannot provide evidence that learners have met the requirements to achieve the component, then the learner will not be able to achieve the overall Technical Qualification.

Types of involvement

Centres should note that to be eligible, employer involvement activities **must** relate to one or more elements of the mandatory content of this qualification. This does not mean that employer involvement in the optional units is not valuable, and centres are encouraged to consider this wherever appropriate.

As the aim of employer involvement is to enrich learning and to give learners a taste of the expectations of employers in the industry area they are studying, centres are encouraged to work creatively with local employers.

Employers can identify the areas of skills and knowledge in their particular industry that they would wish to see emphasised for learners who may apply to work with them in the future. Centres and employers can then establish the type of input, and which employer representative might be able to best support these aims.

To be of most benefit this must add to, rather than replace the centre's programme of learning. Some examples of meaningful employer involvement are listed below. Employer involvement not related to the mandatory element of the qualification, although valuable in other ways, does not count towards this element of the qualification.

The DfE has provided the following examples of what does and does not count as meaningful employer involvement, as follows^{1,2}:

The following activities meet the requirement for meaningful employer involvement:

- *students undertake structured work-experience or work-placements that develop skills and knowledge relevant to the qualification³;*
- *students undertake project(s), exercises(s) and/or assessments/examination(s) set with input from industry practitioner(s);*
- *students take one or more units delivered or co-delivered by an industry practitioner(s). This could take the form of master classes or guest lectures;*
- *industry practitioners operate as 'expert witnesses' that contribute to the assessment of a student's work or practice, operating within a specified assessment framework. This may be a specific project(s), exercise(s) or examination(s), or all assessments for a qualification.*

In all cases participating industry practitioners and employers must be relevant to the industry sector or occupation/occupational group to which the qualification relates.

The following activities, whilst valuable, do not meet the requirement for meaningful employer involvement:

- *employers' or industry practitioners' input to the initial design and content of a qualification;*
- *employers hosting visits, providing premises, facilities or equipment;*

¹ As extracted from: Vocational qualifications for 16 to 19 year olds
2017 and 2018 performance tables: technical guidance for awarding organisations

²This list has been informed by a call for examples of good practice in employer involvement in the delivery and assessment of technical qualifications - **Employer involvement in the delivery and assessment of vocational qualifications**

³ **DfE work experience guidance**

- *employers or industry practitioners providing talks or contributing to delivery on employability, general careers advice, CV writing, interview training etc;*
- *student attendance at career fairs, events or other networking opportunities;*
- *simulated or provider-based working environments eg hairdressing salons, florists, restaurants, travel agents, small manufacturing units, car servicing facilities;*
- *employers providing students with job references.*

Types of evidence

For each employer involvement activity, centres are required to provide evidence of which learners undertook it, e.g. a candidate attendance register. The types of additional evidence required to support a claim for this component will vary depending on the nature of the involvement. E.g. for a guest lecture it is expected that a synopsis of the lecture and register would be taken which each learner and the guest speaker will have signed; expert witnesses will be identified and will have signed the relevant assessment paperwork for each learner they have been involved in assessing; evidence of contribution from employers to the development of locally set or adapted assignments.

Quality assurance process

As the employer involvement component is a requirement for achieving the KS5 Technical qualifications, it is subject to external quality assurance by City & Guilds at the approval stage and when centres wish to claim certification for learners.

Evidence will be validated by City & Guilds before learners can achieve the employer Involvement component. Where employer involvement is not judged to be sufficient, certificates cannot be claimed for learners.

Sufficiency of involvement for each learner

It is expected that the centre will plan a range of activities that provide sufficient opportunities for each learner to interact directly with a range of individuals employed in the related industry. Centres must also provide contingencies for learners who may be absent for part of their teaching, so they are not disadvantaged. Any absence that results in a learner missing arranged activities must be documented. Where learners are unable to undertake all employer involvement activities due to temporary illness, temporary injury or other indisposition, centres should contact City & Guilds for further guidance.

Live involvement

Learners will gain most benefit from direct interaction with employers and/or their staff; however the use of technology (e.g. the use of live webinars) is encouraged to maximise the range of interactions. Where learners are able to interact in real time with employers, including through the use of technology, this will be classed as 'live involvement'.

It is considered good practice to record learning activities, where possible, to allow learners to revisit their experience and to provide a contingency for absent learners. This is not classed as live involvement however, and any involvement of this type for a learner must be identified as contingency.

Timing

A learner who has not met the minimum requirements cannot be awarded the component, and will therefore not achieve the qualification. It is therefore important, that centres give consideration to scheduling employer involvement activities, and that enough time is allotted throughout delivery and assessment of the qualification to ensure that requirements are fully met.

5 Assessment

Summary of assessment methods and conditions

Component numbers	Assessment method	Description and conditions
002	Synoptic assignment	<p>The synoptic assignment is externally set, internally marked and externally moderated. The assignment requires candidates to identify and use effectively in an integrated way an appropriate selection of skills, techniques, concepts, theories, and knowledge from across the content area. Candidates will be judged against the assessment objectives.</p> <p>Assignments will be released to centres as per dates indicated in the Assessment and Examination timetable published on our website.</p> <p>Where seasonality is a factor in the timing of the assignment the assignment will be released early to ensure that candidates can take the assignment to fit in with the seasonal requirements.</p> <p>There will be one opportunity within each academic year to sit the assignment. Candidates who fail the assignment will have one re-sit opportunity. The re-sit opportunity will be in the next academic year, and will be the assignment set for that academic year once released to centres. If the re-sit is failed, the candidate will fail the qualification.</p> <p>Please note that for externally set assignments City & Guilds provides guidance and support to centres on the marking and moderation process.</p>

001/501	Externally marked exams	<p>The exam are externally set and externally marked, and will be taken either online through City & Guilds' computer-based testing platform (001) or as a paper based test (501).</p> <p>The exam is designed to assess the candidate's depth and breadth of understanding across content in the qualification at the end of the period of learning, using a range of question types and will be sat under invigilated examination conditions. See JCQ requirements for details: http://www.jcq.org.uk/exams-office/ice--instructions-for-conducting-examinations</p> <p>The exam specification shows the coverage of the exam across the qualification content.</p> <p>Candidates who fail the exam at the first sitting will have a maximum of two opportunities to retake. If the candidate fails the exam three times then they will fail the qualification. (Note: the third and final retake opportunity applies to Level 3 only.) For exam dates, please refer to the Assessment and Examination timetable.</p>
302 830	Portfolio of evidence	<p>This unit will be assessed by a portfolio of evidence, externally moderated by City & Guilds.</p>
301	Internally marked theory exam	<p>This theory exam is externally set, internally marked and externally moderated. It is designed to assess the candidate's depth and breadth of understanding from across the unit content area and will be sat under supervised conditions.</p> <p>This assessment is available on our website. The assessment can be taken at any point during the academic year, but evidence must be submitted on to the Moderation Portal by the deadline in Assessment and Examination timetable, published on our website.</p> <p>Centres will be required to maintain the security of all live assessment materials. Assessments will be password protected and released to centres through a secure method.</p> <p>There is no re-sit limit for this assessment. If a learner fails, they can re-sit a different version. Assessors should allow seven days before reassessment.</p>
Optional Units 305, 306 307, 308 309, 320 336, 338	Unit Assignments	<p>The unit assignments are externally set, internally marked and externally moderated. The assignment requires candidates to identify and use effectively skills, knowledge and understanding from across the unit content area. Candidates will be judged against the unit grading criteria</p> <p>Arrangements for release, security and re-sitting assignments are the same as detailed for the synoptic assignment.</p>

What is synoptic assessment?

Technical qualifications are based around the development of a toolkit of knowledge, understanding and skills that an individual needs in order to have the capability to work in a particular industry or occupational area. Individuals in all technical areas are expected to be able to apply their knowledge, understanding and skills in decision making to solve problems and achieve given outcomes independently and confidently.

City & Guilds technical qualifications require candidates to draw together their learning from across the qualification to solve problems or achieve specific outcomes by explicitly assessing this through the synoptic assignment component.

In this externally set, internally marked and externally moderated assessment the focus is on bringing together, selecting and applying learning from across the qualification rather than demonstrating achievement against units or subsets of the qualification content. The candidate will be given an appropriately levelled, substantial, occupationally relevant problem to solve or outcome to achieve. For example this might be in the form of a briefing from a client, leaving the candidate with the scope to select and carry out the processes required to achieve the client's wishes, as they would in the workplace.

Candidates will be marked against assessment objectives (AOs) such as their breadth and accuracy of knowledge, understanding of concepts, and the quality of their technical skills as well as their ability to use what they have learned in an integrated way to achieve a considered and high quality outcome.

How the assignment is synoptic for this qualification

The typical assignment brief could be to maintain an area or estate ensuring all seasonal activities are planned for and performed when necessary. Candidates will be expected to build and maintain estate structures/surfaces/boundaries, operate land based machinery and possibly apply pest and predator control methods, manage fisheries, or use firearms. Candidates will be given a brief to follow, they will produce a plan of activities and apply it in practice. This will require them to draw from across the qualification content to ensure they can achieve the tasks effectively.

External exam for stretch, challenge and integration

The external assessment will draw from across the mandatory content of the qualification, using a range of shorter questions to confirm breadth of knowledge and understanding. Extended response questions are included, giving candidates the opportunity to demonstrate higher level understanding and integration through discussion, analysis and evaluation, and ensuring the assessment can differentiate between 'just able' and higher achieving candidates.

Optional unit assessments and integration into the synoptic qualification content

While the mandatory units for this qualification provide the main skills and knowledge required to work as in Land and Wildlife Management the optional units provided give centres flexibility when devising programmes to meet local employment needs, where the purpose of the qualification demands this.

The assessments for the optional units will require that the candidate has experienced the full breadth of mandatory learning of the qualification in order to better demonstrate the rounded performance expected at higher grades.

Assessment objectives

The assessments for this qualification are set against a set of assessment objectives (AOs) which are used across all City & Guilds Technicals to promote consistency among qualifications of a similar purpose. They are designed to allow judgement of the candidate to be made across a number of different categories of performance.

Each assessment for the qualification has been allocated a set number of marks against these AOs based on weightings recommended by stakeholders of the qualification. This mark allocation remains the same for all versions of the assessments, ensuring consistency across assessment versions and over time.

The following table explains all AOs in detail, including approximate weightings for the synoptic assignments. In some cases, due to the nature of a qualification's content, it is not appropriate to award marks for some AOs. Where this is the case these have been marked as N/A. Weightings for exams (AOs 1, 2 and 4 only) can be found with the exam specification.

Assessment objective	Level 3 Advanced Technical Certificate in Land and Wildlife Management Typical expected evidence of knowledge, understanding and skills	Approximate weighting (Assignment)
AO1 Recalls knowledge from across the breadth of the qualification.	Use of terminology, health and safety considerations, environmental impact, legislation, routine tasks	20%
AO2 Demonstrates understanding of concepts, theories and processes from across the breadth of the qualification.	Application of legislation, habitat management, ecology and animal life cycle, estate management options, selection of materials, equipment and machinery, implications of estate management works on the area	20%
AO3 Demonstrates technical skills from across the breadth of the qualification.	Surveying, identifying species, habitat management, estate management site works, use of tools, equipment and machinery	30%
AO4 Applies knowledge, understanding and skills from across the breadth of the qualification in an integrated and holistic way to achieve specified purposes.	Applying and linking knowledge, understanding and practical skills to a particular situation, justifying decisions/ approaches taken, contingencies, reflection and evaluation.	20%
AO5 Demonstrates perseverance in achieving high standards and attention to detail while showing an understanding of wider impact of their actions.	Understanding requirements of the task and following them through comprehensively, fit and finish of practical task activities, doing job but more so, checks existing equipment is working properly, equipment returned properly, made sure was left in appropriate condition, thorough planning, contingencies are considered and implemented. checking quality of work, regular review of progress, self-evaluation, adaptable, drive to ensure high standards, creative problem solving	10%

Exam specifications

AO weightings per exam

AO	Exam 001/501 weighting (approx. %)	Exam 301 weighting (approx. %)
AO1 Recalls knowledge from across the breadth of the qualification.	20	70
AO2 Demonstrates understanding of concepts, theories and processes from across the breadth of the qualification.	60	30
AO4 Applies knowledge, understanding and skills from across the breadth of the qualification in an integrated and holistic way to achieve specified purposes.	20	N/A

The way the exam covers the content of the qualification is laid out in the table below:

Assessment type: Examiner marked, written exam

Assessment conditions: Invigilated examination conditions

Grading: X/P/M/D

001/501	Duration: 2 hours		
Unit	Outcome	Number of marks	%
303	Machinery operations	12	20
304	Population surveys, ecology and conservation	24	40
310	Undertake Estate Skills	12	20
N/A	Integration across the units	12	20
	Total	60	100

*These exams are sat under invigilated examination conditions, as defined by the JCQ:
<http://www.jcq.org.uk/exams-office/ice--instructions-for-conducting-examinations>.

Entry for exams can be made through the City & Guilds Walled Garden.

6 Moderation and standardisation of assessment

City & Guilds' externally set assignments for technical qualifications are designed to draw from across the qualifications' content, and to contribute a significant proportion towards the learner's final qualification grade. They are subject to a rigorous external quality assurance process known as external moderation. This process is outlined below. For more detailed information, please refer to 'Marking and moderation - Technicals centre guidance' available to download on the City & Guilds website.

It is vital that centres familiarise themselves with this process, and how it impacts on their delivery plan within the academic year.

Supervision and authentication of internally assessed work

The Head of Centre is responsible for ensuring that internally assessed work is conducted in accordance with City & Guilds' requirements.

City & Guilds requires both tutors and candidates to sign declarations of authenticity. If the tutor is unable to sign the authentication statement for a particular candidate, then the candidate's work cannot be accepted for assessment.

Internal standardisation

For internally marked work⁴ the centre is required to conduct internal standardisation to ensure that all work at the centre has been marked to the same standard. It is the Internal Quality Assurer's (IQA's) responsibility to ensure that standardisation has taken place, and that the training includes the use of reference and archive materials such as work from previous years as appropriate.

Provision for reworking evidence after submission for marking by the tutor

It is expected that in many cases a candidate who is struggling with a specific piece of work may themselves choose to restart and rectify the situation during their normal allocated time, and before it gets to the stage of it being handed in for final marking by the tutor.

In exceptional circumstances however, where a candidate has completed the assignment in the required timescales, and has handed it in for marking by the tutor but is judged to have significantly underperformed, may be allowed to rework or supplement their original evidence for remarking prior to submission for moderation. For this to be allowed, the centre must be confident that the candidate will be able to improve their performance without additional feedback from their tutor and within the required timescales e.g. the candidate has shown they can perform sufficiently better previously in formative assessments.

The reworked and/or supplemented original evidence must be remarked by the tutor in advance of the original moderation deadline and the moderator informed of any candidates who have been allowed to resubmit evidence.

The process must be managed through the IQA. The justification for allowing a resubmission should be recorded and made available on request. The use of this provision will be monitored by City & Guilds.

⁴ For any internally assessed optional unit assignments, the same process must be followed where assessors must standardise their interpretation of the assessment and grading criteria.

Internal appeal

Centres must have an internal process in place for candidates to appeal the marking of internally marked components, ie the synoptic assignment and any optional unit assignments. This must take place before the submission of marks for moderation. The internal process must include candidates being informed of the marks (or grades) the centre has given for internally assessed components, as they will need these to make the decision about whether or not to appeal.

Centres cannot appeal the outcome of moderation for individual candidates, only the moderation process itself. A request for a review of the moderation process should be made to **appeals@cityandguilds.com**.

Moderation

Moderation is the process where external markers are standardised to a national standard in order to review centre marking of internally marked assessments. These markers are referred to as 'moderators'. Moderators will mark a representative sample of candidates' work from every centre. Their marks act as a benchmark to inform City & Guilds whether centre marking is in line with the City & Guilds' standard.

Where moderation shows that the centre is applying the marking criteria correctly, centre marks for the whole cohort will be accepted.

Where moderation shows that the centre is either consistently too lenient or consistently too harsh in comparison to the national standard, an appropriate adjustment will be made to the marks of the whole cohort, retaining the centre's rank ordering.

Where centre application of the marking criteria is inconsistent, an appropriate adjustment for the whole cohort may not be possible on the basis of the sample of candidate work. In these instances a complete remark of the candidate work may be necessary. This may be carried out by the centre based on feedback provided by the moderator, or carried out by the moderator directly.

Moderation applies to all internally marked assignments. Following standardisation and marking, the centre submits all marks and candidate work to City & Guilds via the moderation platform.. The deadline for submission of evidence will be available on Walled Garden. See the *Marking and moderation - Technicals Centre Guidance* document for full details of the requirements and process.

In most cases candidate work will be submitted directly to the moderator for moderation. This includes written work, photographic and pictorial evidence, or video and audio evidence. For some qualifications there will be a requirement for moderators to visit centres to observe practical assessments being undertaken. This will be for qualifications where the assessment of essential learner skills can only be demonstrated through live observation. The purpose of these visits is to ensure that the centre is assessing the practical skills to the required standards, and to provide the moderators with additional evidence to be used during moderation. These visits will be planned in advance with the centre for all relevant qualifications.

Post-moderation procedures

Once the moderation process has been completed, the confirmed marks for the cohort are provided to the centre along with feedback from the moderator on the standard of marking at the centre, highlighting areas of good practice, and potential areas for improvement. This will inform future marking and internal standardisation activities.

City & Guilds will then carry out awarding, the process by which grade boundaries are set with reference to the candidate evidence available on the platform.

Centres retaining evidence

Centres must retain assessment records for each candidate for a minimum of three years. To help prevent plagiarism or unfair advantage in future versions, candidate work may not be returned to candidates. Samples may however be retained by the centre as examples for future standardisation of marking.

7 Grading

Awarding individual assessments

Individual assessments will be graded, by City & Guilds, as pass/merit/distinction where relevant. The grade boundaries for pass and distinction for each assessment will be set through a process of professional judgement by technical experts. Merit will usually be set at the midpoint between pass and distinction. The grade descriptors for pass and distinction, and other relevant information (e.g. archived samples of candidate work and statistical evidence) will be used to determine the mark at which candidate performance in the assessment best aligns with the grade descriptor in the context of the qualification's purpose. Boundaries will be set for each version of each assessment to take into account relative difficulty.

Please note that as the Merit grade will usually be set at the arithmetical midpoint between pass and distinction, there are no descriptors for the Merit grade for the qualification overall.

Grade descriptors

To achieve a pass, a candidate will be able to

- Demonstrate the knowledge and understanding required to work in the occupational area, its principles, practices and legislation.
- Describe some of the main factors impacting on the occupation to show good understanding of how work tasks are shaped by the broader social, environmental and business environment it operates within.
- Use the technical industry specific terminology used in the industry accurately.
- Demonstrate the application of relevant theory and understanding to solve non-routine problems.
- Interpret a brief for complex work related tasks, identifying the key aspects, and showing a secure understanding of the application of concepts to specific work related tasks.
- Carry out planning which shows an ability to identify and analyse the relevant information in the brief and use knowledge and understanding from across the qualification (including complex technical information) to interpret what a fit for purpose outcome would be and develop a plausible plan to achieve it.
- Achieve an outcome which successfully meets the key requirements of the brief.
- Identify and reflect on the most obvious measures of success for the task and evaluate how successful they have been in meeting the intentions of the plan.
- Work safely throughout, independently carrying out tasks and procedures, and having some confidence in attempting the more complex tasks.

To achieve a distinction, a candidate will be able to

- Demonstrate the excellent knowledge and understanding required to work to a high level in the occupational area, its principles, practices and legislation.
- Analyse the impact of different factors on the occupation to show deep understanding of how work tasks are shaped by the broader social, environmental, and business environment it operates within.
- Demonstrate the application of relevant theory and understanding to provide efficient and effective solutions to complex and non-routine problems.
- Analyse the brief in detail, showing confident understanding of concepts and themes from across the qualification content, bringing these together to develop a clear and stretching plan, that would credibly achieve an outcome that is highly fit for purpose.

- Achieve an outcome which shows an attention to detail in its planning, development and completion, so that it completely meets or exceeds the expectations of the brief to a high standard.
- Carry out an evaluation in a systematic way, focussing on relevant quality points, identifying areas of development/ improvement as well as assessing the fitness for purpose of the outcome.

Awarding grades and reporting results

The overall qualification grade will be calculated based on aggregation of the candidate's achievement in each of the assessments for the mandatory units, taking into account the assessments' weighting. The **Level 3 Advanced Technical Certificate in Land and Wildlife Management** will be reported on a four grade scale: Pass, Merit, Distinction, Distinction*.

All assessments must be achieved at a minimum of Pass for the qualification to be awarded. Candidates who fail to reach the minimum standard for grade Pass for an assessment(s) will not have a qualification grade awarded and will not receive a qualification certificate.

The approximate pass grade boundary for the synoptic assignment in this qualification are:

Synoptic Assignment	Pass Mark (%)
002	40

Please note that each synoptic assignment is subject to an awarding process before final grade boundaries are confirmed.

The contribution of assessments towards the overall qualification grade is as follows:

Assessment method	Grade scale	% contribution
(002) Synoptic Assignment	X/P/M/D	60%
(001/501) Exam	X/P/M/D	40%

Both synoptic assignments and exams are awarded (see 'Awarding individual assessments' at the start of Section 7, above), and candidates' grades converted to points. The minimum points available for each assessment grade is listed in the table below. A range of points between the Pass, Merit and Distinction boundaries will be accessible to candidates. For example a candidate that achieves a middle to high Pass in an assessment will receive between 8 and 10 points, a candidate that achieves a low to middle Merit in an assessment will receive between 12 and 14 points. The points above the minimum for the grade for each assessment are calculated based on the candidate's score in that assessment.

	Pass	Merit	Distinction
Exam (001/501): 40%	6	12	18
Synoptic Assignment (002): 60%	6	12	18

The candidate's points for each assessment are multiplied by the % contribution of the assessment and then aggregated. The minimum points required for each qualification grade are as follows:

Qualification	Minimum
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Grade	points
Distinction*	20.5
Distinction	17
Merit	11
Pass	6

Candidates achieving Distinction* will be the highest achieving of the Distinction candidates

8 Administration

Approved centres must have effective quality assurance systems to ensure valid and reliable delivery and assessment of qualifications. Quality assurance includes initial centre registration by City & Guilds and the centre's own internal procedures for monitoring quality assurance procedures.

Consistent quality assurance requires City & Guilds and its associated centres to work together closely; our Quality Assurance Model encompasses both internal quality assurance (activities and processes undertaken within centres) and external quality assurance (activities and processes undertaken by City & Guilds).

For this qualification, standards and rigorous quality assurance are maintained by the use of:

- internal quality assurance
- City & Guilds external moderation.

In order to carry out the quality assurance role, Internal Quality Assurers (IQAs) must have and maintain an appropriate level of technical competence and have recent relevant assessment experience. For more information on the requirements, refer to *Section 2: Centre requirements* in this handbook.

To meet the quality assurance criteria for this qualification, the centre must ensure that the following procedures are followed:

- suitable training of staff involved in the assessment of the qualification to ensure they understand the process of marking and standardisation
- completion by the person responsible for internal standardisation of the Centre Declaration Sheet to confirm that internal standardisation has taken place
- the completion by candidates and supervisors/tutors of the record form for each candidate's work.

External quality assurance

City & Guilds will undertake external moderation activities to ensure that the quality assurance criteria for this qualification are being met. Centres must ensure that they co-operate with City & Guilds staff and representatives when undertaking these activities.

City & Guilds requires the Head of Centre to

- facilitate any inspection of the centre which is undertaken on behalf of City & Guilds
- make arrangements to receive, check and keep assessment material secure at all times,
- maintain the security of City & Guilds confidential material from receipt to the time when it is no longer confidential and
- keep completed assignment work and examination scripts secure from the time they are collected from the candidates to their dispatch to City & Guilds.

Enquiries about results

The services available for enquiries about results include a review of marking for exam results and review of moderation for internally marked assessments

For further details on enquiries and appeals process and for copies of the application forms, please visit the **appeals page** of the City & Guilds website at **www.cityandguilds.com**.

Re-sits and shelf-life of assessment results

Re-sits and shelf-life of assessment results Candidates who have failed an exam or wish to re-take it in an attempt to improve their grade, can do so **twice**. The best result will count towards the final qualification. See guidance on individual assessment types in Section 5.

Factors affecting individual learners

If work is lost, City & Guilds should be notified immediately of the date of the loss, how it occurred, and who was responsible for the loss. Centres should use the JCQ form, JCQ/LCW, to inform City & Guilds Customer Services of the circumstances.

Learners who move from one centre to another during the course may require individual attention. Possible courses of action depend on the stage at which the move takes place. Centres should contact City & Guilds at the earliest possible stage for advice about appropriate arrangements in individual cases.

Malpractice

Please refer to the City & Guilds guidance notes *Managing cases of suspected malpractice in examinations and assessments*. This document sets out the procedures to be followed in identifying and reporting malpractice by candidates and/or centre staff and the actions which City & Guilds may subsequently take. The document includes examples of candidate and centre malpractice and explains the responsibilities of centre staff to report actual or suspected malpractice. Centres can access this document on the City & Guilds website.

Examples of candidate malpractice are detailed below (please note that this is not an exhaustive list):

- falsification of assessment evidence or results documentation
- plagiarism of any nature
- collusion with others
- copying from another candidate (including the use of ICT to aid copying), or allowing work to be copied
- deliberate destruction of another's work
- false declaration of authenticity in relation to assessments
- impersonation.

These actions constitute malpractice, for which a penalty (eg disqualification from the assessment) will be applied.

Where suspected malpractice is identified by a centre after the candidate has signed the declaration of authentication, the Head of Centre must submit full details of the case to City & Guilds at the earliest opportunity. Please refer to the form in the document *Managing cases of suspected malpractice in examinations and assessments*.

Access arrangements and special consideration

Access arrangements are adjustments that allow candidates with disabilities, special educational needs and temporary injuries to access the assessment and demonstrate their skills and knowledge

without changing the demands of the assessment. These arrangements must be made before assessment takes place.

It is the responsibility of the centre to ensure at the start of a programme of learning that candidates will be able to access the requirements of the qualification.

Please refer to the *JCQ access arrangements and reasonable adjustments and Access arrangements - when and how applications need to be made to City & Guilds* for more information. Both are available on the City & Guilds website: <http://www.cityandguilds.com/delivering-our-qualifications/centre-development/centre-document-library/policies-and-procedures/access-arrangements-reasonable-adjustments>

Special consideration

We can give special consideration to candidates who have had a temporary illness, injury or indisposition at the time of the examination. Where we do this, it is given after the examination.

Applications for either access arrangements or special consideration should be submitted to City & Guilds by the Examinations Officer at the centre. For more information please consult the current version of the JCQ document, *A guide to the special consideration process*. This document is available on the City & Guilds website: <http://www.cityandguilds.com/delivering-our-qualifications/centre-development/centre-document-library/policies-and-procedures/access-arrangements-reasonable-adjustments>

UAN:	A/507/4634
Level:	3
GLH:	30

What is this unit about?

This unit aims to provide learners with an understanding of the principles of health and safety and how these can be applied in practice within land-based or related industries. This unit is primarily aimed at learners within a centre-based setting looking to progress into the sector or further education and training.

Learners will be able to recognise common health and safety practices and processes which they will encounter within the workplace. The land-based sector has one of the worst fatal accident records of any major industrial sector and a lack of basic training and/or competency is often a contributory factor. There is a need for new entrants to these industries to gain essential health and safety knowledge in order to minimise harm to themselves and to improve attitudes and behaviour in the workplace. In addition, the learners have the opportunity to consider factors which are specific to their workplace.

This unit must be taught alongside **all** technical units within the qualification ensuring learners gain an appreciation of its importance and so that they are equipped with knowledge and understanding to protect themselves and others when working in the industry.

Learning outcomes:

In this unit, learners will be able to

1. Understand health and safety legislation
2. Understand the risk assessment process
3. Understand first aid requirements
4. Understand safe manual handling principles
5. Understand the use of fire extinguishers

Scope of content

This section gives details of the scope of content to be covered in the teaching of the unit to ensure that all the learning outcomes can be achieved.

Learning outcome:

1. Understand health and safety legislation

Topics

- 1.1 Impact of good and bad practice upon individuals and businesses
- 1.2 Key legislation relating to health, safety and welfare
- 1.3 Statutory duties of employers, employees and the self-employed
- 1.4 Consequences of not complying with statutory duties
- 1.5 How individuals can contribute to establishing a good health and safety culture

Topic 1.1

Learners will know direct and indirect consequences of poor standards of workplace health and safety practice on both businesses and individuals, to include:

Financial eg:

- prosecution fines and legal fees
- compensation claims
- repairs/replacement of equipment
- recruit and train new staff
- increased insurance premiums

Emotional eg:

- guilt and grief
- stress

Reputation eg:

- loss of reputation
- bad publicity

Employees eg:

- reduced staff morale and productivity
- increased staff turnover and sickness

Social eg:

- loss of independence
- reduced social activity

Topic 1.2

Learners will know key legislation relating to health, safety and welfare within the workplace, for example, Health and Safety at Work etc. Act 1974 and the Management of Health and Safety at Work Regulations 1999. Learners will understand the importance of accident and incident reporting in accordance with the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) 2013. Learners will understand the legal status and practical implications of approved codes of practice and industry specific best practice guidance.

Topic 1.3

Learners will know the statutory duties of employers, employees and the self-employed, to include:
Employers:

- provide a safe working environment

- provide safe equipment and systems of work.
- provide information, instruction, training and supervision.
- arrange for the safe storage, transport and use of articles and substances.
- provide adequate welfare facilities.

Employees:

- take reasonable care of their own health and safety.
- take reasonable care of other people who may be affected by what they do or don't do at work.
- cooperate with their employer on health and safety.
- not interfere with or misuse anything provided for their health, safety or welfare

Topic 1.4

Learners will know the powers of health and safety enforcement officers (eg inspection, investigation and guidance) and identify the range of enforcement actions and penalties that may be imposed (eg prohibition and improvement notices, intervention fee and prosecutions).

Topic 1.5

Learners will understand how individuals can contribute to establishing a good health and safety culture within their workplace, for example:

- prompt reporting of defective safety equipment or other matters of concern
- always use control measures and personal protective equipment (PPE) as instructed
- help others to work safely by sharing knowledge and good practice
- set a good example to others by always working safely
- follow instructions and safe working procedures

Learning outcome:

2. Understand the risk assessment process

Topics

2.1 Principles of risk assessment

2.2 Workplace hazards

2.3 Risk assessment

Learning outcome 2 provides learners with the knowledge on the requirements and importance of carrying out risk assessments. Learners will be expected to carry out risk assessments in practice when performing their industry specific activities as required.

Topic 2.1

Learners will understand the legal requirement to carry out suitable and sufficient risk assessments. They will understand the responsibilities of the employer, self-employed and employee within the risk assessment process and identify when expert advice and guidance may be required (eg lack of experience or knowledge).

Topic 2.2

Learners will know common hazards associated with a workplace which could result in serious harm to themselves or others (eg visitors, colleagues, members of the public).

Topic 2.3

Learners will understand how to undertake a detailed risk assessment within the context of their

workplace, following the Health and Safety Executive 'Five Steps to Risk Assessment', to include:

- identification of the hazards
- identification of who might be harmed and how they might be harmed
- evaluation of the risks and decide how the level of risk may be controlled
- recording and implementation of the results, as well as communication to others who may be affected
- reviewing risk assessments and suggesting when risk assessments should be reviewed.

Learners will also know the hierarchy of risk control:

- elimination
- substitution
- safe working procedures
- training, instruction and supervision
- personal and respiratory protective equipment (PPE/RPE).

Learning outcome:

3. Understand first aid requirements

Topics

3.1 Planning for emergencies and first aid provision in the workplace

3.2 Procedures when encountering an accident or medical emergency

3.3 First aid for common emergencies

In this outcome learners will explore the importance of planning to and subsequently how to manage common first aid emergencies which may arise in the workplace, with emphasis upon their workplace. Learners should be aware of the aims of first aid (ie, preserve life, prevent injuries worsening and promote recovery) Evidence towards this outcome could come from a current first aid training qualification (ie, appointed persons or first aid at work).

Topic 3.1

Learners will understand the importance of emergency planning, especially for lone or isolated working, and the responsibilities of a first aider. Learners will also know the minimum requirements for first aid at work and identify supplementary arrangements which may be appropriate for their workplace.

Topic 3.2

Learners will know the procedures to follow when encountering an accident or medical emergency. Learners will know how to check the incident site to minimize risk to themselves, assess the situation, and how and when to contact the emergency services and identify prioritisation of activities (eg, 'DRABC').

Topic 3.3

Learners will know how to manage the following common situations as well as other significant situations appropriate to their workplace:

- wounds and burns
- choking
- severe bleeding
- shock
- concussion

- unconscious casualties
- falls from height
- suspected broken limbs and dislocations
- heart attacks.

Learners will know how to recognise their own limitations and explain how to monitor the condition of the casualty and prevent an injury from worsening.

Learning outcome:

4. Understand safe manual handling principles

Topics

4.1 Principles of safe manual handling

4.2 Safe manual handling of common items

In this outcome learners will need to investigate the principles of risk assessment relevant to manual handling in order to plan for and safely move a range of common items associated with their workplace. Learners should have access to a range of common mechanical aids and these should be used as appropriate.

Topic 4.1

Learners will understand how manual handling at work should be minimised and identify appropriate alternatives and mechanical aids. They will know the common causes of injuries associated with poor manual handling within the workplace.

Topic 4.2

Learners will understand how to safely move a range of common items within their workplace. They will know appropriate mechanical aids for a range of common manual handling activities within their workplace.

Learning outcome:

5. Understand the use of fire extinguishers

Topics

5.1 Use of fire extinguishers

Topic 5.1

Learners will know the types, use and colours of portable fire extinguishers, to include:

- water
- dry powder
- foam
- CO2.

Learners will know how to recognise their own limitations in managing fires in the workplace.

Guidance for delivery

On completion of this unit, the learner will have developed an understanding of some of the key underlying principles and practices of health and safety to help prepare them to enter the workplace. It will be important that delivery relates to example situations that are vocationally relevant to the learners.

Visiting speakers eg paramedics, health and safety consultants or inspectors could enhance the relevance of the subject to learners.

Suggested learning resources

Books

Farmwise - Your Essential Guide to Health and Safety in Agriculture Health and Safety Executive
Published by: Health and Safety Executive Books, 2013
ISBN: 0717665097

Health & Safety at Work Essentials Chadder, P & Duncan, M
Published by: Lawpack Publishing Ltd., 8th Edition, 2014
ISBN: 1910143006

Health and Safety at Work: An Essential Guide for Managers Stranks, J
Published by: Kogan Page, 9th edition, 2010
ISBN: 0749461195

Websites

Health and Safety Executive (HSE) [http:// www.hse.gov.uk](http://www.hse.gov.uk)

The Royal Society for the Prevention of Accidents (ROSPA) <http://www.rospa.com/>

Unit 302

Undertake and review work related experience in the land based industries

UAN:	F/507/4635
Level:	3
GLH:	30

What is this unit about?

The aim of this unit is to give learners the skills needed to identify, participate in and review work experience in the environmental and land-based sector. The unit is primarily aimed at learners within a centre-based setting looking to progress into the sector or further education and training.

Learning outcomes

In this unit, learners will be able to

1. Determine employment opportunities in the environmental and land-based industries
2. Prepare for a work-based experience in the environmental and land-based industry
3. Understand the importance of effective interpersonal skills in the workplace
4. Review a work-based experience in the environmental and land-based sector

Scope of content

This section gives details of the scope of content to be covered in the teaching of the unit to ensure that all the learning outcomes can be achieved.

Learning outcome:

1. Determine employment opportunities in the environmental and land-based industries

Topics

1.1 Career and progression opportunities within an environmental and land-based industry

In this outcome, learners will explore the different job roles and responsibilities, and the job titles commonly associated with them in their specialist sector. This background understanding is likely to require some formal classroom teaching. Learners should be encouraged to explore the range of employment opportunities and career paths within their specialist sector. Learners will then consider the skills and qualifications that are required for appropriate jobs for themselves and should be encouraged to think about skills and qualifications that they may need to acquire to achieve their employment and careers ambitions. This should help them to identify suitable work experience.

Topic 1.1

Learners will know the job roles relevant to the land based sector, to include:

- managerial
- supervisory
- team worker
- trainee
- volunteer
- common job titles within the relevant sector,
- main duties and responsibilities.

Learners will also know the skills, qualifications and experience needed to fulfil duties and responsibilities of appropriate jobs, to include:

- job specific
- vocational
- personal.

Learning outcome:

2. Prepare for a work-based experience in the environmental and land-based industry

Topics

2.1 Appropriate work-based experience and the application process

2.2 Interview skills

This outcome involves learners going through the process of applying for work experience. They will need to locate suitable job adverts or work experience opportunities, but can be supported by centres suggesting suitable placements. When applying for work experience learners should produce, as a minimum, a detailed curriculum vitae and letter of application using a computer. It will be beneficial for learners to attend a real or simulated interview, and reflect on their performance outlining how they could improve their effectiveness.

Topic 2.1

Learners will find a suitable job opportunity based on existing skills, experience, qualifications, development of skills and experience to achieve future employment goals. They will use a range of sources of information about work opportunities eg trade magazines, websites Learners will , complete an application form (if applicable), curriculum vitae and letter of application.

Topic 2.2

Learners will know how to prepare for an interview eg research the business and job role, suitable dress and personal presentation, information to find out and suitable questions to ask.

Learners will also know how to behave in an interview, eg:

- attend punctually
- dressed appropriately
- answering questions
- completion of other exams (eg practical, aptitude)
- reflection on interview performance.

Learning outcome:

3. Understand the importance of effective interpersonal skills in the workplace

Topics

3.1 The importance of effective interpersonal skills in the workplace

It would be appropriate for employers to be invited to outline to learners their expectations in the workplace.

Topic 3.1

Learners will understand the importance of effective interpersonal skills in the workplace when dealing with customers and colleagues, to include:

- effective communication (eg addressing others face to face, appropriate telephone manner, effective written communication, use of social media)
- courtesy and helpfulness
- appropriate dress and body language
- product knowledge
- use of technical terms.

Learning outcome:

4. Review a work-based experience in the environmental and land-based sector

Topics

- 4.1 Present evidence of activities and achievements during a work-based experience
- 4.2 Review a work-based experience, identifying strengths and areas for improvement
- 4.3 Evaluate future career aspirations

In this outcome, learners will use evidence from their work experience to present a report (eg written or visual), on their work experience business, job role, learning and achievements. They will then review the effectiveness of the workplace, making realistic and justified suggestions for improvement. Review of their own workplace performance and achievements should include all of the content identified, with reference to relevant evidence, eg reports, progress reviews, and the extent to which their aims, objectives/targets have been achieved. Learners should consider further training and experience that will help them to achieve their career ambitions.

Topic 4.1

Learners will present evidence of activities and achievements during a work-based experience to include, as appropriate: name of work experience provider, nature of the organisation (type of business, products or services, customers), organisation structure chart, main duties and responsibilities, regular daily working routine, evidence of safe working practices (eg PPE, risk assessments).

Topic 4.2

Learners will review their work-based experience, identifying strengths and areas for improvement, to include:

- work rate
- work quality and effectiveness
- punctuality
- attendance
- reliability
- dress and personal presentation
- working relationships with others work experience aims
- objectives and targets.

Topic 4.3

Learners will evaluate career aspirations, to include:

- advantages and disadvantages of identified pathways
- suitability to personal interests
- skills and qualifications.

Guidance for delivery

Learners on vocational courses should have experience of the type of work that they hope to do, and of the expectations of potential future employers.

Ideally this unit should be undertaken in a real business environment relevant to the subject interest of the learner, but actual work experience may be gained by a number of routes, eg as part of an industrial placement whilst within the programme, whilst working on a planned daily or weekly basis on the centre's commercial and/or educational facilities, whilst undertaking voluntary work within the industry, as previous relevant and current work experience in the industry or as a member of a group of learners invited to carry out practical work on a suitable business.

Throughout the unit, the emphasis should be on safe working. It is expected that learners will be aware of safe working practices and familiar with accepted practices and behaviours within the context in which they are working.

Learners should complete a minimum of 150 hours of work experience to achieve this unit. If work experience is in the industry, centres should be mindful of their responsibilities for ensuring that work placements have appropriate supervision, insurance and health and safety policies in place.

It is recommended that a summary report is completed by the employer at the end of the work placement.

Unit 303

Land based industry machinery operations

UAN:	J/507/4636
Level:	3
GLH:	60

What is this unit about?

This unit aims to provide learners with an understanding of the principles of land based machinery operations and how these can be applied in practice. This unit is primarily aimed at learners within a centre-based setting looking to progress into the sector or further education and training.

The learners will study the purpose and operation of land based machines including machine operating and working principles. They will explore routine maintenance and appropriate Personal Protective Equipment. They will also develop knowledge of the legal requirements and industry best practice guidance for land based machinery. They will learn how to safely operate and maintain machinery and consider the different conditions in which machinery might need to operate.

Learning outcomes

In this unit, learners will be able to

1. Understand the purpose and operation of land based industry machinery
2. Prepare land based industry machinery for work
3. Operate land based industry machinery

Scope of content

This section gives details of the scope of content to be covered in the teaching of the unit to ensure that all the learning outcomes can be achieved.

Learning outcome:

1. Understand the purpose and operation of land based industry machinery

Topics

1.1 Current legislation and industry guidance for land based industry machinery operation

1.2 Purpose and operation of land based machines

In Learning outcome 1 learners must understand the significance of current legislation and industry best practice guidance to the machinery they operate. Learners must also demonstrate understanding of the construction and working principles of a selection of machines commonly used in their specific land based industry, and knowledge of their work and performance parameters.

Topic 1.1

Learners will understand the significance of current legislation and industry best practice guidance to the machinery they operate. To include:

- Legislation: eg Provision and Use of Work Equipment Regulations 1998 (PUWER), Health and Safety at Work Act 1974, Management of Health and Safety at Work Regulations 1999, Control of Substances Hazardous to Health Regulations 2002 (COSHH), Manual Handling Operations Regulations 1992, Personal Protective Equipment (PPE) at Work Regulations 1992, Environmental Protection Act 1990, Wildlife and Countryside Act 1981, Control of Noise at Work Regulations 2005, Control of Vibration at Work Regulations 2005, Lifting Operations and Lifting Equipment Regulations 1998
- Industry best practice guidance.

Topic 1.2

Learners will understand the purpose, operating and working principles and limitations of land based industry machinery. For example:

- Purpose built, trailed, tractor mounted, self-propelled or pedestrian ,
- Power source (eg electric, battery, spark ignition, compression ignition, PTO and hydraulic)
- Drive and transmission systems
- Cutting mechanisms
- Cutting/loading capacity or range
- Input and output ranges and levels
- Terrain suitability
- Safety features.

Learning outcome:

2. Prepare land based industry machinery for work

Topics

2.1 Machinery preparation

2.2 Carry out pre-use checks

2.3 Identify common faults and suggest appropriate remedial action

2.4 Check and report on safety requirements

In Learning outcome 2 learners will demonstrate the ability to prepare machines for work. Machines will be specific to learners' area of study. It is essential that manufacturers' recommendations, user's manuals and machinery handbooks are available to the learner. It is expected that learners do this for three different machines.

Topic 2.1

Learners will prepare selected land based industry machinery for work in accordance with the manufacturers' recommendations, user's manual or machinery handbook.

Topic 2.2

Learners will carry out pre-use checks for selected land based industry machinery in accordance with the manufacturers' recommendations, user's manual or machinery handbook.

Topic 2.3

Learners will identify common faults and suggest appropriate remedial action to the machinery available to them. Common faults may include:

- Incorrect, polluted or lack of fuel
- blocked filters (air, fuel, oils)
- poor oil pressure
- damaged sprockets and fouled drive systems
- damaged or blunt blades
- fouled or incorrectly set gap of spark plugs
- starter recoil tension
- blocked mechanisms.

Topic 2.2

Learner will be able to check and report on the safety requirements for selected land based industry machinery in accordance with the manufacturers' recommendations, user's manual or machinery handbook.

Learning outcome:

3. Operate land based industry machinery

Topics

3.1 Carry out risk assessments

3.2 Ways to minimise possible environmental impacts of using selected land based industry machinery

3.3 Operate land based industry machinery

3.4 Carry out post operating procedures

In outcome 3 learners will be required to operate land based industry machinery. It is anticipated that the delivery of this outcome will be through supervised practical training and the learners will be able to consolidate operational skills within realistic working environments. As a minimum, it is expected that the learner will be able to operate three powered machines appropriate to their area of study in a realistic industrial environment where possible. The learner should be given appropriate time in order to develop operational skills before assessment. The learner is not required to transport machinery, but should be aware of transport requirements.

Topic 3.1

Learners will carry out risk assessments for the machines they are to operate in accordance with The Management of Health and Safety at Work Regulations 1999.

Topic 3.2

Learners will know how to minimise possible environmental impacts of land based industry machinery, eg:

- Oil and fuel spillage and storage
- Emissions
- Soil stability and erosion
- Protected species
- Waste disposal
- Watercourses.

Topic 3.3

Learners will demonstrate safe and efficient operation of specialist land based industry machinery, to include as appropriate:

- Risk assessment
- Adherence to industry safety guidance and operator's manual,
- Safe start and stop,
- Monitoring of machine performance and output
- Effective communications
- Clearance of blockages,
- Conversion between work and transport positions
- Economic operation
- Safe and efficient operation.

Topic 3.4

Learners will carry out post operating procedures appropriate to machinery operated, to include:

- Cleaning
- Inspecting for and reporting of damage or defects
- Lubrication
- Storage.

Guidance for delivery

This unit is designed to give learners knowledge, understanding and practical skills to enable them to recognise and understand the working principles of land based industry machinery typically used in their area of study.

Learners will be able to demonstrate pre use checks and fault finding of a range of selected machines. They will be able to prepare machines for work and operate them safely and efficiently. An emphasis will be put on the use of manufacturers' recommended procedures, health and safety issues and safe working practices.

Learners must show awareness and consideration of hazards and risks at all times, particularly during operational situations where levels of risk may vary at any given time.

Where possible, tasks should be undertaken in a real working environment. Following operations, learners will demonstrate simple inspection and maintenance and pre storage tasks to minimise degeneration of the machine, and to ensure it is in a useable condition for subsequent operations.

Suggested learning resources

Books

Arboricultural Association Health and Safety Package
Published by: Arboricultural Association, 2005
ISBN: 0900978406
Arboricultural Association

Winching Operations in Forestry: Tree Takedown and Vehicle Debogging
Ireland, D
Published by: Stationary Office Books, 2004
ISBN: 085538638X

Tractors Fundamentals of Machine Operation
Published by: John Deere Publishing, 1994
ISBN: 0866912126
Hathaway, L

Chainsaw Operator's Manual: The Safe Use of Chainsaws
Published by: Landlinks Press, 2009
ISBN: 0643090282
Kestel, B

Tractor Operation and Maintenance
Published by: Inkata Press, 1999
ISBN: 0750689145
Southorn, N

Tractor Power
Published by: Farming Press, 2000
ISBN: 0852365144
Williams, M

Journals and magazines

- Arboricultural Association newsletter
- Forestry and British Timber
- Arboriculture and Forestry Advisory Group (AFAG) Safety Guides
- Forest Industry Safety Accord (FISA) Safety Guides

Websites

The Arboricultural Association	http://www.trees.org.uk
The Forest Industry Safety Accord	http://www.ukfisa.com
The Forestry Commission	http://www.gorestry.gov.uk
The Health and Safety Executive	http://www.hsegov.uk

Unit 304

Population surveys, ecology and conservation

UAN:	D/507/7090
Level:	3
GLH:	60

What is this unit about?

This unit aims to provide learners with an understanding of the principles of ecology and conservation and how these can be applied in practice within the land-based sector. This unit is primarily aimed at learners within a centre-based setting looking to progress into the sector of further education and training.

The unit aims to enable learners to explore a range of ecosystems and will allow them to investigate how ecosystems naturally change through time and how they are affected by human activity. Learners will understand how an ecosystem functions and will investigate the roles of different organisms and how these different organisms interact. Learners will also understand the value of the services that ecosystems provide. Learners will also understand how natural resources, species and habitats are protected both nationally and internationally and will investigate a range of current conservation strategies.

The unit also aims to enable learners to be able to identify and conduct surveys of ecosystems, habitats and populations.

The applied purpose of this unit is for learners to develop a sound understanding of the principles of ecology and conservation, and to learn how to accurately undertake field surveys. The new skills and knowledge acquired through this unit will enable learners to both accurately assess the status and condition of habitats and species as well as knowing how such resources would be best protected in the future.

Learning outcomes

In this unit, learners will be able to

1. Understand the principles of ecology and how ecosystems function
2. Understand human impacts on global ecosystems and biodiversity
3. Understand national and international conservation strategies
4. Carry out flora and fauna surveys

Scope of content

This section gives details of the scope of content to be covered in the teaching of the unit to ensure that all the learning outcomes can be achieved.

Learning outcome:

1. Understand the principles of ecology and how ecosystems function

Topics

- 1.1 Ecological principles and ecosystems
- 1.2 Population dynamics and how populations change.
- 1.3 Predator prey interactions within populations
- 1.4 Types of evolution within animal populations and classification

Topic 1.1

The learner will understand the ecological principles and ecosystems:

- Definitions
- levels of organization (cells, tissues, organisms, individuals, populations, communities, ecosystems, biomes)
- characteristics of major biomes
- trophic levels
- energy flow
- ecological pyramids
- abiotic and biotic factors
- food chains
- food webs
- niches (carnivore, herbivore, omnivore, generalists, specialists)
- species adaptation.

Topic 1.2

The learner will understand the principles of population dynamics:

- Growth
- Dispersion
- genetic variability
- continuity in time
- factors that influence population
- size
- form
- resources
- demes
- fluctuations
- fecundity
- natality
- mortality
- immigration
- emigration
- dispersal
- breeding strategies (r and K)

- concepts of carrying capacity
- metapopulations
- density dependent and independent factors.

Topic 1.3

The learner will understand predator prey interactions:

- Relationship types (eg true predation, parasitism, parasitoidism, grazing)
- hunting strategies
- predation theories
- predator and prey density
- Boom-bust cycles
- life tables and survivorship.

Topic 1.4

The learner will understand evolution and taxonomy:

- Historical development of biota
- five kingdoms
- taxonomy
- species classification
- concept of a species
- types of evolution (eg divergent, convergent, parallel, co-evolution)
- speciation
- development of the theory of evolution (eg Darwin, Mendel, Wallace).

Learning outcome:

2. Understand human impacts on global ecosystems and biodiversity

Topics

- 2.1 Changes in global ecosystems
- 2.2 Global wildlife population fluctuations
- 2.3 Population changes in ecosystems

Topic 2.1

The learner will understand the reasons for change in global changes in ecosystems:

- Overharvesting of plants and animals
- introduction of non-native species
- habitat destruction
- fragmentation
- climate change and pollution
- changing seasons and phenology
- disease
- decrease in biological diversity
- population shifts
- trends
- scales
- individuals

- species
- communities
- changing ecological niches.

Topic 2.2

The learner will understand the reasons for global wildlife population fluctuation:

- Seasonality
- Migration
- emerging diseases
- climate change
- habitat destruction
- influence of man.

Topic 2.3

The learner will understand population changes in ecosystems

Learning outcome:

3. Understand national and international conservation strategies

Topics

3.1 National conservation strategies for wildlife and their habitats

3.2 International conservation strategies for wildlife and their habitats

Topic 3.1

The learner will understand the national conservation strategies:

- Relevant legislation and regulations (eg Wildlife and Countryside Act 1981 (plus relevant amendments)
- National Environment and Rural Communities Act 2006
- Conservation (Natural Habitats etc) Regulations 1994
- CRoW Act 2000
- Badger Act
- Marine and Coastal Access Act 2009.

Specific Conservation Projects/Strategies (Royal Society for the Protection of Birds (RSPB), Wildlife Trusts, Wild Trout Trust, Zoological Society London (ZSL), Forestry Commission, National Trust, British Trust for Ornithology (BTO), GWCT (Game and Wildlife Conservation Trust), Environment Agency, Local Rivers Trusts.

Species re-introduction / re-habilitation projects (eg sea eagle, salmon, european eel, water vole, beaver, grey partridge, white clawed crayfish, capercaillie, black grouse, large blue butterfly, sand lizard, short-haired bumblebee).

Current agri-environment schemes, landscape scale projects.

Topic 3.2

The learner will understand International Conservation Strategies:

Relevant conventions, legislation and regulations eg Water Framework Directive, Ramsar, Natura 2000, Habitats Directive and European Protected Species (EPS), Birds Directive, Bern Convention,

Bonn Convention, Convention on Biological Diversity (CBD), CITES.

Current Conservation strategies : charity strategies, International Union Conservation of Nature (IUCN), endangered species international, Worldwide Fund for Nature (WWF), application of the Convention on International Trade in Endangered Species (CITES), UN Convention on Biological Diversity, British and Irish association of zoos and aquariums (BIAZA), Marine Conservation Society (MCS).

Learning outcome:

4. Carry out flora and fauna surveys

Topics

4.1 Method to survey habitats

4.2 Habitat survey planning

4.3 Habitat surveying

Topic 4.1

The learner will know the different methods of surveying habitats (eg Phase One Habitat Survey, simplified NVC surveys).

Topic 4.2

The learner will be able to plan and select an appropriate method to undertake a habitat survey:

- Objective setting and planning
- risk assessment
- health and safety
- legislation
- codes of practice.

The learner will select an appropriate survey method: (eg Quadrats, Transects, Kick Sampling, Longworth Trapping, Pitfall Traps, Point Counts, Dung Counts, Vantage point counts, Tracks and Signs, Seine netting, trapping, tow nets, quantitative electric fishing, connective rod snakes.

Topic 4.3

The learner will be able to carry out a habitat Survey and present results.

Guidance for delivery

This unit is designed to provide an overview of the principles of ecology and conservation that influence wildlife populations at a National and International level. Learners will build their understanding of how ecosystems function and how species interact. They will also investigate the 'species' concept and will learn how species have emerged and diversified to create the current levels of global biological diversity.

The unit should consider a range of species and habitats from both the UK and internationally and learners should be encouraged to develop their understanding of the historic, current and emerging issues facing habitats and species. Learners should then be able to examine a range of strategies at both national and international levels that have been put in place to help safeguard the future of habitats and species. Through the examination of an extensive range of national and global case study examples the learner should be able to appreciate the nature and scale of many of the threats impacting on global ecosystems.

Learners will apply their learning by undertaking a range of habitat and species surveys. Safe working practice, risk assessments and permissions will all be sought and followed at all times.

Learners will learn through formal lectures, site visits with expert guidance, museum visits, in addition to carrying out habitat and species surveys,

Learning outcome 1

Learners will study the underpinning principles of ecology and how ecosystems function. They will investigate how the natural world functions and how species interact. Concepts of energy flow through ecosystems should be investigated and the roles played by different organisms should be examined. The characteristics of the main global biomes and ecosystems should be explored and learners will be encouraged to look at how species and communities of organisms have evolved within different environments through history. Learners will study the natural population dynamics of different species and case studies should be used extensively to illustrate these fluctuations.

Learning outcome 2

Learners will look at how global ecosystems have been damaged, modified, altered by human beings. This part of the unit should give learners the opportunity to examine the nature of changes in global ecosystems and to evaluate the scale of ecosystem change. The impacts of anthropogenic changes can then be studied with a particular focus on the effects on overall biological diversity. Modern concepts such as 'ecosystem services' should be explored to assist the learners appreciation of the value of global ecosystems. This learning outcome could be delivered through group exploration of a range of case studies in addition to lectures and classroom sessions. Visual media such as relevant DVD and video footage could be used to help contextualise learning.

Learning outcome 3

Learners will explore the range of national and international methods of protecting habitats and species. Both legislative measures and specific conservation projects could be explored and the effectiveness of these measures could also be discussed and evaluated, Learners could look at specific case study examples of species and how they are afforded protection both nationally and internationally. This learning outcome could be contextualised by additional guest speakers and site visits and presentations looking at case studies of notable species.

Learning outcome 4

Learners should be given the opportunity to undertake a broad habitat survey that identifies the general habitat types and landscape characteristics of a local area, A Phase One Habitat Survey would be ideal and the resources needed to complete this survey are listed in the suggested learning resources section. In addition, learners should plan and carry out an appropriate survey on a local animal population. An appropriate survey technique should be agreed and health and safety, relevant laws, and codes of practice should be adhered to at all times. By undertaking these surveys learners will gain experience in assessing the status of populations and the type and quality of habitat. The selection of an appropriate survey method should be left at the discretion of each centre but should be a recognised, industry relevant survey technique for the species selected.

Employer engagement

This unit will provide ample opportunities for employer engagement as site visits, guest speakers and presentations could be built in to the delivery of this unit. For example, centres should use their industrial contacts to arrange opportunities for employer engagement. In addition, the unit covers the undertaking of a range of surveys. Established survey methods should be used by the learners as this will provide them with a key applicable skill when sourcing employment.

Suggested learning resources

Books

- Conservation and the genetics of populations
Published by: Blackwell Pub., 2007
ISBN: 0470671459
Allendorf, F & Luikart, G
- Ecology
Published by: Blackwell Pub., 2006
ISBN: 1405111178
Begon, M; Townsend, C & Harper, J
- Ecology: Principles and Applications. 1st ed.
Published by: Cambridge University Press, 1998
ISBN: 9780521588027
- Live Trapping Small Mammals. 1st ed.
Published by: Mammal Society, 2006
ISBN: 9780906282540
Gurnell, J & Flowerdew, J
- Handbook for Phase 1 Habitat Survey: A Technique for Environmental Audit: Field Manual
JNCC
Published by: Joint Nature Conservation Committee, 1990
ISBN: 9780861396375
- Behavioural Ecology : An evolutionary approach
Published by: Wiley Blackwell, 1977
ISBN: 0632035463
Krebs, JR & Davies, B
- 99% Ape: How evolution adds up
Published by: Natural History Museum, 2008
ISBN: 0565092316
Silvertown, J et al
- Ecological Census Techniques: A handbook
Published by: Cambridge University Press, 2nd edition, 2006
ISBN: 9780521606363
Sutherland, W(ed)
- Essentials of Ecology, 3rd Edition
Published by: Wiley-Blackwell, 2008
ISBN: 9781405156585
Townsend, C; Begon M & Harper, J
- Practical field ecology
Publisher: John Wiley & Sons; 1 edition, 2011
ISBN-10: 0470694297
ISBN-13: 978-0470694299
Wheater, C; Bell, J & Cook, P

Journals and magazines

- Journal of Ecology
- British Wildlife
- Conservation Land Management
- Ecology
- BBC Wildlife
- Birds
- Forest Life
- Shooting and Conservation

Websites

Natural History Museum	http://www.nhm.ac.uk
Joint Nature Conservation Committee	http://www.jncc.defra.gov.uk
Naturenet	http://www.naturenet.net
Game and Wildlife Conservation Trust	http://www.gwct.org.uk
Green Facts	http://www.greenfacts.org/en/ecosystems
IUCN	http://www.iucn.org
CIEEM	http://www.cieem.net
Natural England	https://www.gov.uk/government/organisations/natural-england
The Atlantic Salmon Trust	http://www.atlanticsalmontrust.org
The Marine Conservation Society	http://www.mcsuk.org
NASCO – North Atlantic Salmon Conservation Organisation	http://www.nasco.int
BIAZA – British and Irish Zoo Association	http://www.biaza.org.uk

UAN:	H/507/7091
Level:	3
GLH:	60

What is this unit about?

The purpose of this unit is for learners to acquire the skills and knowledge used in countryside recreation provision, and how these can be applied in practice.

The learners will examine the question “is there a need for countryside recreation” looking at both the historical perspective, and the current picture of countryside recreation provision within the UK. By understanding the current provision, the learners will be able to examine the impacts that countryside recreation have upon the natural resource, and also the impact that socio-economic factors, climate, and other trends have upon the type of countryside recreation provision.

The learners will examine some of the key organisations involved in delivery, planning, and management of countryside recreation, to assess how a network of organisations has evolved to fulfil the need of countryside recreation, whilst still working within the confines of the factors mentioned above.

Having understood the “why” and “what” of countryside recreation, the learners will understand some of the physical and psychological techniques of ensuring good recreation visitor management. This will involve an exercise in providing guided walks, as a practical assessment, to furnish the students with a practical skill in countryside recreation, namely the provision of guided walks, a consistently popular countryside recreation activity.

Learning outcomes:

In this unit, learners will be able to

1. Know the importance of countryside recreation in the UK
2. Understand factors affecting countryside recreation and impacts of countryside recreation
3. Know the roles and responsibilities of organisations involved in countryside recreation
4. Understand techniques for managing countryside recreation

Scope of content

This section gives details of the scope of content to be covered in the teaching of the unit to ensure that all the learning outcomes can be achieved.

Learning outcome:

1. Know the importance of countryside recreation in the UK

Topics

1.1 Historical context

1.2 Increase in provision

Topic 1.1

The learner will know how countryside recreation has evolved. This topic will give the learner an awareness, eg:

- Pre 19th century – right to roam on common land, land owners use for country sports
- 19th century – enclosures acts, rural depopulation led to need for countryside recreation,
- Early 20th century – Birth of organisations to meet demand eg Cycle touring club, Youth Hostel Association, Commons and Open Spaces Society, National Trust, Ramblers Association, BASC, British Field Sports Society
- Mid 20th century - National Parks and Access to the Countryside Act
- Late 20th century – Advent of sustainable tourism and outdoor adventure.

Topic 1.2

The learner will know the factors that have caused increases in recreation demand and provision, eg:

- Interest in wildlife and countryside
- leisure time
- access opportunities
- disposable income
- exercise
- media exposure
- recreational opportunities and activities (eg walking, angling, field sports, bird watching etc).

Learning outcome:

2. Understand factors affecting countryside recreation and impacts of countryside recreation

Topics

2.1 External factors that impact on countryside recreation

2.2 Impacts of countryside recreation on the environment

Topic 2.1

The learner will understand the external factors that impact on countryside recreation and their effect on the environment:

- Demographic factors – age, race, gender, economic status, level of education, income level and employment
- Financial factors – cost of participation, disposable income

- Social trends – leisure time, availability of transport
- Technology factors – media, equipment development
- Political factors – developments in legislation, pressure groups.

Topic 2.2

The learner will understand the impacts of countryside recreation on the environment, eg:

- Erosion
- Traffic
- Litter
- Pollution
- Disturbance
- Habitats
- Conflicts
- Noise
- Aesthetics
- rural economy
- employment.

Learning outcome:

3. Know the roles and responsibilities of organisations involved in countryside recreation

Topics

- 3.1 Aims/objectives of organisations
- 3.2 Organisation structure
- 3.3 Responsibilities of the organisation

Organisations to include Local councils, wildlife trusts, local charitable organisations and volunteer groups, other individual sport governing bodies.

Topic 3.1

The learner will know the aims and objectives of different organisations involved in countryside recreation.

Topic 3.2

The learner will know the different organisation structures, eg:

- Countryside Management - Natural England, Association of National Park Authorities, RSPB
- Game Management – BASC, NGO, Countryside Alliance
- Fishery Management – Environment Agency, Angling Trust.

Topic 3.3

The learner will understand the responsibilities of the different organisations.

Learning outcome:

4. Understand techniques for managing countryside recreation

Topics

- 4.1 Countryside recreation activities

4.2 Provision of outdoor activity planning

Topic 4.1

The learner will understand different types of opportunities for recreation activities in the countryside, eg:

- Walking
- Angling
- field sports
- bird watching.

Topic 4.2

The learner will understand how to plan for outdoor activities.

Guidance for delivery

This unit aims to provide learners with an understanding of the factors which affect countryside recreation opportunities and how these opportunities can benefit those accessing the countryside, those living and working in it and the countryside itself.

As learners will be engaged in visits and some practical activity there should be an emphasis on safe working practices, including the use of appropriate Personal Protective Equipment (PPE), and appropriate risk assessments should be undertaken.

In Learning outcome 1, learners will need to gain an understanding of the types of recreational opportunities available in the countryside. It would be helpful to experience this first hand through trips and visits to a range of local recreational sites. This outcome also includes gaining an understanding of reasons for an increase in countryside recreation. It would be particularly relevant to include recent factors, such as the economic climate and increased interest in the environment. This Outcome also includes gaining an overview of the changing face of recreation and developments in the activities available.

In Learning outcome 2 learners gain an understanding of the factors influencing countryside recreation, and the impacts of countryside recreation on the environment. In undertaking this the learners will gain a thorough understanding of the issues surrounding countryside recreation and the uptake of activities.

In Learning outcome 3 the learners gain an understanding of some of the key organisations involved with countryside recreation provision and planning and the roles and responsibilities of these organisations. This outcome would benefit from visiting speakers from those key organisations visits and web based research.

In Learning outcome 4 learners are required to research, observe and evaluate participation in countryside activities. This outcome will help support independent learner through the research, communication skills through speaking to participants and evaluation techniques through collecting feedback and reflection on the activities observed. The activities should be agreed between the learner and the tutor and be relevant to the qualification pathway. This outcome will help the learner to develop their knowledge and skills in activities that may offer career or progression opportunities.

Suggested learning resources

Books

Market research for countryside recreation Published by: Countryside Commission, 1996 ISBN-10: 0861704657 ISBN-13: 978-0861704651	Countryside Commission
Countryside recreation, access, and land use planning Published by: Spon, 1994 ISBN-10: 0419155503 ISBN-13: 978-0419155508	Curry, N
Countryside recreation – a handbook for managers Published by: Spon, 1994 ISBN 0203992806, ISBN 9780203992807	Bromley, P
Countryside recreation Published by: Longman, 1991 ISBN-10: 0582050359 ISBN-13: 978-0582050358	Glyptis, S
Leisure marketing Published by: Longman, 1992 ISBN-10: 0582093716 ISBN-13: 978-0582093713	Leadley, P
Car parks in the countryside: a practical guide to planning, design, and construction Published by: Scottish Natural Heritage, 2000 ISBN: 1 85397 087 5 B	SNH
Countryside recreation in a changing society Published by: TMS partnership ltd 1991 ISBN: 1 872256 26 0	Harrison, C
Countryside Recreation Site Management: A Marketing Approach Published by: Routledge 2002 ISBN-10: 041524885X ISBN-13: 978-0415248853	Ian Keirle

Websites

Scottish Natural Heritage (car park planning, design, construction)	http://www.snh.gov.uk/publications-data-and-research/publications
Outdoor recreation network	http://www.outdoorrecreation.org.uk/
Sports and recreation alliance	http://www.sportandrecreation.org.uk/
Basc (the recreational value of shooting)	http://basc.org.uk/wp-content/uploads/downloads/2014/07/The-Value-of-Shooting2014.pdf
DCMS	https://www.gov.uk/government/organisations/department-for-culture-media-sport
Scottish natural heritage (furniture design sheets)	http://www.snh.org.uk/publications/online/accessguide/design_sheets.asp
Sport England (recreation planning guidance)	http://www.sportengland.org/facilities-planning

Unit 306

Principles of physical and biological environmental processes

UAN:	K/507/7092
Level:	3
GLH:	60

What is this unit about?

The purpose of this unit is for learners to understand where life exists, and the consequent land usage, dependant on the geology, climate and water availability.

The unit introduces climate and weather and the importance of the water cycle in the development of rocks and soils. This leads into how the different rocks and soils support a range of habitats and their prevalence in the British Isles. In turn these habitats support a range of industries and activities of interest to the learner including Countryside activities, Game management and Fishery management.

Learning outcomes:

In this unit, learners will be able to

1. Recognise the scientific principles and processes that influence weather and climate
2. Know the physical and biological processes within the lithosphere
3. Understand the biological processes within the biosphere
4. Relationship between environmental processes and land use

Scope of content

This section gives details of the scope of content to be covered in the teaching of the unit to ensure that all the learning outcomes can be achieved.

Learning outcome:

1. Recognise the scientific principles and processes that influence weather and climate

Topics

1.1 Weather and climate

1.2 Water and the hydrological cycle

Topic 1.1

The learner will know the processes that influence the climate and weather in the earth-atmosphere system:

- statistics of temperature
- humidity
- atmospheric pressure
- wind
- rainfall.

Topic 1.2

The learner will be able to describe:

- the physical properties of water
- the biological properties of water
- the processes involved in each phase of the hydrological cycle.

Learning outcome:

2. Know the physical and biological processes within the lithosphere

Topics

2.1 Origins and characteristics of rocks

2.2 Factors affecting soil composition and formation

2.3 The distribution of major rock and soil types found in the British Isles

Topic 2.1

The learner will know the origins and characteristics of rocks:

- sedimentary
- lithification
- Igneous
- metamorphic.

Topic 2.2

The learner will explain factors affecting soil composition and formation:

- soil particles:
 - clay
 - sand

- silt
- organic matter
- soil profiles
- erosion
- leaching (eg; eluviation and illuviation, podsolisation, gleying).

Topic 2.3

The learner will know the distribution of the major rock and soil types in the British Isles.

Learning outcome:

3. Understand the biological processes within the biosphere

Topics

3.1 Biotic

3.2 Energy transfers in plants and animals

Topic 3.1

Photosynthesis: process for photosynthesis.

respiration: definition of aerobic and anaerobic respiration.

Topic 3.2

Carbon and nitrogen cycles, food chains and food webs.

Learning outcome:

4. Relationship between environmental processes and land use

Topics

4.1 Land cover

4.2 Land use

4.3 Future land use

Topic 4.1

Environmental processes and land cover (eg; moor, rivers, lakes, mountains, forests, woodland, arable, grassland).

Topic 4.2

Environmental processes and land use (eg; Country Parks, Wildfowl centres, Hill walking, Grouse moors, Deer stalking, Chalkstream angling, Stillwater angling).

Topic 4.3

Environmental changes and future land use (impact of eg; acidification, desertification, species destruction, succession and colonisation).

Guidance for delivery

This unit will provide the learner with an introduction to the natural environment and how the planet works. This is fundamental to understanding the limited nature of natural resources by looking at how they are formed. Where life exists, and consequent land usage, depends on the geology, climate and water availability. By looking at the physical processes of rock formation and erosion, moving toward soil formation, the unit will cover how weather and climate influence the plants and animals that exist within a particular habitat. Learners will learn through formal lectures, as well as field trips and should be able to carry out appropriate field work within this unit.

In Learning outcome 1 learners will be taught about weather systems, how they are measured and the resultant climates as well as the movement of water round the planet.

In Learning outcome 2 learners will investigate the distribution of Britain's underlying geology explaining how rocks and soils are formed. It may be supported by carrying out a local soil survey to explore how the soil has been formed and what parent rocks may have been involved.

In Learning outcome 3 knowing how the biosphere transmits energy via photosynthesis and respiration so that learners can investigate the movements of the elements nitrogen and carbon within the biosphere and so bring together the building blocks of life. This leads into an understanding of food chains and food webs.

In Learning outcome 4 learners will be able to link the environment to their chosen pathway of study and why activities (eg angling, fish farming, shooting, deer stalking, rock climbing, bird watching etc) take place in different areas and regions of the British Isles. Learners will be expected to consider how human activity (eg fossil fuel use, erosion, building) may alter the environment and future use of the land.

By the end of the unit the learner will have knowledge and understanding of environmental processes and the environmental impacts of human activities on the planet.

Suggested learning resources

Books

The Earth System Kump et al
Published by: Prentice Hall, 3rd edition, 2009
ISBN-10: 0321597796
ISBN-13: 978-0321597793

Basic Environmental Science Allaby, M
Published by: Routledge, 2nd edition, 2000
ISBN 0415211765

Unit 307

Woodland habitat management

UAN:	Y/507/4642
Level:	3
GLH:	60

What is this unit about?

The purpose of this unit is to provide learners with an understanding of the principles of woodland habitat management and how these can be applied in practice. This unit is primarily aimed at learners within a centre-based setting looking to progress into the sector or further education and training.

The aim of this unit is to provide learners with the ability to recognise the features of woodland habitats and the skills required for their management.

Learning outcomes:

In this unit, learners will be able to

1. Understand the historical development of woodland
2. Survey the structures and features within a woodland ecosystem
3. Understand the management of woodland habitats
4. Manage woodland habitats.

Scope of content

This section gives details of the scope of content to be covered in the teaching of the unit to ensure that all the learning outcomes can be achieved.

Learning outcomes:

1. Understand the historical development of woodland

Topics

- 1.1 Historical influences that have created the current level of woodland cover in the UK
- 1.2 The development of woodland types and management systems
- 1.3 Historic features within woodland

In this outcome learners will explore how woodland management has evolved over the years and be able to explain the development of differing management systems. Learners will be able to identify and compare historic features which may be present and be able to discuss historical features that have shaped woodland cover in the UK.

Topic 1.1

Learners will discuss the historical human and abiotic influences which have shaped woodland cover across the UK including areas such as:

- the Vera Hypothesis
- the ice age
- wildwood
- Mesolithic
- Neolithic
- Bronze Age
- Iron Age
- Roman,
- Domesday Book
- Middle Ages
- Industrial Revolution
- First World War
- Forestry Commission
- the Second World War
- post-war destruction 1950s and 60s greening and Forestry expansion including recent community forest initiatives.

Topic 1.2

Learners will understand and categorise woodland types and discuss the development of management systems including succession, National Vegetation Classification (wet woodlands, lowland, upland and scrub communities), ancient woodlands, ancient semi-natural, primary and secondary as well as systems such as coppicing, coppice with standards, wood pastures, pannage and wooded common.

Topic 1.3

Learners will identify and compare any historic features found within woodlands including:

- woodland name
- boundary shape
- wood banks

- out-grown hedges
- ditches
- pits
- charcoal hearths
- saw pits
- tracks
- indicator species.

Learning outcomes:

2. Survey the structures and features within a woodland ecosystem

Topics

2.1 Carry out woodland survey

2.2 Report on structures and features of a woodland ecosystem

2.3 Summarise the ecological importance of a woodland

In this outcome learners will be able to carry out a woodland survey using specific techniques and report on structures and features recorded. Learners will also explore how different woodlands vary.

Topic 2.1

Learners will carry out a woodland survey and record the following data:

- risk assessment: identification of potential risks and hazards, severity of potential injury (hazard), likelihood of harm (risk), control methods to minimise or avoid risk
- quantitative data collection (for example quadrats and simple line transects)
- qualitative data collection (quality of habitat, species distribution)
- species identification (flora and fauna)
- Stand composition
- Woodland canopy structure
- Abiotic and biotic factors influencing species abundance and diversity
- Archaeological and historic features
- record, map and present information from surveys in various forms (written, data and pictorial) graphs, pie chart and basic statistics etc.

Topic 2.2

Learners will report on the ecological structure of a woodland including ground stand composition, the shrub, sub and upper canopy. Learners will also report on the archaeological and historic features as identified in Topic 1.3 such as woodland name, boundary shape, wood banks, out-grown hedges, ditches, pits, charcoal hearths, saw pits, tracks and indicator species.

Topic 2.3

Learners will summarise the ecological importance of a selected woodland including, main habitat types present. Micro and mosaic habitats, species abundance/diversity and regionally or internationally significant flora and fauna.

Learning outcomes:

3. Understand the management of woodland habitats

Topics

3.1 Different woodland habitats and relevant management techniques

3.2 Equipment and resources for practical management of woodland habitats

In this outcome learners will examine a range of woodland habitats including different techniques employed in their management. Learners will also prepare for the practical management of woodland habitats including equipment and resources.

Topic 3.1

Learners will recognise different woodland habitats including:

- Glades
- Rides
- woodland edges
- veteran trees
- veteranisation
- deadwood
- ponds
- streams
- bog
- thicket and dense shade etc.

Learners will also recognise relevant management techniques including areas such as:

- management plans
- health and safety
- planting/sowing (trees, shrubs and ground flora)
- natural regeneration
- thinning
- clearance
- coppice
- agroforestry
- silvicultural systems.

Topic 3.2

Learners will understand both equipment and resources for the practical management of woodland habitats including:

- personal Protective Equipment (PPE) (eg boots, safety helmet, waterproof clothing and gloves etc.)
- first aid kit
- planting equipment
- fencing equipment
- pruning equipment
- saw
- tools for vegetation clearance
- coppicing tools
- maintenance (eg cleaning, oiling, sharpening).

Learning outcomes:

4. Manage woodland habitats

Topics

4.1 Recommend improvements to the management of woodland habitats

4.2 Produce method statements for improvements to the management of woodland habitats

4.3 Carry out practical management of woodland habitats

In this outcome learners have the opportunity to safely carry out practical management of a woodland habitat. Learners will have an understanding of management plans, including suitable aims and objectives and be able to recommend improvements to the management of woodland habitats.

Topic 4.1

Learners will recommend improvements to the management of woodland habitats covering areas such as:

- increased diversity and habitat creation through ride management
- scalloping
- ecotones
- veteranisation
- dead wood management
- invasive species control
- sustainable management
- waste management.

Topic 4.2

The learner will produce method statements for improvements to the management of woodland habitats

Topic 4.3

Learners will safely carry out practical management of woodland habitats, such as:

- planting/sowing (trees, shrubs and ground flora)
- thinning
- clearance
- coppice
- glade creation
- pond creation
- dead wood introduction
- bird boxes
- bat boxes.

Guidance for delivery

This unit is designed to provide the learner with sound knowledge and skills required to recognise features of woodland habitats and prepare, plan and undertake practical management of woodland habitats. Learners will develop an understanding of the historical influences that have affected woodland cover and understand the range of woodland habitats present today. An understanding of the management techniques available for woodland habitats will be developed along with the opportunity to put some techniques into practice. The unit should cover a wide range of possible activities and potential sites.

Throughout the unit the emphasis should be on safe working and sustainability. It is expected that learners will be aware of safe working practices and be familiar with accepted practices and behaviours within the context in which they are working. The importance of sustainable practices should be woven into the delivery throughout.

This unit aims to extend the learners knowledge and skills involved with woodland habitat management. Emphasis should be placed upon the importance of planning and health and safety. Centres are encouraged to introduce employers and specific professionals from industry to provide interesting and relevant information to the learner. Teaching would also benefit from visits to a variety of woodlands to add depth to the learner experience and put practices into context.

It is accepted that formal lectures will be necessary at level 3 but for this unit it is recommended that they are they are linked directly with interactive lessons in a real environment. Learners must be given the opportunity to deal with a range of activities in different situations that reflect current industry trends.

Suggested learning resources

Books

Tree Planting and Aftercare: A Practical Handbook Published by: BTCV, 2001 ISBN: 0946752257	Agate, E
Woodlands: A Practical Handbook Published by: BTCV, 2002 ISBN: 0946752338	Agate, E
Waterways & Wetlands: A Practical Handbook Published by: BTCV, 2001 ISBN: 0946752303	Agate, E & Brooks, A
A Handbook of Native Trees and Shrubs Published by: New Holland Publishers, 2004 ISBN: 1843306069	Bedoyere, C
Portrait of a Woodland: Biodiversity in 40 Acres Published by: Search Press, 2004 ISBN: 1844480135	Bedoyere, C
Managing Your Woodland for Wildlife	Blakesley, D & Buckley, P

Published by: Pisces Publications, 2010
SBN-10: 1874357455

Ecology and Management of Coppiced Woodlands
Published by: Kluwer Academic Publishers, 1992
ISBN: 0412431106

Buckley, G

Hampshire Countryside Heritage 2: Ancient Woodland
Published by: Hampshire County Council, 1995
ISBN-10: 0900908750

Colebourne, P; Court, N &
Howe, J

The Management of Semi-Natural Woodlands
Published by: Forestry Commission, 1997
ISBN: 0855382600

Forestry Commission

The management of semi-natural woodlands: 3. Lowland mixed broadleaved woods
Published by: Forestry Commission, 1994

Forestry Commission

The Management of Semi-natural Woodlands - 1. Lowland Acid and Oak Woods
Published by: Forestry Commission, 2003

Forestry Commission

Managing Ancient and Native Woodland in England
Published by: Forestry Commission England, 2010

Forestry Commission

Managing Native Broadleaved Woodland
Published by: TSO, 2010
ISBN-10: 011497344X

Harmer, R; Kerr, G &
Thompson, R

Wildlife Conservation in Managed Woodlands and Forests. 2nd ed.
Published by: Research Studies Press, 2003
ISBN: 0863802060

Harris, E & Harris, J

The Identification of Soils for Forest Management
Published by: Forestry Commission, 2002
ISBN: 0855385596

Kennedy, F

Woodland Conservation and Management. 2nd ed.
Published by: Springer, 1993
ISBN: 0412557304

Peterken, G

The History of the Countryside
Published by: J.M. Dent, 1996
ISBN-10: 1842124404

Rackham, O

Woodland

Rackham, O

Published by: Collins, New Naturalist, 2006
ISBN-10: 0007481047

Trees and Woodland in the British Landscape
Published by: Dent, 2010
ISBN-10: 1842124692

Rackham, O

Trees and Woodlands in the British Landscape: The Complete History of Britain's Trees, Woods and Hedgerows
Published by: Orion Publishing, 2001
ISBN: 1842124692

Rackham, O

Woodland Habitats
Published by: Routledge, 1999
ISBN: 0415180902

Read, H & Frater, M

Wildlife Rangers' Handbook
Published by: The Stationery Office Books, 1994
ISBN: 0117103268

Springthorpe, G & Myhill, N

Woodland Management - A Practical Guide
Published by: The Crowood Press Ltd, 2005
ISBN-10: 1847976174

Starr, C

Woodland Rides and Glades: Their Management for Wildlife, 2nd Edition

Published by: Joint Nature Conservation Committee, 1993
ISBN: 1873701330

Warren, M & Fuller, R

Woodland Management and Conservation
Published by: David & Charles PLC, 1990
ISBN: 0715393294

Watkins, C

Journals and magazines

- British Wildlife
- Quarterly Journal of Forestry

Websites

The Forestry Commission
Natural England
The Royal Forestry Society
The Woodland Trust

www.forestry.gov.uk
www.naturalengland.org.uk
www.rfs.org.uk
www.woodlandtrust.org.uk

UAN:	T/507/7094
Level:	3
GLH:	60

What is this unit about?

This unit aims to introduce learners to pest and predator control skills and understanding and how these can be applied in practice. It is designed for learners in centre-based settings looking to progress into the sector or onto further/higher education.

Control of pests and predators is an integral part of good countryside management. The ability to eliminate and deter unwanted animals can benefit natural ecological preservation as well as the man-made environment. The ability to efficiently control pests and predators in accordance with relevant legal obligations is a sought after skill.

Learning outcomes

In this unit, learners will be able to

1. Know the principal UK pest and predator species and their legal status
2. Understand the ecology of common UK pest and predator species
3. Control pests and predators

Scope of content

This section gives details of the scope of content to be covered in the teaching of the unit to ensure that all the learning outcomes can be achieved.

Learning outcome:

1. Know the principal UK pest and predator species and their legal status

Topics

1.1 UK pest and predator species

1.2 Tracks and signs of locally occurring pests and predators

1.3 Locally occurring pests and predators

1.4 Level of protection afforded to a range of pest and predator species

Topic 1.1

The learner will know the principal UK pest and predator species eg:

- Fox
- Badger
- Stoat
- Weasel
- Mink
- Polecat
- pine marten
- otter
- rat
- rabbit
- house mouse
- grey squirrel
- cat (domestic, feral & wild)
- crow (carrion and hooded)
- rook
- magpie
- jackdaw
- jay
- raven
- buzzard
- sparrow hawk
- tawny owl
- hen harrier
- goshawk
- peregrine falcon
- woodpigeon
- canada goose.

Topic 1.2

The learner will know the tracks and signs of locally occurring pests and predators eg (as appropriate to the species):

- Faeces
- Footprints
- homes/nests
- fur/feathers
- evidence of kills
- smell.

Topic 1.3

The learner will know how to survey a areas to identify locally occurring pests and predators:

- Faeces
- Tracks
- Browsing
- Fraying
- bark stripping
- ground flora degradation
- loss of habitat structure
- road traffic collisions
- crop damage.

Topic 1.4

The learner will know the level of protection afforded to a range of pest and predator species eg:

- Wildlife & Countryside Act 1981
- Annual General Licence to kill
- take or disturb birds
- Protection of Badgers Acts.

Learning outcome:

2. Understand the ecology of common UK pest and predator species

Topics

2.1 Ecology of avian pest or predator species

2.2 Ecology of mammalian pest or predator species

Topic 2.1

The learner will understand the ecology of avian pest or predator species:

- Ecology:
 - Life-cycle especially breeding behaviour
 - distribution and preferred habitats
 - population status
 - diet
 - impact and damage caused as a pest/predator
- Avian eg:
 - Crow
 - Magpie
 - Buzzard
 - sparrow hawk

- wood pigeon
- red kite
- tawny owl
- Canada geese
- Rooks
- Goshawk
- Jay
- peregrine falcon
- jackdaw
- raven
- hen harrier.

Topic 2.2

The learner will understand the ecology of selected mammalian pest or predator species:

Mammalian:

- Fox
- Rat
- Badger
- Stoat
- Mink
- Rabbit
- grey squirrel
- weasel
- cats
- polecat
- pine marten
- otter
- hedgehog.

Learning outcome:

3. Control pests and predators

Topics

3.1 Correct control of pests and predators using lethal methods

3.2 Deterring pests and predators using non-lethal methods

Correct methods must be applied according to any relevant legislation and codes of practice for each control method. Correct methods should also include best practice techniques as undertaken by professional pest controllers and gamekeepers and should include field craft required to improve catch rates.

Topic 3.1

The learner will undertake the correct methods of control pest and predators using lethal method, eg:

- Spring traps - Fenn, Magnum, Kania, and DOC traps plus any other relevant ones listed on the most recent edition of the Spring Traps Approval Order
- Snares - Fox and rabbit
- Live catch traps - Larsen, ladder/crow cage, and mink rafts

- Rodenticides - Any second generation anticoagulant rodenticide approved for use outdoors.
- Metallic Phosphides - Talunex and Phostoxin
- Firearms - Lamping, Sitting-Out, Bolting, Driven, Decoying, Ad hoc shooting
- Domestic animals - Dogs, Ferrets, Birds of Prey.

Topic 3.2

The learner will understand how to deter pest and predators using non-lethal methods eg:

- Exclusion
- Audible
- Visual
- Scent
- Taste
- Electrical
- diversionary feeding
- habitat manipulation.

Guidance for delivery

This unit is designed to provide the learner with sound knowledge and skills required to control the effects of vertebrate pests and predators. Throughout the unit, the emphasis should be on safe working and the humanitarian application of effective control techniques. It is expected that learners will be aware of safe working practices and familiar with accepted practices and behaviours within the context in which they are working.

Learning outcomes 1 and 2 cover the identification and ecology of the common vertebrate pests and predators likely to be encountered in the UK. These will include agricultural pests as well as those pests and predators related to game and wildlife management. The legal status of species is considered, together with the relevant legislation. The basic process of identification using size, colour, signs, and tracks is also covered as well as species ecology, breeding, habitat and populations. Populations of pests and predators on given sites will be determined by surveys. These fundamental elements can then be transposed across all the other related species studied. Deer are not studied in this unit, as this topic is covered in 'Understand Deer Management'.

In Learning outcome 1, learners must be able to identify the main UK pest and predator species either in pictorial form or as physical specimens. They must also be familiar with the tracks and signs of locally common pest and predator species. This knowledge should be used to survey a local area to identify the presence of common pests and predators.

Learning outcome 2 requires learners to explain the ecology of selected avian and selected mammalian pest or predator species. Tutors should identify the species or agree them through discussion with the learners.

Learning outcome 3 looks in more detail at lethal control techniques, the variety of traps and methods available, their specific uses, and related legislative obligations and codes of practice. The setting and positioning of lethal control methods is covered, and this unit should be delivered in a practical setting. For Learning outcome 3 learners are required to demonstrate an understanding of the correct methods of controlling pests and predators using selected lethal methods. All activities should be completed with regard to the appropriate health and safety risk assessments and practices, and should be consistent with relevant legislation and codes of practice.

Learning outcome 3 also covers the use of non-lethal techniques to prevent damage from pests and predators, and determines their effectiveness. It covers their use and related codes of practice and legislation. This is a vital measure when considering the number of protected species that can have an impact on game and wildlife populations, and the use of deterrents in situations where lethal control is difficult or unnecessary. In Learning outcome 3 learners should be encouraged to review the effectiveness of a range of deterrents in common usage and should demonstrate an understanding of what affects their effectiveness.

Suggested learning resources

Books

Animal Tracks and Signs
Published by: Oxford University Press, 2001
ISBN: 0198507963

Bang, P & Dahlstrom, P.

Animal Traps and Trapping
Published by: Stackpole Books. 1982
ISBN: 0811701037

Bateman, J.

Foxing with Lamp and Rifle
Published by: Foxearth Publishing, 2001
ISBN: 0954020606

Bucknell, R

Rabbiting with Ferret, Dog, Hawk and Gun
Published by: The Crowood Press, 2005
ISBN: 978-1861268020

Frain, S

Fox Control
Published by: Quiller Publishing Ltd., 2006
ISBN: 978-1904057819

Frain, S

Practical Pest Control in the Countryside
Published by: Coch-y-Bonddu, 1998
ISBN: 978-0952851080

Hogg, G

Modern Vermin Control, 3rd edition
Published by: Gold Cockerel Series, 2001
ISBN: 978-0947870041

Roberts, M

Websites

The Department for Environment, Food and Rural Affairs	www.defra.gov.uk
Welsh Assembly Government	www.wales.gov.uk
Scottish Executive Environment and Rural Affairs Department	www.scotland.gov.uk
Department of Agriculture and Rural Affairs Northern Ireland	www.dardni.gov.uk
National Gamekeepers Organisation	www.nationalgamekeepers.org.uk

The British Association for Shooting and Conservation

www.basc.org.uk

The Game Conservancy Trust

www.gwct.org.uk

DVD

Trapping Techniques: Part 1 - Moles, Squirrels, Rabbits and Mink, Countryman Pest Control, Steve Caple, 2002

Unit 309

Use of Firearms in the Environmental and Land-based Sector

UAN:	J/507/7097
Level:	3
GLH:	60

What is this unit about?

This unit aims to provide learners with an understanding of the principles of using firearms in the land-based sector and how these can be applied in practice. This unit is primarily aimed at learners within a centre-based setting looking to progress into the sector or further education and training.

In the land-based industries, firearms are an essential tool, used for recreational purposes on inanimate targets as well as for culling of species where other methods are not appropriate or legal. Practice on inanimate targets is essential before shooting live targets, ensure that culling is humane and efficient.

Recreational target shooting is a rapidly expanding sport and can offer diversification opportunities for landowners. Similarly, game and rough shooting opportunities are increasingly in demand and have become important sources of income. Culling of deer is essential for the maintenance of healthy deer populations that are in balance with their environment, and shooting is the only widely used legal method of culling.

Learning outcomes

In this unit, learners will be able to

1. Understand shotgun parts, ammunition, ballistics and legislation
2. Use shotguns safely and efficiently
3. Know rifle parts, ammunition, ballistics and legislation
4. Use rifles safely and efficiently

Scope of content

This section gives details of the scope of content to be covered in the teaching of the unit to ensure that all the learning outcomes can be achieved.

Learning outcome:

1. Understand shotgun parts, ammunition, ballistics and legislation

Topics

1.1 Working parts of a shotgun

1.2 Shotgun ballistics

1.3 Types of and variations in shotgun ammunition

1.4 Legislation controlling the use, ownership and storage of shotguns.

Topic 1.1

Learners will know the working parts of a shotgun (As appropriate to action).

Action Types eg:

- Semi-auto
- pump action
- over and under
- side by side
- hammer guns.

Stock to include:

- Butt
- Comb
- Grip.

Action to include:

- safety catch
- barrel selector
- top leaver
- trigger
- trigger guard
- locks
- hammers/tumblers
- firing pins receiver
- magazine
- bolt
- ejector port
- holding open device
- bolt release catch.

Barrels to include:

- extractors/ejectors
- chamber
- bore

- choke or multi-choke
- top rib
- mid rib
- bead.

Topic 1.2

The learner will know simple shotgun ballistics:

Internal Ballistics:

- Effect of barrel walls on lead shot
- choking restrictions
- forcing cone.

External ballistics:

- effect of shot size
- distance and choke on pattern
- shot velocities.

Terminal Ballistics:

- Effect of lead vs steel
- wound paths
- max effective killing range
- fall out range of shot.

Topic 1.3

Learners will know types of and variations in shotgun ammunition:

- Bores, eg: 10, 12, 16, 20, 28 and calculation method for bore size.
- Calibres, eg: .410", 9mm.
- UK Shot sizes, eg: Slugs, LG, SSG, AA, BB, 3, 5, 6, 7 7.5, 8, and dust. Lead and non-toxic shot.
- Wad types: photo-plastic, fibre.
- Cartridge components: crimp, head, primer, propellant, case.
- Cartridge lengths, eg: 2" (50mm), 2½" (65mm), 2¾" (70mm), 3" (75mm), 3½" (89mm).

Topic 1.4

Learners will understand the legislation controlling the use, ownership and storage of shotguns:

- The Firearms Act 1968, Firearms (Amendment) Act 1988, Firearms (Amendment) Act 1997, Firearms Acts (Amendment) Regulations 2010. Legal definition of a Shotgun.

Certificates: production on demand by police, role in transferring shotguns. Factors that preclude people from possessing certificates.

Transferring Shotguns: Different categories of transferring firearms and shotguns, need to inform police of transfer. Legal lending of shotguns, use of shotguns and rifles by non-certificate holders.

Storage: Shotguns.

Use: Shooting on private land, carrying shotguns in public places, shooting near roads, use at clubs or grounds. Restrictions created by age on the use of shotguns.

Learning outcome:

2. Use shotguns safely and efficiently

Topics

2.1 Ammunition selection for shotgun and target

2.2 Handle shotguns safely

2.3 Efficiently use shotguns

2.4 Clean shotguns

Topic 2.1

The learner will be able to use and select appropriate ammunition for shotgun and target:

- Interpretation of proof information on shotgun including:
 - chamber length
 - bore size
 - safe working pressure and choke
- Interpretation of cartridge information:
 - cartridge length
 - bore
 - shot type
 - pressure generation
- Variety of targets eg:
 - clay pigeons
 - wildfowl
 - game
 - pest birds
 - fox
 - ground game
 - pest mammals
- Understanding of reasons for checking cartridge selection:
 - Use of steel shot in non-steel proofed guns and tight chokes
 - Use of nitro powder in black powder proofed guns
 - Use of longer cartridges in shorter chambers
 - Mixing of 20 bore and 12 bore cartridges.

Topic 2.2

The learner will handle shotguns safely:

- Suitable Shotgun Actions:
 - Semi auto/Pump action
 - break barrel
- Pre shooting handling:
 - Carriage in slip
 - removal from slip
 - carriage out of slip un-loaded
- Condition checking:
 - Pitting
 - Dents
 - Bulges

- lose actions
- non-functional parts of the action
- Loading shotguns:
 - Safe load
 - muzzle righting zone
 - reloading after shot
- Correct handling of Shotguns when eg:
 - rough shooting
 - shooting from a peg
 - shooting from a cage
 - shooting from a hide/butt
 - shooting from a vehicle
- Obstacle crossing:
 - on own
 - in company
- Unloading:
 - safe unload
 - condition check
 - re-placing in slip
- Actions on stoppage:
 - Misfire
 - Hangfire
 - barrel blockage
- Correct transport in vehicles when not shooting
- Muzzle Awareness.

Topic 2.3

The learner will efficiently use shotguns:

- Eye Dominance:
 - checking dominance
 - effect on shooting style
- Gun fit:
 - stock length
 - cast
 - combe height
- Body position:
 - Feet
 - weight distribution
- Mount:
 - Grip
 - gun movement
 - correct position in shoulder
 - cheek on comb
 - opening of eyes
- Shooting techniques:
 - CPSA method
 - maintained lead
 - swing through

- Use of gun:
 - removal of safety catch
 - loading cartridges
 - shooting single targets
 - shooting pairs of targets
- Clay Pigeons eg:
 - Standards
 - Midi
 - Mini
 - Battue
- Targets:
 - Incoming
 - going away
 - crossing.

Topic 2.4

The learner will clean shotguns.

Safety checks before cleaning:

- stripping gun for cleaning
- cleaning bores/chokes
- cleaning action
- lubrication of metal parts
- maintaining wood
- re-assembly of shotguns
- safety inspection of estate/club guns under Provision and Use of Equipment at Work Regulation 1998.

Learning outcome:

3. Know rifle parts, ammunition, ballistics and legislation

Topics

3.1 Working parts of a rifle

3.2 Rifle ballistics

3.3 Types of and variations in rifle ammunition

3.4 Legislation controlling the use, ownership and storage of rifles

Topic 3.1

The learner will know rifle Working Parts (As appropriate to action):

- Action Types eg:
 - Bolt action
 - straight pull
 - semi-auto
 - falling block
 - air rifles
- Stock to include:
 - Butt
 - Comb/cheek rest
 - Grip

- fore-end
- Action to include:
 - safety catch
 - bolt
 - firing pin
 - magazine
 - breech/ejector port
 - holding open device
 - bolt release catch
 - magazine release catch
- Trigger:
 - single stage
 - two stage
 - hair
 - set trigger guard
- Barrels:
 - Chamber
 - Lands
 - Rifling
 - Crown
 - Threads
- Sights:
 - Mounts
 - telescopic sights
 - open sights
- Accessories:
 - Sling
 - Bipod
 - muzzle break
 - sound moderator
 - lights.

Topic 3.2

The learner will know simple rifle ballistics.

Internal ballistics:

- rifle obturation
- rifle twist rates
- effect of speed and bullet weight on stability.

Intermediate ballistics:

- effect of rifle crown damage
- How moderators and muzzle breaks work.

External ballistics:

- trajectories graphs and ballistic arks
- effect of wind on a bullet.

Terminal Ballistics:

- bullet expansion
- fragmentation
- hydrostatic shock
- cavitation and crushing
- bullet tumble.

Topic 3.3

The learner will know the types and variations in rifle ammunition.

How to interpret rifle ammunition naming. Imperial calibres; 177HMR, .22LR, .22-250rem, .243win, .308win etc. Metric calibres: 5.56X45 NATO, 6.5x55 Swedish etc.

Components: Cases; rim-fire, centre-fire, magnum, supper short magnum. Components: rim/belt, flash hole, primer pocket, primer, propellant. Bullets: weights, Bullet types: full metal jacket, ballistic tip, soft point, hollow point, round nose, partition.

Topic 3.4

The learner will know the legislation controlling the use, ownership and storage of rifles:

- Legislation Violent Crime Reduction Act 2006, the Firearms Act 1968, Firearms (Amendment) Act 1988, Firearms (Amendment) Act 1997, Firearms Acts (Amendment) Regulations 2010.
- Legal definitions: firearm, air gun.

Certificates: production on demand by police, role in transferring firearms and ammo. Controls created by Firearms certificates on use of rifles/firearms; location of use, expanding ammo, targets allowed for firearm, ammo quantities, calibres allowed, sound moderator possession. Factors that preclude people from possessing certificates.

Transfer: Requirement for prior approval for firearms purchase. Different categories of transferring firearms, need to inform police of transfer. Lending: Estate rifle clause, club rifles, use of rifles by non-certificate holders.

Storage: Rifles, Rifle Ammo, rifle components, Air rifles.

Use: Shooting on private land, carrying firearms in public places, shooting near roads, use at clubs, grounds and ranges. Age: restrictions created by age on the use of firearms, shotguns and air rifles.

Learning outcome:

4. Use rifles safely and efficiently

Topics

4.1 Appropriate ammunition for a given rifle and target.

4.2 Safely handle rifles

4.3 Efficiently use rifles

4.4 Clean rifles

Topic 4.1

The learner will select appropriate ammunition for a given rifle and target.

Topic 4.2

The learner will handle Rifles safely:

- Suitable Rifle Actions:
 - Bolt action
 - Semi Auto
 - Straight Pull
- Pre shooting handling:
 - Carriage in slip/box
 - removal from slip/box
 - condition checking
 - fitting bolt
 - carriage out of slip un-loaded
- Loading Rifles:
 - safe load of magazine
 - under-loading
 - making ready
 - muzzle righting zone
- Correct handling of Rifles when eg:
 - stalking in open ground
 - stalking in woodlands
 - shooting from hide/high seat
 - shooting from a vehicle
 - Shooting at night (Lamping) and on ranges
- Considerations prior to taking a safe shot:
 - blind spot caused by height difference between telescopic sights and line of bore
 - distance rifle bullets travel without correct back stop
 - ricochet
- Obstacle crossing:
 - on own
 - in company
- Unloading:
 - safe unload
 - removal of bolt
 - condition check
 - re-placing in slip/box
- Actions on stoppage:
 - Misfire
 - hang fire
 - barrel blockage
- Correct transport in vehicles when not shooting
- Muzzle Awareness.

Topic 4.3

The learner will handle Rifles efficiently:

- Shooting positions:
 - Prone
 - Sitting

- Kneeling
- Standing
- shooting from a bench
- vehicle
- high seat
- Rifle Zeroing:
 - mean point of aim
 - mean point of bullet impact
 - methods of aligning mean point of aim with mean point of impact
- Estimation of Distance:
 - Judgement of distance to targets
 - adjustment of point of aim to maintain accuracy at different distances
- Correction for Wind:
 - Estimation of wind speed and direction
 - adjustment of point of aim to maintain accuracy in windy conditions
- Shooting techniques:
 - Correct hold
 - eye relief from sights and sight picture
 - Testing and adjusting position, breathing, trigger operation, post trigger operation actions. Shooting with bipods, rests, sticks
- Grouping Analysis:
 - Causes of grouping patterns and corrections
 - vertical group – breathing
 - horizontal group – trigger squeeze
 - split group – movement between shots, pull shots.

Topic 4.4

The learner will clean rifles.

Safety checks before cleaning, cleaning bores, cleaning action, lubrication of metal parts, maintaining wood, cleaning optics, cleaning sound moderators, safety inspection of estate/club guns under Provision and Use of Equipment at Work Regulation 1998.

Guidance for delivery

In Learning outcome 1 the learner must be able to identify the component parts of shotguns and options within the associated shotgun ammunition. In addition the learner must be able to explain simple internal, external and terminal ballistics of the firearms. Learners must be provided with access to suitable shotguns to become familiar with the location and operation of component parts. In separate sessions learners should be able to identify from real life examples the variety of shotgun cartridges available in the UK. Then using a mix of theory and practical shooting experiments with pattern plates, chronographs, ballistic software and different shooting distances the learners should gain an understanding of how variations in ammunition/firearms type affects ballistic performance.

Learners should research the legislation associated with the use of shotguns. A scenario based approach may help learners relate the legislation covered to real world firearms use.

In Learning outcome 2 the learner is required to demonstrate the safe handling of a shotgun. This should begin with the learner being able to interpret shotgun proof information and select an appropriate cartridge for a given shotgun. The learner should be able to identify some issues with the incorrect selection of cartridges. The learner should then be able to safely load, handle, shoot

and unload a shotgun. Where possible particular effort should be made to allow students to practice handling semi-automatic shotguns owing to their increased popularity. During the live firing the learner should be able to demonstrate applied knowledge of basis shotgun shooting techniques. This outcome must be delivered via practical sessions that allow the learner to gain hands on experience with shotguns. Particularly attention must be paid to safety in the delivery of this outcome, safe handling training must take place with snap caps or dummy rounds and small student to staff ratios must be employed to maintain legal and safety standards where non-certificate holders are being taught. The live firing element must take place in a coaching format in a clay ground environment.

In Learning outcome 3 the learner must be able to identify the component parts of rifles and options within the associated rifle ammunition. In addition the learner must be able to explain simple internal, external and terminal ballistics of the firearms. Learners must be provided with access to suitable rifles to become familiar with the location and operation of component parts. In separate sessions learners should be able to identify from real life examples the variety of rifle cartridges available in the UK. Then using a mix of theory and practical shooting experiments with targets, chronographs, ballistic software and different shooting distances the learners should gain an understanding of how variations in ammunition/firearms type affects ballistic performance. Learners should research the legislation associated with the use of rifles. A scenario based approach may help learners relate the legislation covered to real world firearms use.

In Learning outcome 4 the learner is required to demonstrate the safe handling of a rifle. The learner should be able to safely load, handle, shoot and unload a rifle. Where possible particular effort should be made to allow students to practice handling rifles shooting from vehicles and at night as these are increasing popular methods for pest control and have had recent fatal accidents associated with them. During the live firing the learner should be able to demonstrate applied knowledge of basis shotgun shooting techniques. This outcome must be delivered via practical sessions that allow the learner to gain hands on experience with rifle. Particularly attention must be paid to safety in the delivery of this outcome, safe handling training must take place with dummy rounds and small student to staff ratios must be employed to maintain legal and safety standards where non-certificate holders are being taught. The live firing element must take place in a coaching format on a home office approved range where firearms rifles are used with learners under the age of 17 without their own firearms certificate. Where this legal clause cannot be met learners should be assessed using air rifles.

Employer Engagement

Employer engagement is essential in order to maximise the value of learners' experience. A partnership approach should be adopted where possible with employers with whom the consortium has links, and with employers used for work experience placements.

It would be helpful for lecturers to develop a method of maintaining contact with a range of employers in the sectors may be able to help with keeping the examples of legislation, policies and codes of practice used in the taught content, up to date.

This unit has the possibility to involve employers through visits to professional clay ground and rifle ranges. Visits or practical work placements to shooting estates or pest controllers could help put the learning into context and broaden the learner's experience of firearms use.

Suggested learning resources

Books

The BASC Handbook of Shooting: An Introduction to the Sporting Shotgun
British Association for Shooting and Conservation (BASC)
Published by: Quiller Publishing Ltd., 6th edition, 2010

Smallbore Rifle Shooting: A Practical Guide
Published by: The Crowood Press Ltd, Ramsbury, 2010
Fenning, C

The Sporting Rifle: A User's Handbook
5th ed. Shropshire: Quiller Publishing, 5th edition, 2009
Marshall-Ball, R

Fair Game: The Law of Country Sports and the Protection of Wildlife
Published by: Pelham Books, 3rd edition, 1997
Parkes, C & Thornley, J

Practical Ballistics: An Introductory Guide for Rifle and Shotgun Shooters
Published by: The Crowood Press Ltd, Ramsbury, 2014
Potter, L

Sporting Rifles
Published by: The Crowood Press Ltd., Ramsbury, 2009
Potts, B

Websites

BASC Firearms Department Guidance <http://basc.org.uk/firearms/guidance-and-fact-sheets/>

BASC Air Rifle Code of Practice <http://basc.org.uk/airgunning/basc-air-rifle-code-of-practice/>

BASC Lamping (Night Shooting) Code of Practice
<http://basc.org.uk/cop/lamping/>

Scottish Deer Management Group Firearms Best Practice Guide
<http://www.bestpracticeguides.org.uk/guides/firearms-intro>

The CPSA Clay Target Shooter's Handbook
<https://www.cpsa.co.uk/userfiles/file/CTSH.pdf>

Journals and Magazines

- Shooting Times and Country Magazine
- Sporting Gun
- Sporting Rifle
- British Association for Shooting and Conservation - Shooting and Conservation Magazine
- Clay Pigeon Shooting Association - Pull Magazine

Unit 310

Undertake estate skills

UAN:	K/507/4645
Level:	3
GLH:	60

What is this unit about?

The purpose of this unit is to introduce learners to common estate skills and knowledge and how these can be applied in practice. It is designed for learners in centre-based settings looking to progress into the sector or into further/higher education.

The learner will look at constructing, repairing and maintaining boundaries, structures and surfaces. They will build their experience and confidence in developing practical skills in a range of situations. The learner will be able to contextualise practical management work to a particular habitat that lies within their primary area of learning.

Learning outcomes

In this unit, learners will be able to

1. Construct, repair or maintain boundaries
2. Construct, repair or maintain structures
3. Construct, repair or maintain surfaces
4. Carry out practical habitat management work

Scope of content

This section gives details of the scope of content to be covered in the teaching of the unit to ensure that all the learning outcomes can be achieved.

Learning outcome

1. Construct, repair or maintain boundaries

Topics

- 1.1 Types of boundaries
- 1.2 Prepare for work on boundaries
- 1.3 Select equipment and materials
- 1.4 Construct, repair or maintain boundaries

In this outcome learners will develop the practical skills needed to construct, repair or maintain at least **two** different boundaries.

Topic 1.1

Learners will know the types of boundaries, e.g.

- hedge, bank, ditch
- fence (post and rail, post and wire, electric, netting)
- wall (stone, brick).

Topic 1.2

Learners will plan the task, clear debris and prepare the site, ensure livestock and public safety, consider factors associated with the location (e.g. power supply, waste disposal, equipment and materials storage).

Topic 1.3

Learners will select materials and equipment relevant to the task, taking into account health and safety, sustainable practice and cost implications.

Topic 1.4

Learners will undertake the task safely (e.g. implementation of risk assessment and appropriate Personal Protective Equipment (PPE)) and to the required standards.

Learning outcome

2. Construct, repair or maintain structures

Topics

- 2.1 Types of structures
- 2.2 Prepare for work on structures
- 2.3 Select equipment and materials
- 2.4 Construct, repair or maintain structures

In this outcome, learners will construct, repair or maintain at least **two** different structures. These may typically be constructed from wood, metal, stone or brick. Learners are not expected to be able to fully construct substantial structures such as animal or machinery housing, however, it is anticipated that delivery could include repair and maintenance of such larger structures as would be found in an estate setting. Large structures requiring repair or maintenance may include animal

house or pen, machinery or feed store, garden furniture, shed and pergola.

Topic 2.1

Learners will know the different types of structures e.g. gate, stile, horse jump, bird box, table, bench, door, raised bed, composting area or swim platform, animal house or pen, machinery or feed store, garden furniture, shed and pergola.

Topic 2.2

Learners will plan the activity, clear debris and prepare the site, ensure livestock and public safety, consider location factors (power supply, waste disposal, equipment and materials storage).

Topic 2.3

Learners will select materials and equipment relevant to the task, taking into account health and safety, sustainable practice and cost implications.

Topic 2.4

Learners will undertake the task safely (e.g. implementation of risk assessment and appropriate Personal Protective Equipment (PPE)) and to the required standards.

Learning outcome

3. Construct, repair or maintain surfaces

Topics

- 3.1 Types of surfaces
- 3.2 Prepare for work on surfaces
- 3.3 Select equipment and materials
- 3.4 Construct, repair or maintain surfaces

In this outcome learners are required to construct, repair or maintain **one** surface (e.g. path, road and hard standing) which could be either solid (e.g. decking, concrete and paving), or loose (e.g. gravel, wood chippings and sand). Where appropriate, learners should be aware of timeliness considerations, for example preparing concrete at the right time for construction.

Topic 3.1

Learners will know different types of surfaces, eg:

- solid (e.g. decking, concrete and paving)
- loose (e.g. gravel, wood chippings and sand).

Topic 3.2

Learners will plan the task, clear debris and prepare the site, ensure livestock and public safety, consider factors associated with the location (e.g. power supply, waste disposal, equipment and materials storage).

Topic 3.3

Learners will identify and select materials and equipment relevant to the task, taking into account health and safety, sustainable practice and cost implications.

Topic 3.4

Learners will undertake the task safely (e.g. implementation of risk assessment and appropriate Personal Protective Equipment (PPE)) and to the required standards.

Learning outcome

4. Carry out practical habitat management work

Topics

- 4.1 Habitat management activities
- 4.2 Prepare for habitat management work
- 4.3 Select equipment and materials
- 4.4 Carry out practical habitat management work

In this outcome learners should be aware of time considerations for practical habitat management work, for example preparing concrete at the right time for construction.

Topic 4.1

Learners will know different types of activities required for habitat management, eg: mowing, renovation, tree and shrub planting, clearing unwanted vegetation, coppicing, pruning, thinning, pond, stream and ditch clearance, and control of invasive species.

Topic 4.2

Learners will plan the task, clear debris and prepare the site, ensure livestock and public safety, consider factors associated with the location (e.g. power supply, waste disposal, equipment and materials storage)

Topic 4.3

Learners will identify and select materials and equipment relevant to the task, taking into account health and safety, sustainable practice and cost implications

Topic 4.4

Learners will undertake the task safely (e.g. implementation of risk assessment and appropriate Personal Protective Equipment (PPE)) and to the required standards.

Guidance for delivery

This unit has a very practical focus, and aims to enable learners to develop estate skills which can be applied to a range of situations and circumstances. The unit has been written such that naturally occurring and locally relevant opportunities can be used in selecting sites, structures and surfaces to construct, repair or maintain.

As learners will be engaged in practical activity there should be an emphasis on safe working practices, including the use of appropriate personal protective equipment (PPE), and appropriate risk assessments should be undertaken. At Level 3 it is expected that learners will take an active part in completing risk assessments, so that this becomes an integral part of all practical activity. Learners should also be made aware of the impact on the environment, and sustainability concepts should also be demonstrated where possible.

Learners should have the opportunity to undertake estate skills activity in a land-based setting wherever possible to maximise the vocational relevance. It will be most beneficial if the structures, boundaries and surface selected are for a clear purpose above and beyond delivery of this unit. It is understood that there will not be opportunities to carry out construction, repair *and* maintenance in each of the categories, but it would be appropriate for the skills of construction, repair and maintenance to each be developed in one aspect of the unit.

It is anticipated that most delivery of this unit will take place in a practical setting, with supervised practice of skills. Delivery will also include some classroom based activity in ensuring learners have a good understanding of planning, materials selection and preparation, and underpinning knowledge.

Suggested learning resources

Books

Agate E (Ed), Brooks A and Adcock S (1999) *Dry Stone Walling: A Practical Handbook*. The Conservation Volunteers.

Agate E (2001) *Fencing: A Practical Handbook*. The Conservation Volunteers.

Agate E (2001) *Footpaths: A Practical Handbook*. The Conservation Volunteers.

Agate E and Brooks A (1998) *Hedging: A Practical Handbook*. The Conservation Volunteers.

Agate E (Ed) (2001) *Tree Planting and Aftercare: A Practical Handbook*. The Conservation Volunteers.

Agate E (2000) *Tool Care: A Maintenance and Workshop Manual*. The Conservation Volunteers.

Agate E (2001) *Waterways & Wetlands: A Practical Handbook*. The Conservation Volunteers.

Agate E (Ed) (2002) *Woodlands: A Practical Handbook*. The Conservation Volunteers.

Maclean M (2006) *Hedges and Hedgelaying – A Guide to Planting, Management and Conservation*. The Crowood Press.

Roberts, M. (1997) *Poultry House Construction*. Gold Cockerel Books

Roberts, M. (1999) *The Smallholder's DIY*. Gold Cockerel Books

Roberts, M. (2005) *Farm and Smallholder Fencing: A Practical Guide to Permanent and Electric Livestock Fencing on the Farm and Smallholding*. Gold Cockerel Books

Stokes A (1999) *Health and Safety Overview for Practical Conservation Project: A Guide to Good Practice for Conservation Groups and Land Managers*. The Conservation Volunteers.

Websites

The Conservation Volunteers

www.tcv.org.uk

Department for Environment, Food and Rural Affairs

www.defra.gov.uk

Health and Safety Executive

www.hse.gov.uk

The Wildlife Trusts

www.wildlifetrusts.org

Forestry Commission

www.forestry.gov.uk

Unit 320

Environmental interpretation in the Land-based sector

UAN:	Y/507/7105
Level:	3
GLH:	60

What is this unit about?

This unit aims to introduce learners to environmental interpretation skills and understanding and how this can be applied in practice. It is designed for learners in centre-based settings looking to progress into the sector or onto further/higher education.

Learning outcomes:

In this unit, learners will be able to

1. Understand the role of environmental interpretation and media
2. Produce an interpretive plan for a site
3. Design a relevant piece of themed environmental interpretation
4. Understand how to evaluate the effectiveness of environmental interpretation

Scope of content

This section gives details of the scope of content to be covered in the teaching of the unit to ensure that all the learning outcomes can be achieved.

Learning outcome:

1. Understand the role of environmental interpretation and media

Topics

1.1 Environmental interpretation

1.2 Use of media to interpret sites

Topic 1.1

The learner will understand the aims, purpose and benefits of environmental interpretation:

- origination of concept of interpretation
- principles of interpretation eg Tilden's six principles, Beck and Cables principles Reasons for interpretation
- differences between interpretation and instruction
- types of audience eg captive, noncaptive, age, background, interests
- setting eg example country park, nature reserve, reservoir, nature walk, forest, botanical gardens, zoo.

Topic 1.2

The learner will understand media that can be used to interpret selected sites:

- guided interpretation eg guided trails, tours, talks, demonstrations, video production, role play, living history demonstrations, puppet shows, use of visual aids
- self-guided interpretation eg interpretive panels and boards, indoor and outdoor exhibits, signage, information centre, audio headsets, guide books, leaflets, maps, touch tables, DVDs, photographs
- reasons for using guided or self-guided interpretation methods.
- Use of Social Media eg Blogs, Forums, Twitter, Apps

Learning outcome:

2. Produce an interpretive plan for a site

Topics

2.1 Interpretive planning

2.2 Effective environmental interpretation planning

Topic 2.1

Learners will carry out interpretive planning:

- planning interpretive objectives; typical visitor numbers and profile eg age, interest, prior knowledge, language, educational level, reason for visiting, group sizes and dynamics
- gathering data
- planning interpretation to meet the needs of different visitor types
- selection of appropriate media, consideration of accessibility and relevance to setting
- planning guided and self-guided interpretive activities eg script/talk/story board, walks/trails, interactive media eg content, location and layout, planning themes

- importance of selecting themes, identification of themes, use of thematic map in planning walks/trails, using themes for verbal and written media
- meeting health and safety requirements

Topic 2.2

Learners will know features of effective environmental interpretation planning:

- Features of self-guided interpretation: appropriate content, use of design principles, organisation and layout eg size of text, text style, pictures and photographs, colour, interactive features, construction materials, health and safety considerations
- Features of guided interpretation: organisation of content, presentation skills, use of audio visual aids, use of props and resources, clarity of presentation

Learning outcome:

3. Design a relevant piece of themed environmental interpretation

Topics

3.1 Effective themed environmental interpretation

3.2 Carry out themed environmental interpretation

Topic 3.1

The learner will use Learning outcome 2 to understand the processes that make an effective piece of themed environmental interpretation.

- Effective: meets objectives for interpretation, conveys environmental information in an interesting, relevant, enjoyable and organised way, accessible for all visitors (physically and conceptually), meets safety requirements, within budget

Topic 3.2

The learner will carry out a themed environmental interpretation eg storyboard, poster, website, guided walk, audio guide

Learning outcome:

4. Understand how to evaluate the effectiveness of environmental interpretation

Topics

4.1 Techniques used to evaluate d environmental interpretation

4.2 Environmental interpretation evaluate

Topic 4.1

The learner will understand techniques used to evaluate selected environmental interpretation, through gathering information:

- self-evaluation eg using criteria, checklist
- evaluation by others eg questionnaire, interview, observation, direct and indirect questioning, open and closed questions, scoring and grading
- when to carry out evaluation eg before, during and after interpretation
- how to us evaluation to suggest recommendations and improvements

Topic 4.2

Learners will know what should be consider when evaluating environmental interpretation.

- meeting objectives

- conveying environmental information in an interesting, relevant, enjoyable and organised way
- accessibility for all visitors (physically and conceptually)
- meeting safety requirements
- cost effectiveness
- management implications
- sustainability

Guidance for delivery

This unit introduces learners to the principles and benefits of environmental interpretation, and enables them to develop practical skills in planning, carrying out and evaluating environmental interpretations.

As learners will be engaged in practical activity there should be an emphasis on safe working practices, including the use of appropriate Personal Protective Equipment (PPE), and appropriate risk assessments should be undertaken. At Level 3 it is expected that learners will take an active part in completing risk assessments, so that this becomes an integral part of all practical activity. Sustainability concepts should also be demonstrated where possible.

For Learning outcome 1 delivery is likely to include visits to a range of settings to enable learners to witness the plethora of environmental interpretive media and techniques in operation. Some classroom based and research activity is also anticipated, to enable learners to understand the concepts of interpretation and how it differs from instruction. A guest speaker involved in leading environmental interpretation would also help students to gain an understanding of the elements of planning involved.

For Learning outcome 2 learners will need to produce and interpret plans for a given site.

For Learning outcome 3 learners need to have the opportunity to develop practical skills in producing environmental interpretations. Learners will need to have supervised practice in developing the skills in leading a guided interpretation, as well as the construction skills in creating a self guided one. Delivery will also need to include consideration of themes, their importance and how they can be determined. It would be helpful for this to be delivered after the visits for outcome one have taken place, so that learners have an understanding of the types of media and their relative advantages and disadvantages.

For Learning outcome 4 learners will need to gain skills in evaluating environmental interpretation, which may include classroom based delivery and discussion. It will be most helpful if learners have the opportunity to practice evaluation of professionally produced materials, those of other learners and their own. This will enable valuable evaluative skills to be effectively developed.

Suggested learning resources

Books

Interpretation for the 21st Century: Fifteen Guiding Principles for Interpreting Nature and Culture
Beck, L & Cable, T

Published by: Sports Publishing, 2002
ISBN: 1571675221

A Sense of Place: An Interpretive Planning Handbook
Published by: Tourism and Environment Initiative, 1997

Carter, J

Environmental Interpretation: A Practical Guide for People with Big Ideas and Small Budgets
Ham, S

Published by: Fulcrum Publishing, 1993
ISBN: 1555919022

Museums and Their Visitors
Published by: Routledge, 1994
ISBN: 0415068576

Hooper–Greenhill, E

Explaining our World: Guide to Environmental Interpretation
Published by: Taylor and Francis, 1998
ISBN: 0419219404

Pierssene, A

The Passionate Fact: Storytelling in Natural History and Cultural Interpretation
Strauss, S

Published by: Fulcrum Publishing, 1996
ISBN: 1555919251

Interpreting our Heritage
Published by: University of South Carolina Press, 1970
ISBN: 0807840165

Tilden, F

Interpretive Master Planning
Published by: Verulam Publishing, 1994
ISBN: 1560442743

Veverka, J

Websites

Association for Heritage Interpretation	www.heritageinterpretation.org.uk
National Association for Interpretation	www.interpnet.com
Scottish Interpretors Network	www.scotinterpnet.org.uk
Zoolex Zoo Design Organisation	www.zoolex.org

Unit 336

Fishery management

UAN:	T/507/7113
Level:	3
GLH:	60

What is this unit about?

This unit aims to introduce learners to fishery skills and management and how these can be applied in practice. It is designed for learners in centre-based settings looking to progress into the sector or onto further/higher education.

Learning outcomes:

In this unit, learners will be able to

1. Understand commonly used fresh water fish stock maintenance and improvement methods
2. Know the main mammalian and avian predators of fish and the methods used to legally control them
3. Use suitable methods of sport fishery bank maintenance, stock assessment and vegetation control
4. Understand business requirements of a sport fishery

Scope of content

This section gives details of the scope of content to be covered in the teaching of the unit to ensure that all the learning outcomes can be achieved.

Learning outcome:

1. Understand commonly used fresh water fish stock maintenance and improvement methods

Topics

1.1 Sport fishery species

1.2 Maintenance and improvement of sport fishery stock through habitat management

1.3 Maintenance and improvement of sport fishery stock through direct stocking

1.4 Maintenance and improvement of sport fishery stock through angler behaviour

Topic 1.1

The learner will know fish species common to sport fishery eg:

- brown trout
- atlantic salmon
- chub
- barbell
- grayling
- bream
- perch
- roach
- rudd
- common carp
- tench
- pike.

Topic 1.2

The learner will understand the maintenance and improvement of sport fishery stock through habitat management:

- water quality
- poor recruitment
- competition
- the status of wild stocks and causes of decline
- habitat improvement techniques (eg gravel cleaning, revetments, river restoration, fish ladders)
- aquatic invertebrates
- stillwater fishery design.

Topic 1.3

The learner will understand the maintenance and improvement of sport fishery stock through direct stocking:

- Stocking policy
- stocking density
- fishery objectives

- source of stock fish
- fish health
- angler success
- overpopulation.

Topic 1.4

The learner will understand the maintenance and improvement of sport fishery stock through angler behaviour:

- The methods used to regulate different disciplines of angling eg bio security, seasons, restrictions on equipment.

Topics 1.2, 1.3, 1.4

Any relevant current legislation, codes of practice and bylaws.

Learning outcome:

2. Know the main mammalian and avian predators of fish and the methods used to legally control them

Topics

2.1 Avian and mammalian predators of fish at a sport fishery

2.2 Methods used to legally control avian and mammalian predators

Topic 2.1

The learner will know the avian and mammalian predators of fish at a sport fishery, including:

- Otter
- Mink
- Cormorant
- grey heron
- goosander
- merganser
- The impacts on fish populations and fisheries
- The lifecycles of predators
- signs and evidence eg footprints, fish wounds, and spraints.

Topic 2.2

The learner will know the methods used to legally control avian and mammalian predators eg:

- Trapping
- Scaring
- shooting
- The licences to control predators, relevant current legislation, codes of practice.

Learning outcome:

3. Use suitable methods of sport fishery bank maintenance, stock assessment and vegetation control

Topics

3.1 Fish stock assessment

3.2 Practical bank maintenance

3.3 Practical vegetation control

Topic 3.1

The learner will use fish stock assessment methods including methods of fish capture, their advantages and disadvantages in different situations eg rod and line, seine nets, fyke nets, electro-fishing apparatus and piscicides. Methods used to estimate fish populations, eg tagging and marking techniques, hydro acoustics. Specific health and safety issues, eg drowning, electrocution and Weil's disease.

Topic 3.2

The learner will use practical bank maintenance to restore banks and prevent erosion, eg the use of hard landscaping techniques, use of soft landscaping techniques.

Topic 3.3

The learner will use practical vegetation control including reasons for aquatic weed control, the commonly used methods of aquatic weed control eg cutting by hand, machine cutting, dyes, straw bales, shading and the use of herbivorous fish. The reasons for bankside vegetation control, commonly used methods to control bankside vegetation eg hand-held tools, strimmer's, chainsaws. The environmental impact of vegetation control eg nesting birds season, weed cutting, silt deposition, flood risk, habitat damage.

Learning outcome:

4. Understand business requirements of a sport fishery

Topics

4.1 Factors affecting daily management

4.2 Sport fishery facilities

4.3 Duties within sport fishery management

Topic 4.1

The learner will understand the major factors affecting daily management of a sports fishery including the size and nature of the industry, specific organisations relevant to the promotion of angling, daily business management eg costs, ticket pricing policy, angler types and numbers, angler success, competition, marketing, stock availability, location, fish health, public's perception, stock prices and sources, fishery rules.

Topic 4.2

The learner will know the sport fishery facilities required by anglers (eg angling pegs; car parks; equality of access, angling lodge; café; tackle shop; toilets; seating; information boards; footpaths; life rings; net dips; shelters).

Topic 4.3

The learner will know the duties of those involved in sports fishery management, the annual duties of water keepers, bailiffs, fisheries officers and other employees (depending on locality). Preventing poaching. Other responsibilities of employees eg recognising and reporting signs of ill health in fish, dealing with anglers and members of the general public (including potential confrontational issues).

Guidance for delivery

Learning outcome 1 identifies the major species found in a sport fishery and looks at the commonly used fresh water fish stock maintenance and improvement methods. Learners will look at how habitat management and the introduction of stocked fish can be used to maintain a healthy stock.

Learning outcome 2 covers the six major avian and mammalian predators of fish in the UK. Learners need to be able to identify the main predators of fish and the legal ways in which they can be controlled, explaining the possible impact on a given fishery if they were not controlled.

Learning outcome 3 focuses on the methods used to assess the fish stock, maintain banks and control aquatic and bankside vegetation within sport fisheries. Learners will assist with a minimum of three different fish stock assessment methods, one bank maintenance project, one aquatic and one bankside vegetation control task.

Learners will complete a risk assessments for each of the tasks undertaken identifying the environmental, fish and animal welfare issues relating to the work being carried out.

Learning outcome 4 covers the business management requirements of a sport fishery, facilities and the typical duties of those who work within the sector. Tutors should provide a general overview of the business requirements, reinforced where appropriate by the use of local sport fisheries to provide specific examples. Regional differences, for example in the duties of employees, legislation and bylaws, should be discussed to raise learner awareness of these issues.

This unit could be delivered using formal lectures, case studies, practical demonstrations and activities, independent learner research, group discussions, site visits and talks by guest speakers.

Tutors should provide a general overview of the methods used, reinforced where appropriate by the use of local sport fisheries to provide specific examples. Visiting expert speakers could add to the relevance of the subject for learners. For example, a sport fishery manager could talk about their work and the methods they use.

Suggested learning resources

Learners will need supervised access to a range of river and still water fisheries to allow them to develop a realistic understanding of the theory behind fishery management and to develop essential practical skills. Resources for stock assessment, bank maintenance and vegetation control work should include waders, wading sticks, buoyancy aids and throw ropes for safety purposes, appropriate fish capture equipment for fish stock surveys, appropriate identification guides, a range of hand and power tools and materials, and appropriate equipment, tools and materials for controlling vegetation.

Books

Sparsholt Guide to the Management of Carp Fisheries
Published by: Mitchellwing Publications, 2001
ISBN: 0954005406

Seagrave, C

Fundamentals of Aquatic Ecology, 2nd Edition
Published by: Blackwell Science, 1991
ISBN: 0632029838

Barnes, R & Mann, K

Rehabilitation of Rivers For Fish
Published by: Food and Agriculture Organization of the UN, 1998

Cowx, I & Wellcomme, R

ISBN: 9251040184

Fresh water Fishes in Britain: The Species and Their Distribution Harding, P
Published by: Harley Books, 2004
ISBN: 0946589763

Aquatic Weed Control Seagrave, C
Published by: Blackwell Science, 1988
ISBN: 0852381522

Fresh water Fisheries Management, 2nd Edition Templeton, R
Published by: Blackwell Science, 1995
ISBN: 085238209X

Environment Agency – Code of Practice for Safety in Electric Fishing Operations

Websites

The Angling Trust	www.anglingtrust.com
Atlantic Salmon Trust	www.atlanticsalmontrust.org
Department for Environment, Food and Rural Affairs	www.defra.gov.uk
Environment Agency	www.environment-agency.gov.uk
The Game Conservation Trust	www.gct.org.uk
Health and Safety Executive	www.hsegov.uk
Institute of Fisheries Management	www.ifm.org.uk
Salmon and Trout Association	www.salmon-trout.org
The Wild Trout Trust	www.wildtrout.org

UAN:	A/507/7114
Level:	3
GLH:	60

What is this unit about?

This unit aims to provide learners with an understanding of the principles of river fishery creation and management and how these can be applied in practice, including how rivers across the United Kingdom are managed for angling. This unit is primarily aimed at learners within a centre-based setting looking to progress into the sector or further education and training. It allows the learner to study river habitats and relate this to how they can be managed sustainably for anglers, taking into account the important needs of the environment and other users.

Learning outcomes:

In this unit, learners will be able to

1. Understand the ecology of different rivers
2. Understand the causes of river degradation and methods of river restoration
3. Know the types of river fisheries found in the UK and their characteristics
4. Plan the creation and management of a riverine fishery

Scope of content

This section gives details of the scope of content to be covered in the teaching of the unit to ensure that all the learning outcomes can be achieved.

Learning outcome:

1. Understand the ecology of different rivers

Topics

1.1 The characteristics of the typical habitats found in selected river fisheries

1.2 The habitat requirements of a range of river fish species

Topic 1.1

The learner will understand the characteristics of the typical habitats found in selected river fisheries

- Channel characteristics eg length, depth and width; river zonation; river characteristics eg Pool, riffle, glide, gravels, over hanging vegetation, woody debris, aquatic weed, under cut banks.

Topic 1.2

The learner will understand the habitat requirements for riverine fish species:

- Habitat requirements for coarse fish eg Roach, Bream, Chub, Pike, Barbel, Dace, Bleak, Zander
- Habitat requirements for game fish eg Salmon, Brown Trout, Rainbow Trout, Grayling, Sea Trout.

Learning outcome:

2. Understand the causes of river degradation and methods of river restoration

Topics

2.1 The major causes of river degradation

2.2 Methods of river restoration

Topic 2.1

The learner will understand the causes of river degradation:

- Pollution (agricultural, industrial)
- Eutrophication
- Afforestation
- Abstraction
- over shading
- under shading
- impoundments(eg weirs and dams)
- siltation
- channelization
- erosion (eg human, livestock)
- non-native plant species (eg Himalayan Balsam)
- non-native animal species (eg Signal crayfish, American mink).

Topic 2.2

The learner will understand the methods of river restoration:

- Bank top methods (eg post and wire fencing, buffer strips, tree planting, pollarding)
- bankside work (eg faggots, revetment, gabions) in channel features (eg deflectors, islands, woody debris, boulder placement)
- organisations involved in river restoration (eg state, private groups, trusts and foundations)
- relevant current legislation and codes of practice.

Learning outcome:

3. Know the types of river fisheries found in the UK and their characteristics

Topics

3.1 Types of river fisheries found in the UK

3.2 Characteristics of river fisheries found in the UK

Topic 3.1

The learner will understand the types of river fisheries founded in the UK, eg:

- Salmon Fishing on the Scottish rivers
- Sea Trout Fishing in Wales
- the Chalkstreams in southern England and the coarse rivers of the Midlands

Topic 3.2

The learner will understand the characteristics of river fisheries:

- Geographical areas and reasons for geographical differences eg latitude, altitude and gradient, climate, geology, stocking, species present (eg coarse and game), catch and release; fishing rights and riparian ownership; relevant current legislation the use of bylaws and codes of practice.

Learning outcome:

4. Plan the creation and management of a riverine fishery

Topics

4.1 Creation of a river fishery

4.2 Management of riverine habitats

Topic 4.1

The learner will plan the creation of river fishery:

- Identifying specific river fishery management objectives eg game, coarse, migratory
- planning activities and resources
- identifying access points monitoring activities and resources
- reviewing outcomes against objectives, recommendations and improvements.

Topic 4.2

The learner will management of riverine habitats:

- Legal predator control
- fish stock management
- stocking

- bankside vegetation control
- aquatic vegetation control
- poacher checks
- angler liaison
- fish population management/surveys
- maintaining access points eg bridges, stiles, gates, steps
- maintaining boundaries eg fences, biological and chemical water quality checks
- maintaining in-stream structures eg deflectors, islands, faggots, habitat improvement works.

Guidance for delivery

In Learning outcome 1, the learner will be required to understand the ecology of a river system and the habitats required for a range of fish species. This outcome will require some formal delivery, but it should also be delivered in practical situations and site visits where learners can visually see the different river habitats. Learners should be encouraged to research different fish species found in rivers and understand their habitat requirements throughout the year.

Learning outcome 2 covers river degradation and river restoration. It is anticipated that the delivery of this outcome will be through formal lectures, it should include a site visit or study tour to an area which has encountered river degradation and river restoration. Learners should also focus on local and national case studies across the UK and look at the work undertaken by river trusts and the Environment Agency.

In Learning outcome 3, the learner will be required to understand the different river systems for angling across the UK. Emphasis should be placed on the main types of angling, for example Salmon Fishing on the Scottish rivers, Sea Trout Fishing in Wales, the Chalkstreams in southern England and the coarse rivers of the Midlands. Guided learner research and formal lectures should form the main part of the teaching for this outcome, with study tours and site visits where necessary.

In Learning outcome 4 the learner will be able to understand the objectives and planning involved in creating a river fishery and the need for ongoing evaluation. Learners will understand the typical duties undertaken by those employed in river fishery management eg river keepers, ghillies. Learners should be familiar with specific management techniques for improving the riverine habitats.

Where possible, learners should have the opportunity to undertake a range practical task on a variety of river fisheries. Alternatively a river keeper could talk about his/her role and duties.

Centres are encouraged to introduce case studies, employers and specific professionals from industry to provide interesting and relevant information to the learner. Teaching would also benefit from visits to a variety of rivers to add depth to the learner experience.

Learners must be given the opportunity to study the range of river fisheries found across the UK.

Suggested Learning Resources

Books

- Fundamentals of Aquatic Ecology, 2nd Edition
Published by: Blackwell Science, 1991
ISBN: 0632029838
Barnes, R & Mann, K
- Rehabilitation of Rivers for Fish
Published by: Food and Agriculture Organization of the UN, 1998
ISBN: 9251040184
Cowx, I & Wellcomme, R
- Fresh water Fishes in Britain: The Species and Their Distribution
Published by: Harley Books, 2004
ISBN: 0946589763
Harding, P
- Aquatic Weed Control
Published by: Blackwell Science, 1988
ISBN: 0852381522
Seagrave, C
- Fresh water Fisheries Management, 2nd Edition
Published by: Blackwell Science, 1995
ISBN: 085238209X
Templeton, R

Environment Agency – Code of Practice for Safety in Electric Fishing Operations

Websites

- The Angling Trust www.anglingtrust.com
- Atlantic Salmon Trust www.atlanticsalmontrust.org
- Department for Environment, Food and Rural Affairs www.defra.gov.uk
- Environment Agency www.environment-agency.gov.uk
- The Game Conservation Trust www.gct.org.uk
- Health and Safety Executive www.hse.gov.uk
- Institute of Fisheries Management www.ifm.org.uk
- Salmon and Trout Association www.salmon-trout.org
- The Wild Trout Trust www.wildtrout.org

Appendix 1 Sources of general information

The following documents contain essential information for centres delivering City & Guilds qualifications. They should be referred to in conjunction with this handbook. To download the documents and to find other useful documents, go to the **Centres and Training Providers homepage** on www.cityandguilds.com.

City & Guilds Centre Manual

This document provides guidance for organisations wishing to become City & Guilds approved centres, as well as information for approved centres delivering City & Guilds qualifications. It covers the centre and qualification approval process as well as providing guidance on delivery, assessment and quality assurance for approved centres.

It also details the City & Guilds requirements for ongoing centre and qualification approval, and provides examples of best practice for centres. Specifically, the document includes sections on:

- the centre and qualification approval process
- assessment, internal quality assurance and examination roles at the centre
- registration and certification of candidates
- non-compliance and malpractice
- complaints and appeals
- equal opportunities
- data protection
- management systems
- maintaining records
- internal quality assurance
- external quality assurance.

Our Quality Assurance Requirements

This document explains the requirements for the delivery, assessment and awarding of our qualifications. All centres working with City & Guilds must adopt and implement these requirements across all of their qualification provision. Specifically, this document:

- specifies the quality assurance and control requirements that apply to all centres
- sets out the basis for securing high standards, for all our qualifications and/or assessments
- details the impact on centres of non-compliance

The **centre homepage** section of the City & Guilds website also contains useful information on

Walled Garden: how to register and certificate candidates on line

Events: dates and information on the latest Centre events

Online assessment: how to register for e-assessments.

Useful contacts

UK learners

General qualification information

E: learnersupport@cityandguilds.com

International learners

General qualification information

E: intcg@cityandguilds.com

Centres

Exam entries, Certificates, Registrations/enrolment, Invoices, Missing or late exam materials, Nominal roll reports, Results

E: centresupport@cityandguilds.com

Single subject qualifications

Exam entries, Results, Certification, Missing or late exam materials, Incorrect exam papers, Forms request (BB, results entry), Exam date and time change

E: singlesubjects@cityandguilds.com

International awards

Results, Entries, Enrolments, Invoices, Missing or late exam materials, Nominal roll reports

E: intops@cityandguilds.com

Walled Garden

Re-issue of password or username, Technical problems, Entries, Results, e-assessment, Navigation, User/menu option, Problems

E: walledgarden@cityandguilds.com

Employer

Employer solutions, Mapping, Accreditation, Development Skills, Consultancy

E: business@cityandguilds.com

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About City & Guilds

As the UK's leading vocational education organisation, City & Guilds is leading the talent revolution by inspiring people to unlock their potential and develop their skills. City & Guilds is recognised and respected by employers across the world as a sign of quality and exceptional training.

City & Guilds Group

The City & Guilds Group is a leader in global skills development. Our purpose is to help people and organisations to develop their skills for personal and economic growth. Made up of City & Guilds, City & Guilds Kineo, The Oxford Group and ILM, we work with education providers, businesses and governments in over 100 countries.

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