

Specification

BTEC Specialist qualifications

Edexcel BTEC Level 2 Award in Ecological Surveys and Techniques (QCF)

First teaching October 2011



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BTEC Specialist qualification title covered by this specification

Edexcel BTEC Level 2 Award in Ecological Surveys and Techniques (QCF)

This qualification has been accredited to the Qualifications and Credit Framework (QCF) and is eligible for public funding as determined by the Department for Education (DfE) under Section 96 of the Learning and Skills Act 2000.

The qualification title listed above features in the funding lists published annually by the DfE and the regularly updated website www.education.gov.uk/. The QCF Qualification Number (QN) should be used by centres when they wish to seek public funding for their learners. Each unit within a qualification will also have a QCF unit code.

The QCF qualification and unit codes will appear on learners' final certification documentation.

The QN for the qualification in this publication is:

Edexcel BTEC Level 2 Award in Ecological Surveys and Techniques (QCF)	600/3303/4
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This qualification title will appear on learners' certificates. Learners need to be made aware of this when they are recruited by the centre and registered with Edexcel.

Welcome to the Edexcel BTEC Level 2 Award in Ecological Surveys and Techniques (QCF)

We are delighted to introduce our new qualification, which will be available for teaching from October 2011. This qualification has been revised and conforms with the requirements of the new QCF (Qualifications and Credit Framework).

Straightforward to implement, teach and assess

Implementing BTECs couldn't be easier. They are designed to fit easily into your curriculum and can be studied independently or alongside existing qualifications, to suit the interests and aspirations of learners. The clarity of assessment makes grading learner attainment simpler.

Engaging for everyone

Learners of all abilities flourish when they can apply their own knowledge, skills and enthusiasm to a subject. BTEC qualifications make explicit the link between theoretical learning and the world of work by giving learners the opportunity to apply their research, skills and knowledge to work-related contexts and case studies. These applied and practical BTEC approaches give all learners the impetus they need to achieve and the skills they require for workplace or education progression.

Recognition

BTECs are understood and recognised by a large number of organisations in a wide range of sectors. BTEC qualifications are developed with key industry representatives and Sector Skills Councils (SSC) to ensure that they meet employer and learner needs — in this case Lantra SSC. Many industry and professional bodies offer successful BTEC learners exemptions for their own accredited qualifications.

All you need to get started

To help you off to a flying start, we've developed an enhanced specification that gives you all the information you need to start teaching BTEC qualifications. This includes:

- a framework of equivalencies, so you can see how this qualification compares with other Edexcel vocational qualifications
- information on rules of combination, structure and quality assurance, so you can deliver the qualification with confidence
- explanations of the content's relationship with the learning outcomes
- guidance on assessment, and what the learner must produce to achieve the unit.

Don't forget that we're always here to offer curriculum and qualification updates, local training and network opportunities, advice, guidance and support.

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What are BTEC Specialist qualifications?

BTEC Specialist qualifications are qualifications at Entry level to level 3 in the Qualifications and Credit Framework (QCF) and are designed to provide specialist work-related qualifications in a range of sectors. They give learners the knowledge, understanding and skills that they need to prepare for employment. The qualifications also provide career development opportunities for those already in work. Consequently, they provide a course of study for full-time or part-time learners in schools, colleges and training centres.

BTEC Specialist qualifications provide much of the underpinning knowledge and understanding for the National Occupational Standards for the sector, where these are appropriate. They are supported by the relevant Standards Setting Body (SSB) or Sector Skills Council (SSC). A number of BTEC Specialist qualifications are recognised as the knowledge components of Apprenticeships Frameworks.

On successful completion of a BTEC Specialist qualification, learners can progress to or within employment and/or continue their study in the same, or related vocational area.

The QCF is a framework which awards credit for qualifications and units and aims to present qualifications in a way that is easy to understand and measure. It enables learners to gain qualifications at their own pace along flexible routes.

There are three sizes of qualification in the QCF:

- Award (1 to 12 credits)
- Certificate (13 to 36 credits)
- Diploma (37 credits and above).

Every unit and qualification in the framework will have a credit value.

The credit value of a unit specifies the number of credits that will be awarded to a learner who has achieved the learning outcomes of the unit.

The credit value of a unit is based on:

- one credit for those learning outcomes achievable in 10 hours of learning
- learning time – defined as the time taken by learners at the level of the unit, on average, to complete the learning outcomes of the unit to the standard determined by the assessment criteria.

The credit value of the unit will remain constant in all contexts, regardless of the assessment method used for the qualification(s) to which it contributes.

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

Edexcel BTEC Level 2 Award

The Edexcel BTEC Level 2 Award provides an introduction to the skills, qualities and knowledge that may be required for employment in a particular vocational sector.

Key features of the Edexcel BTEC Level 2 in Ecological Surveys and Techniques (QCF)

The Edexcel BTEC Level 2 Award in Ecological Surveys and Techniques (QCF) has been developed to give learners the opportunity to:

- engage in learning that is relevant to them and which will provide opportunities to develop a range of skills and techniques, personal skills and attributes essential for successful performance in working life
- achieve a nationally recognised level 2 vocationally-related qualification
- progress to employment in a particular vocational sector
- progress to related general and/or vocational qualifications.

National Occupational Standards

Where relevant, Edexcel BTEC level 2 qualifications are designed to provide some of the underpinning knowledge and understanding for the National Occupational Standards (NOS), as well as developing practical skills in preparation for work and possible achievement of NVQs in due course. NOS form the basis of National Vocational Qualifications (NVQs). Edexcel BTEC level (QCF) qualifications do not purport to deliver occupational competence in the sector, which should be demonstrated in a work context.

The unit in this specification identifies links to elements of the NOS in *Annexe C*.

The Edexcel BTEC Level 2 Award in Ecological Surveys and Techniques (QCF) relates to the following NOS in Environmental Conservation.

Edexcel BTEC Level 2 Award in Ecological Surveys and Techniques (QCF)

The Edexcel BTEC Level 2 Award in Ecological Surveys and Techniques (QCF) is a 10-credit and 60-guided learning hour (GLH) qualification that consists of one mandatory unit that provides for a combined total of 10 credits.

Edexcel BTEC Level 2 Award in Ecological Surveys and Techniques (QCF)			
Unit	Mandatory unit	Credit	Level
1	Undertaking Ecological Surveys and Techniques	10	2

Assessment

The unit within this qualification is internally assessed. The qualification is criterion referenced, based on the achievement of all the specified learning outcomes.

To achieve a 'pass' a learner must have successfully passed **all** the assessment criteria.

Guidance

The purpose of assessment is to ensure that effective learning has taken place to give learners the opportunity to:

- meet the standard determined by the assessment criteria and
- achieve the learning outcomes.

Assignments created by centres should be reliable and fit for purpose, and should be built on the unit assessment criteria. Assessment tasks and activities should enable learners to produce valid, sufficient and reliable evidence that relates directly to the specified criteria. Centres should enable learners to produce evidence in a variety of different forms, including performance observation, presentations and posters, along with projects, or time-constrained assessments.

Centres are encouraged to emphasise the practical application of the assessment criteria, providing a realistic scenario for learners to adopt, and making maximum use of practical activities. The creation of assignments that are fit for purpose is vital to learner achievement and their importance cannot be over-emphasised.

The assessment criteria must be indicated clearly in the assignments briefs. This gives learners focus and helps with internal verification and standardisation processes. It will also help to ensure that learner feedback is specific to the assessment criteria.

When designing assignments briefs, centres are encouraged to identify common topics and themes. A central feature of vocational assessment is that it allows for assessment to be:

- current, ie to reflect the most recent developments and issues
- local, ie to reflect the employment context of the delivering centre
- flexible to reflect learner needs, ie at a time and in a way that matches the learner's requirements so that they can demonstrate achievement.

Qualification grade

Learners who achieve the minimum eligible credit value will achieve the qualification at pass grade.

In the Edexcel BTEC level 2 Specialist qualifications each unit has a credit value which specifies the number of credits that will be awarded to a learner who has achieved the learning outcomes of the unit. This has been based on:

- one credit for those learning outcomes achievable in 10 hours of learning time
- learning time being defined as the time taken by learners at the level of the unit, on average, to complete the learning outcomes of the unit to the standard determined by the assessment criteria
- the credit value of the unit remaining constant regardless of the method of assessment used or the qualification to which it contributes.

Quality assurance of centres

Edexcel BTEC level 2 qualifications provide a flexible structure for learners enabling programmes of varying credits and combining different levels. For the purposes of quality assurance, all individual qualifications and units are considered as a whole.

Centres delivering the Edexcel BTEC level 2 qualifications must be committed to ensuring the quality of the units and qualifications they deliver, through effective standardisation of assessors and verification of assessor decisions. Centre quality assurance and assessment is monitored and guaranteed by Edexcel.

The Edexcel quality assurance processes will involve:

- centre approval for those centres not already recognised as a centre for BTEC qualifications
- approval for Edexcel BTEC level 2 qualifications and units
- **compulsory** Edexcel-provided training and standardisation for internal verifiers and assessors leading to the accreditation of lead internal verifiers via the OSCA system
- quality review of centre verification practice
- centre risk assessment by Edexcel of overarching processes and quality standards
- remedial training and/or assessment sampling for centres identified through standardisation or risk assessment activities as having inadequate quality, assessment or internal verification processes.

Approval

Centres are required to declare their commitment to ensuring the quality of the programme of learning and providing appropriate assessment opportunities for learners that lead to valid and accurate assessment outcomes. In addition, centres will commit to undertaking defined training and online standardisation activities.

Centres already holding BTEC approval are able to gain qualification approval online. New centres must complete a centre approval application.

Quality Assurance Guidance

Details of quality assurance for Edexcel BTEC level 2 qualifications are set out in centre guidance which is published on our website (www.edexcel.com).

Programme design and delivery

Mode of delivery

Edexcel does not normally define the mode of delivery for Edexcel BTEC Entry to level 3 qualifications. Centres are free to offer the qualifications using any mode of delivery (such as full-time, part-time, evening only, distance learning) that meets their learners' needs. Whichever mode of delivery is used, centres must ensure that learners have appropriate access to the resources identified in the specification and to the subject specialists delivering the units. This is particularly important for learners studying for the qualification through open or distance learning.

Learners studying for the qualification on a part-time basis bring with them a wealth of experience that should be utilised to maximum effect by tutors and assessors. The use of assessment evidence drawn from learners' work environments should be encouraged. Those planning the programme should aim to enhance the vocational nature of the qualification by:

- liaising with employers to ensure a course relevant to learners' specific needs
- accessing and using non-confidential data and documents from learners' workplaces
- including sponsoring employers in the delivery of the programme and, where appropriate, in the assessment
- linking with company-based/workplace training programmes
- making full use of the variety of experience of work and life that learners bring to the programme.

Resources

Edexcel BTEC level 2 qualifications are designed to give learners an understanding of the skills needed for specific vocational sectors. Physical resources need to support the delivery of the programme and the assessment of the learning outcomes, and should therefore normally be of industry standard. Staff delivering programmes and conducting the assessments should be familiar with current practice and standards in the sector concerned. Centres will need to meet any specific resource requirements to gain approval from Edexcel.

The specific resources required for this qualification have been indicated in the unit specification.

Delivery approach

It is important that centres develop an approach to teaching and learning that supports the vocational nature of Edexcel BTEC level 2 qualifications and the mode of delivery. Specifications give a balance of practical skill development and knowledge requirements, some of which can be theoretical in nature. Tutors and assessors need to ensure that appropriate links are made between theory and practical application and that the knowledge base is applied to the sector. This requires the development of relevant and up-to-date teaching materials that allow learners to apply their learning to actual events and activity within the sector. Maximum use should be made of learners' experience.

Centres must facilitate access to safe out-of-class learning for learners such as visits to appropriate outdoor environments and work-related land-based sites wherever possible. Centres must ensure all learners are given as much opportunity as possible to experience safe and meaningful out-of-class learning. Such experiences must recognise and fit reasonably with each learners physical and mental abilities.

Additional and Specialist Learning

Additional and Specialist Learning (ASL) consists of accredited qualifications at the same level as, or one level above a 14-19 Diploma course of study, which have been approved under Section 96 of the Learning and Skills Act 2000. The ASL may include BTEC qualifications which are also available to learners not following a 14-19 Diploma course of study.

ASL qualifications are listed on the 14-19 Diploma Catalogue which is available on the Register of Regulated Qualifications (www.ofqual.gov.uk). The catalogue will expand over time as more qualifications are accredited and approved.

Centres undertaking, or preparing to undertake, ASL should refer regularly to the Edexcel website for information regarding additions and the 14-19 Diploma Catalogue for the latest information.

Access and recruitment

Edexcel's policy regarding access to its qualifications is that:

- they should be available to everyone who is capable of reaching the required standards
- they should be free from any barriers that restrict access and progression
- there should be equal opportunities for all wishing to access the qualifications.

Centres are required to recruit learners to BTEC qualifications with integrity. This will include ensuring that applicants have appropriate information and advice about the qualifications and that the qualification will meet their needs. Centres should take appropriate steps to assess each applicant's potential and make a professional judgement about their ability to successfully complete the programme of study and achieve the qualification. This assessment will need to take account of the support available to the learner within the centre during their programme of

study and any specific support that might be necessary to allow the learner to access the assessment for the qualification. Centres should consult Edexcel's policy on learners with particular requirements.

Centres will need to review the entry profile of qualifications and/or experience held by applicants, considering whether this profile shows an ability to progress to a higher level qualification.

Restrictions on learner entry

The Edexcel BTEC Level 2 Award in Ecological Surveys and Techniques (QCF) is accredited on the QCF for learners aged 14 and above.

Access arrangements and special considerations

Edexcel's policy on access arrangements and special considerations for BTEC and Edexcel NVQ qualifications aims to enhance access to the qualifications for learners with disabilities and other difficulties (as defined by the 2010 Equality Act) without compromising the assessment of skills, knowledge, understanding or competence.

Further details are given in the policy document *Access Arrangements and Special Considerations for BTEC and Edexcel NVQ Qualifications*, which can be found on the Edexcel website (www.edexcel.com). This policy replaces the previous Edexcel policy (*Assessment of Vocationally Related Qualifications: Regulations and Guidance Relating to Learners with Special Requirements, 2002*) concerning learners with particular requirements.

Recognition of Prior Learning

Recognition of Prior Learning (RPL) is a method of assessment (leading to the award of credit) that considers whether a learner can demonstrate that they can meet the assessment requirements for a unit through knowledge, understanding or skills they already possess and so do not need to develop through a course of learning.

Edexcel encourages centres to recognise learners' previous achievements and experiences whether at work, home and at leisure, as well as in the classroom. RPL provides a route for the recognition of the achievements resulting from continuous learning.

RPL enables recognition of achievement from a range of activities using any valid assessment methodology. Provided that the assessment requirements of a given unit or qualification have been met, the use of RPL is acceptable for accrediting a unit, units or a whole qualification. Evidence of learning must be sufficient, reliable and valid.

Unit format

All units in Edexcel BTEC level 2 Specialist qualifications have a standard format. The unit format is designed to give guidance on the requirements of the qualification for learners, tutors, assessors and those responsible for monitoring national standards.

Each unit has the following sections.

Unit title

The unit title is accredited on the QCF and this form of words will appear on the learner's Notification of Performance (NOP).

Unit code

Each unit is assigned a QCF unit code that appears with the unit title on The Register of Regulated Qualifications (register.ofqual.gov.uk).

QCF level

All units and qualifications within the QCF will have a level assigned to them, which represents the level of achievement. There are nine levels of achievement, from Entry level to level 8. The level of the unit has been informed by the QCF level descriptors and, where appropriate, the NOS and/or other sector/professional benchmarks.

Credit value

All units have a credit value. The minimum credit value that may be determined for a unit is one, and credits can only be awarded in whole numbers. Learners will be awarded credits for the successful completion of whole units.

Guided learning hours

Guided learning hours are defined as all the times when a tutor, trainer or facilitator is present to give specific guidance towards the learning aim being studied on a programme. This definition includes lectures, tutorials and supervised study in, for example, open learning centres and learning workshops. It also includes time spent by staff assessing learners' achievements. It does not include time spent by staff in day-to-day marking of assignments or homework where the learner is not present.

Unit aim

The aim provides a clear summary of the purpose of the unit and is a succinct statement that summarises the learning outcomes of the unit.

Unit introduction

The unit introduction gives the reader an appreciation of the unit in the vocational setting of the qualification, as well as highlighting the focus of the unit. It gives the reader a snapshot of the unit and the key knowledge, skills and understanding gained while studying the unit. The unit introduction also highlights any links to the appropriate vocational sector by describing how the unit relates to that sector.

Learning outcomes

The learning outcomes of a unit set out what a learner is expected to know, understand or be able to do as the result of a process of learning.

Assessment criteria

The assessment criteria of a unit specify the standard a learner is expected to meet to demonstrate that a learning outcome, or set of learning outcomes, has been achieved. The learning outcomes and assessment criteria clearly articulate the learning achievement for which the credit will be awarded at the level assigned to the unit.

Unit content

The unit content identifies the breadth of knowledge, skills and understanding needed to design and deliver a programme of learning to achieve each of the learning outcomes. This is informed by the underpinning knowledge and understanding requirements of the related National Occupational Standards (NOS), where relevant. The content provides the range of subject material for the programme of learning and specifies the skills, knowledge and understanding required for achievement of the unit.

Each learning outcome is stated in full and then the key phrases or concepts related to that learning outcome are listed in italics followed by the subsequent range of related topics.

Relationship between content and assessment criteria

The learner should have the opportunity to cover all of the unit content.

It is not a requirement of the unit specification that all of the content is assessed. However, the indicative content will need to be covered in a programme of learning in order for learners to be able to meet the standard determined in the assessment criteria.

Content structure and terminology

The information below shows how the unit content is structured and gives the terminology used to explain the different components within the content.

- Learning outcome: this is shown in bold at the beginning of each section of content.
- Italicised sub-heading: it contains a key phrase or concept. This is content which must be covered in the delivery of the unit. Colons mark the end of an italicised sub-heading.

- Elements of content: the elements are in plain text and amplify the sub-heading. The elements must be covered in the delivery of the unit. Semi-colons mark the end of an element.
- Brackets contain amplification of content which must be covered in the delivery of the unit.
- 'eg' is a list of examples, used for indicative amplification of an element (that is, the content specified in this amplification could be covered or could be replaced by other, similar material).

Essential guidance for tutors

This section gives tutors additional guidance and amplification to aid understanding and a consistent level of delivery and assessment. It is divided into the following key sections.

- *Delivery* – explains the content's relationship to the learning outcomes and offers guidance about possible approaches to delivery. This section is based on the more usual delivery modes but is not intended to rule out alternative approaches.
- *Assessment* – gives amplification about the nature and type of evidence that learners need to produce in order to achieve the unit. This section should be read in conjunction with the assessment criteria.
- *Essential resources* – identifies any specialist resources needed to allow learners to generate the evidence required for each unit. The centre will be asked to ensure that any requirements are in place when it seeks approval from Edexcel to offer the qualification.
- *Indicative resource materials* – gives a list of learner resource material that benchmarks the level of study.

Unit

Unit 1: Undertaking Ecological Surveys and Techniques

15

Unit 1: Undertaking Ecological Surveys and Techniques

Unit code: Y/600/9168

QCF level 2: BTEC Specialist

Credit value: 10

Guided learning hours: 60

Unit aim

Learners will investigate the planning, surveying and reporting of terrestrial and aquatic habitats. They will learn about the safe selection and use of different methods and the tools and equipment necessary in the correct and accurate collection and recording of data in the field and laboratory. They will conclude by learning the approach and use of basic statistical analysis.

Unit introduction

The ability to manage natural resources successfully requires access to accurate information, and in countryside management there is a particular requirement to be able to carry out ecological surveys and interpret their results. This unit will give learners an understanding of basic ecological surveying and enable them to study methods that can be used in a wide range of habitats.

Throughout the unit learners will be made aware of safe working practices relating to themselves, their colleagues, equipment, animals, plants and the environment. They will be able to carry out risk assessments before undertaking any practical tasks.

Learners will investigate methods used to plan terrestrial and aquatic animal and plant surveys using appropriate techniques, and learn how to use keys to identify species. They will have the opportunity to carry out surveys in a range of situations, and gain an understanding of the reasons why surveys are carried out.

They will learn the importance of accurate data collection and how to minimise errors, as well as the presentation, reporting and interpretation of survey results, which are all critical skills in the countryside and environment sector.

Learning outcomes and assessment criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

On completion of this unit a learner should:

Learning outcomes	Assessment criteria
1 Be able to plan surveys using safe working methods and appropriate techniques	1.1 Use terrestrial and aquatic survey planning techniques 1.2 Carry out risk assessment relevant to surveys planned
2 Know how to identify terrestrial and aquatic species using identification keys	2.1 Identify terrestrial and aquatic animals and plants using appropriate keys 2.2 Describe the importance of indicator species
3 Be able to carry out surveys and accurately record data in different situations and habitats	3.1 Carry out terrestrial and aquatic surveying 3.2 Record and collate terrestrial and aquatic data accurately 3.3 Undertake analysis of survey data 3.4 Present results in appropriate formats
4 Understand the use of basic statistical analysis in the production of reports	4.1 Explain the use of statistical analysis relating to surveys carried out 4.2 Discuss possible sources of error and their minimisation/prevention

Unit content

1 **Be able to plan surveys using safe working methods and appropriate techniques**

Planning: aims and objectives of investigation; logical sequence of actions; location; health and safety including personal protective equipment (PPE); risk assessment; preliminary skills and knowledge to include basic knowledge of geology, soils, related land use, climate, map reading skills; use of identification keys; basic assessment of the use of operational methods to minimise damage and disruption to site and wildlife; relevant current legislation eg Wildlife and Countryside Act 1981

Risk assessments: consideration of risks; likelihood of risk; severity of risk; ways to mitigate risks

2 **Know how to identify terrestrial and aquatic species using identification keys**

Identification: using identification keys and guide books to identify plants and animals; equipment used to identify plants and animals (hand lenses and microscopes, binoculars and nets); advantages and disadvantages of using dead, preserved and living samples for identification purposes; use of indicator species (in first instance their determination); health and safety

Indicator species: species whose presence or absence gives information about characteristics of the environment, eg air quality, water pollution, soil or rock types, species competition, climate change

3 **Be able to carry out surveys and accurately record data in different situations and habitats**

Surveys: abiotic surveys eg soil (horizons, type and pH), climate (light, wind, temperature, humidity), water (dissolved oxygen, temperature, nitrate level, flow, clarity); site assessment eg plans, maps, photographs, sketches and diagrams; plant surveys (basic quantitative studies using simple quadrat and transect methods); animal surveys eg pitfall traps, sweep nets; conducting and recording simple surveys; equipment needed to carry out surveys; use of automatic data recording systems; health and safety (to include PPE, risk assessments); relevant current legislation eg Wildlife and Countryside Act 1981

Present results: quantitative (eg tables, charts, scatter graphs, histograms, pie charts); qualitative (eg annotated map, diagram, written report)

4 Understand the use of basic statistical analysis in the production of reports

Statistical analysis: basic statistical analysis to include mean, median, mode and range, distribution; conclusion in relation to hypothesis and survey aims

Possible sources of error: collection errors; recording errors; identification errors; sampling errors; calculation errors

Essential guidance for tutors

Delivery

Tutors delivering this unit can use as wide a range of techniques as possible. Lectures, discussions, seminar presentations, site visits, supervised field and laboratory practicals, internet and/or library-based research and the use of personal and/or industrial experience would all be suitable. If delivery is supported by work placements these should be monitored regularly in order to ensure the quality of the learning experience.

Learners and supervisors should be made aware of the requirements of this unit before any work-related activities are undertaken, so that naturally occurring evidence can be collated at the time. For example, learners may have the opportunity to undertake habitat surveys and they should ask for observation records and witness statements to be provided as evidence. Guidance on the use of observation records and witness statements is provided on the Edexcel website.

Whichever delivery methods are used, it is essential that tutors stress the importance of health and safety and environmental issues and the need to manage resources using legal methods. Risk assessments must be undertaken before any practical activities. Learners should not be asked to undertake tasks that are beyond their physical capabilities. Adequate PPE must be available and used during practical activities.

Supervised field visits are a vital part of this unit as both terrestrial and aquatic habitats must be surveyed. Tutors could deliver all the learning outcomes whilst working around identified terrestrial and aquatic habitats. The aquatic habitats studied within this unit may be freshwater, brackish or marine. Visiting expert speakers could add to the relevance of the subject. For example, a countryside ranger or Environment Agency biologist could talk about their work and the importance of accurate survey data in making management decisions.

Learners will need to experience all aspects of survey work, from the initial plan and risk assessment through to results analysis and presentation. Delivery will need to encompass a range of methods for carrying out surveys and presenting results, including statistical analyses and formats for presenting results.

Outline learning plan

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

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

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

Topic and suggested assignments/activities and/assessment
Assignment 1: Identifying Species (AC 2.1, 2.2) Tutor introduces the unit and the brief.
Classroom session: theory of identification keys, classification of plants and animals, learner activity to design a key.
Practical activity: using keys to identify a range of species.
Classroom session: use of indicator species to confirm presence of other species. Practical activity matching species with indicator species.
Personal study and assessment completion.
Assignment 2: Planning Surveys (AC 1.1, 1.2) Tutor introduces the assignment brief.
Classroom session: survey planning, methods, techniques.
Practical session: risk assessment for surveying. Health and safety to be fully discussed, with examples of all potential hazards.
Visit: identify terrestrial and aquatic habitats to survey and particular features which will impact on planning.
Personal study and assessment completion.
Assignment 3: Practical Surveying (AC 3.1, 3.2, 3.3, 3.4, 4.1, 4.2) Tutor introduces brief.
Classroom session: importance of accurate data collection and recording.
Classroom discussion: sources of error and their minimisation and prevention.
Practical surveying: aquatic and terrestrial habitats.
Classroom session: methods of presenting results, use of statistical analysis.
Practice session: using statistics, presenting results.
Classroom-based activity: basic analysis and interpretation of survey data.
Personal study time and results analysis and write-up.

Assessment

For AC 1.1, learners will be expected to plan a terrestrial and an aquatic survey to meet given objectives. Tutors should identify the habitats to be surveyed and the survey objectives, or agree them with learners. It is expected that evidence will include details of preliminary site visits as well as the plan for the survey. Evidence could take the form of a pictorial presentation with notes (possibly using appropriate software or OHPs) or a project.

AC 1.2 requires learners to carry out a risk assessment for each of the two surveys planned in 1.1. Tutors should identify the survey and the agreed format for the risk assessments, which should be in a style that is recognised by the Health and Safety Executive. Evidence could take the form of a completed risk assessment pro forma.

AC 2.1 requires learners to identify specified terrestrial and aquatic animals and plants using identification keys. Learners should correctly identify at least five terrestrial plants, five terrestrial animals, five aquatic plants and five aquatic animals. This could be assessed directly by the tutor during practical activities. If this format is used, observation records would be suitable evidence, if completed by the learner and tutor and accompanied by appropriate work logs or other relevant learner notes. If assessed during a placement, witness statements should be provided a suitable representative and verified by the tutor. Guidance on the use of observation records and witness statements is provided by the Edexcel website. Alternatively, evidence could take the form of a pictorial presentation with notes (possibly using appropriate software or OHPs), laboratory or field notebooks, an annotated poster or leaflet, or a project.

For AC 2.2, learners need to describe the importance of indicator species, and should include examples of indicator species that are commonly used to form a view about at least three environmental conditions. Evidence could be a verbal presentation, report, leaflet or poster.

AC 3.1 and 3.2 are linked. Learners will be expected to carry out a terrestrial and an aquatic survey to meet given objectives and record and collate the data accurately. Tutors should identify the habitats to be surveyed and the survey objectives, or agree them in discussion with learners. Habitats and survey plans may be the same as those used to provide evidence for other grading criteria. This could be assessed directly by the tutor during practical activities. If this format is used, observation records would be suitable evidence if completed by the learner and tutor and accompanied by appropriate work logs or other relevant learner notes. If assessed during a placement, witness statements should be provided by a suitable representative and verified by the tutor. Guidance on the use of observation records and witness statements is provided on the Edexcel website.

AC 3.3 and 3.4 require learners to produce a report of a given survey to meet an agreed format. Tutors should identify the survey, which is likely to be one of those completed for 3.1 and 3.2, and the agreed format for the report, or agree them in discussion with learners. Evidence will be a report, with results presented in the most appropriate format(s).

For AC 4.1, learners need to explain how statistical analysis is used for the surveys they have undertaken. Evidence could be a verbal report or a section of the report completed for 3.3 and 3.4.

AC 4.2 requires learners to discuss possible sources of error and how they can be minimised or prevented. Learners should include a range of possible errors as indicated in the unit content. Evidence could be a verbal or written report, which may be included within evidence presented for other criteria.

Programme of suggested assignments

The following table shows a programme of suggested assignments that cover the assessment criteria. This is **for guidance** and it is recommended that centres either write their own assignments or adapt any Edexcel assignments to meet local needs and resources.

Criteria covered	Assignment title	Scenario	Assessment method
AC1.1, 1.2	Planning Surveys	You are working with a field biologist to research the biodiversity in an area, including land and water habitats. You have been asked to carry out preliminary visits to the sites to be surveyed. Complete a risk assessment for each site and create a logical survey plan. Include an explanation for the reasons and methods used for carrying out surveys.	Completed risk assessment and survey plans.
AC2.1, 2.2	Identifying Species	Other volunteers are also working with the field biologist, but have less experience than you. Show them how to identify, using keys, the terrestrial and aquatic species given to you.	Observation of species identification. Leaflet.
AC3.1, 3.2, 3.3, 3.4, 4.1, 1.10	Practical Surveying	The field biologist has asked you to carry out a survey of one terrestrial and one aquatic site. After your survey, analyse and present your findings in a	Practical observation, diary/work log, photographic evidence, witness statements.

Criteria covered	Assignment title	Scenario	Assessment method
		written report.	

Essential resources

Learners must have supervised access to a range of terrestrial and aquatic habitats which contain a range of animal and plant species. They must also have access to identification keys and field guides, plus survey equipment, for example hand lenses, quadrats, clipboards, sampling nets, trays, test kits, automatic data collection equipment and laboratory microscopes.

Employer engagement and vocational contexts

This unit focuses on giving learners an opportunity to learn how to plan and carry out surveys of terrestrial and aquatic habitats safely and correctly. Centres are encouraged to create and develop links with environmental agencies which may allow learners to get involved with studies taking place that would enable them to use their skills and broaden their interest in the ecological surveys and techniques others use. Visits to areas of moorland and areas of interest outside learners' immediate area would be of great use, as would visits by speakers from diverse areas within this field. Encouraging learners to spend their free time working on ecological survey sites, when available, would enhance their learning and enthusiasm.

Indicative resource materials

Textbooks

Chinery M – *Collins Pocket Guide: Insects of Britain and Western Europe* (Collins, 1993) ISBN 0002191377

Clegg C J and Maclean D G – *Advanced Biology: Study Guide* (Hodder Murray, 1996) ISBN 071955358X

Dowdeswell W H – *Ecology: Principles and Practice* (Heinman, 1984) ISBN 0435602268

Furniss P and Lane A – *Practical Conservation Water and Wetlands* (Hodder Arnold, 1992) ISBN 0340533684

Holmes D and Warn S – *Fieldwork Investigations – A Self Study Guide* (Hodder & Stoughton, 2003) ISBN 0340679697

Manuel R and Fitter R – *Collins Field Guide to Freshwater Life* (Collins, 1986) ISBN 0002191431

Phillips R – *Grasses, Ferns, Mosses & Lichens of Great Britain & Ireland* (Macmillan, 1994) ISBN 0330259598

Williams G – *Techniques and Fieldwork in Ecology* (Collins, 1991) ISBN 0003222462

Websites

www.defra.gov.uk	Department for Environment Food and Rural Affairs
www.environment-agency.gov.uk	Environment Agency
www.forestry.gov	The Forestry Commission
www.lantra.org.uk	Lantra – Sector Skills Council for Environmental and Land-based Industries
www.naturalengland.org.uk	Natural England

Further information

For further information please call Customer Services on 0844 576 0026 (calls may be recorded for quality and training purposes) or visit our website (www.edexcel.com).

Useful publications

Related information and publications include:

- *Guidance for Centres Offering Edexcel/BTEC QCF Accredited Programmes* (Edexcel, distributed to centres annually)
- Functional Skills publications – specifications, tutor support materials and question papers
- *Regulatory arrangements for the Qualification and Credit Framework* (published by Ofqual) August 2008
- the current Edexcel publications catalogue and update catalogue.

Edexcel publications concerning the Quality Assurance System and the internal and external verification of vocationally related programmes can be found on the Edexcel website and in the Edexcel publications catalogue.

NB: Some of our publications are priced. There is also a charge for postage and packing. Please check the cost when you order.

How to obtain National Occupational Standards

Please contact:

Lantra
Lantra House
Stoneleigh Park
Coventry
CV8 2LG

Telephone: 02476 696996

Email: standardsandquals@lantra.co.uk

Website: www.lantra.co.uk

Professional development and training

Edexcel supports UK and international customers with training related to BTEC qualifications. This support is available through a choice of training options offered in our published training directory or through customised training at your centre.

The support we offer focuses on a range of issues including:

- planning for the delivery of a new programme
- planning for assessment and grading
- developing effective assignments
- building your team and teamwork skills
- developing student-centred learning and teaching approaches
- building Functional Skills into your programme
- building in effective and efficient quality assurance systems.

The national programme of training we offer can be viewed on our website (www.edexcel.com/training). You can request customised training through the website or by contacting one of our advisers in the Training from Edexcel team via Customer Services to discuss your training needs.

Our customer service numbers are:

BTEC and NVQ	0844 576 0026
GCSE	0844 576 0027
GCE	0844 576 0025
The Diploma	0844 576 0028
DiDA and other qualifications	0844 576 0031

Calls may be recorded for training purposes.

The training we provide:

- is active – ideas are developed and applied
- is designed to be supportive and thought provoking
- builds on best practice.

Our training is underpinned by the LSIS standards for those preparing to teach and for those seeking evidence for their continuing professional development.

Annexe A

The Edexcel/BTEC qualification framework for the environmental and land-based sector

Progression opportunities within the framework.

Level	General qualifications	BTEC full vocationally-related qualifications	BTEC specialist courses	NVQ/occupational
5		Edexcel BTEC Level 5 HND Diplomas in Animal Management, Environmental Conservation, Horse Management, Horticulture (QCF)		
4		Edexcel BTEC Level 4 HNC Diplomas in Animal Management, Environmental Conservation, Horse Management, Horticulture (QCF)		
3	Edexcel GCE AS/A2 in Biology	Edexcel BTEC Level 3 Certificates, Subsidiary Diplomas, Diploma and Extended Diplomas in Agriculture, Animal Management, Blacksmithing and Metalworking, Countryside Management, Fish Management, Floristry, Forestry and Arboriculture, Horse Management, Horticulture, Land-based Technology (QCF)		Edexcel Level 3 Diploma in Work-based Environmental Conservation (QCF) Edexcel Level 3 Award, Certificate and Diploma in Work-based Animal Care (QCF)

Level	General qualifications	BTEC full vocationally-related qualifications	BTEC specialist courses	NVQ/occupational
2	Edexcel GCSE in Biology	Edexcel BTEC Level 2 Certificate, Extended Certificate and Diploma in Agriculture, Animal Care, Blacksmithing and Metalworking, Countryside and Environment, Fish Husbandry, Floristry, Horse Care, Horticulture, Land-based Technology (QCF)		Edexcel Level 2 Diploma in Work-based Environmental Conservation (QCF) Edexcel Level 2 Award, Certificate and Diploma in Work-based Animal Care (QCF)
1		BTEC Foundation Learning in Land-based Studies (QCF)		Edexcel Level 1 Award, Certificate and Diploma in Work-based Animal Care (QCF)
Entry	Edexcel Entry Level Certificate in Science	BTEC Foundation Learning in Land-based Studies (QCF)		

Annexe B

Wider curriculum mapping

Study of Edexcel BTEC level 2 qualifications gives learners opportunities to develop an understanding of spiritual, moral, ethical, social and cultural issues as well as an awareness of citizenship, environmental issues, European developments, health and safety considerations and equal opportunities issues.

Spiritual, moral, ethical, social and cultural issues

Throughout the delivery of this qualification learners will have the opportunity to actively participate in different kinds of decision making. They will have to consider fair and unfair situations and explore how to resolve conflict. Working in small groups they will learn how to respect and value others' beliefs, backgrounds and traditions.

Citizenship

Learners undertaking this qualification will have the opportunity to develop their understanding of citizenship issues.

Environmental issues

Developing a responsible attitude towards the care of the environment is an integral part of this qualification. Learners are encouraged to minimise waste and discuss controversial issues.

European developments

Much of the content of the qualification applies throughout Europe, even though the delivery is in a UK context.

Health and safety considerations

Health and safety is embedded within the unit in this qualification. Learners will consider their own health and safety at work, how to identify risks and hazards and how to minimise those risks.

Equal opportunities issues

There will be opportunities throughout this qualification to explore different kinds of rights and how these affect both individuals and communities for example learners will consider their rights at work and the rights of employers and how these rights affect the work community.

Annexe C

National Occupational Standards/mapping with NOS

The grid below maps the knowledge covered in the Edexcel BTEC Level 2 Award Specialist qualification in Ecological Surveys and Techniques (QCF) against the underpinning knowledge of the National Occupational Standards in Environmental Conservation.

KEY

indicates partial coverage of the NVQ unit

a blank space indicates no coverage of the underpinning knowledge

Units	1
NOS in Environmental Conservation	
EC2.1	#
EC2.2	#

Annexe D

Glossary of Accreditation Terminology

The following is a table of terms related to accreditation of this qualification.

Accreditation start/end date	The first/last dates that Edexcel can register learners for a qualification.
Certification end date	The last date on which a certificate may be issued by Edexcel.
Credit value	All units have a credit value. The minimum credit value that may be determined for a unit is one, and credits can only be awarded in whole numbers. Learners will be awarded credits for the successful completion of whole units.
Guided Learning Hours (GLH)	Guided learning hours are defined as all the times when a tutor, trainer or facilitator is present to give specific guidance towards the learning aim being studied on a programme. This definition includes lectures, tutorials and supervised study in, for example, open learning centres and learning workshops. It also includes time spent by staff assessing learners' achievements. It does not include time spent by staff in day-to-day marking of assignments or homework where the learner is not present.
Learning Aims Database	Link to the Learning Aims Database, which features detailed funding information by specific learning aim reference.
Learning Aim Reference	Unique reference number given to the qualification by the funding authorities on accreditation.
Level	The level at which the qualification is positioned in the Qualifications and Credit Framework (QCF).
Performance tables	This qualification is listed on the Department for Education (DfE) website School and College Achievement and Attainment Tables (SCAAT) as performance indicators for schools and colleges.
Qualifications Number (QN)	Unique reference number given to the qualification by the regulatory authorities on accreditation.
Register of Regulated Qualifications	Link to the entry on the Register of Regulated Qualifications for a particular qualification. This database features detailed accreditation information for the particular qualification (see register.ofqual.gov.uk).
Section 96	Section 96 is a section of the Learning and Skills Act 2000. This shows for which age ranges the qualification is publicly funded for under-19 learners.
Title	The accredited title of the qualification.

Annexe E

BTEC Specialist and Professional qualifications

BTEC qualifications on the NQF	Level	BTEC Specialist and Professional qualifications on the QCF	BTEC qualification suites on the QCF
BTEC Level 7 Advanced Professional qualifications BTEC Advanced Professional Award, Certificate and Diploma	7	BTEC Level 7 Professional qualifications BTEC Level 7 Award, Certificate, Extended Certificate and Diploma	
BTEC Level 6 Professional qualifications BTEC Professional Award, Certificate and Diploma	6	BTEC Level 6 Professional qualifications BTEC Level 6 Award, Certificate, Extended Certificate and Diploma	
BTEC Level 5 Professional qualifications BTEC Professional Award, Certificate and Diploma	5	BTEC Level 5 Professional qualifications BTEC Level 5 Award, Certificate, Extended Certificate and Diploma	BTEC Level 5 Higher Nationals BTEC Level 5 HND Diploma
BTEC Level 4 Professional qualifications BTEC Professional Award, Certificate and Diploma	4	BTEC Level 4 Professional qualifications BTEC Level 4 Award, Certificate, Extended Certificate and Diploma	BTEC Level 4 Higher Nationals BTEC Level 4 HNC Diploma
BTEC Level 3 qualifications BTEC Award, Certificate, Extended Certificate and Diploma	3	BTEC Level 3 Specialist qualifications BTEC Level 3 Award, Certificate, Extended Certificate and Diploma	BTEC Level 3 Nationals BTEC Level 3 Certificate, Subsidiary Diploma, Diploma and Extended Diploma

BTEC qualifications on the NQF	Level	BTEC Specialist and Professional Qualifications on the QCF	BTEC qualification suites on the QCF
BTEC Level 2 qualifications BTEC Award, Certificate, Extended Certificate and Diploma	2	BTEC Level 2 Specialist qualifications BTEC Level 2 Award, Certificate, Extended Certificate and Diploma	BTEC Level 2 Firsts BTEC Level 2 Certificate, Extended Certificate and Diploma
BTEC Level 1 qualifications BTEC Award, Certificate, Extended Certificate and Diploma	1	BTEC Level 1 Specialist qualifications BTEC Level 1 Award, Certificate, Extended Certificate and Diploma	BTEC Level 1 qualifications BTEC Level 1 Award, Certificate and Diploma (vocational component of Foundation Learning)
	E	BTEC Entry Level Specialist qualifications BTEC Entry Level Award, Certificate, Extended Certificate and Diploma	BTEC Entry Level qualifications (E3) BTEC Entry Level 3 Award, Certificate and Diploma (vocational component of Foundation Learning)

NQF = National Qualifications Framework

QCF = Qualifications and Credit Framework

For most qualifications on the **NQF**, the accreditation end date is normally 31 August 2010 or 31 December 2010.

For qualifications on the **QCF**, the accreditation start date is usually 1 September 2010 or 1 January 2011.

QCF qualification sizes	
Award	1-12 credits
Certificate	13-36 credits
Diploma	37+ credits

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For more information on Edexcel and BTEC qualifications please
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