

ENVIRONMENTAL AND LAND-BASED STUDIES



Environmental and Land-based Studies

Level 1 Principal Learning

Specification (7361)
Assessment 2010 onwards

This Principal Learning specification should be read in conjunction with:

- Diploma in Environmental and Land-based Studies: Companion Document for Principal Learning (see www.diplomaelbs.co.uk)
- Specimen assessment materials and mark schemes for Principal Learning
- Teacher guidance materials for Principal Learning
- Examiners' Reports for Principal Learning
- Specifications for other components of Diplomas ie Functional Skills specifications, Project specifications and Additional and Specialist Learning specifications

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We will notify centres in writing of any changes to this specification. We will also publish changes on our website. The version of the specification on our website will always be the most up-to-date version, although it may be different from printed versions.

You can get further copies of this specification from:

AQA Logistics Centre Unit 2, Wheel Forge Way, Ashburton Park, Trafford Park, Manchester M17 1EH
or you can download it from our website (www.diplomainfo.org.uk)

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1 Introduction

1.1 Why choose AQA-City & Guilds?

AQA is the UK's main provider of GCSEs and A levels. Over 3.5 million AQA examinations are taken every year and AQA is recognised by schools and colleges as the number one choice for customer service and high quality products.

City & Guilds is a household name for vocational qualifications. City & Guilds offers over 500 awards across a range of industries. With over 8500 centres in over 100 countries, City & Guilds is recognised by employers worldwide. It works closely with employers and industry bodies to ensure that its qualifications provide the benchmark standard for workplace skills and knowledge.

Diplomas are a blend of academic and vocational learning and that is why AQA-City & Guilds is the ideal choice for any school, college or consortium looking to offer them. The collaboration brings together the leading providers of qualifications in both fields to provide all the support you need to deliver the Diploma at one point of contact.

Why are AQA and City & Guilds so popular?

- **Specifications**

These are designed to the highest standards, so that teachers, learners and learners' parents or guardians can be confident that an AQA-City & Guilds award provides an accurate measure of achievement. Assessment structures have been designed to achieve a balance between rigour, reliability and demands on learners and teachers.

- **Support**

AQA-City & Guilds runs the most extensive programme of Diploma support meetings available in the UK; these are free of charge in the first years of a new specification and are offered at a very reasonable cost thereafter. These meetings explain the specification and suggest practical teaching strategies and approaches that really work. Further support is available from Diploma Advisors.

- **Service**

AQA-City & Guilds Diplomas are administered from AQA's offices in Manchester and Guildford. We are committed to providing an efficient and effective service and we are at the end of a phone when you need information, advice or guidance. We will try to resolve issues the first time you contact us and will work with you to find the solution.

- **Ethics**

AQA and City & Guilds are registered charities. We have no shareholders to pay. We exist solely for the good of education. Any surplus income is ploughed back into educational research and our service to you, our customers. We don't profit from education, you do.

If you are an existing customer with either AQA or City & Guilds, we thank you for your support. If you are thinking of adopting AQA-City & Guilds for Diplomas, we look forward to welcoming you.

1.2 Why choose the Diploma in Environmental and Land-based Studies?

The Diploma in Environmental and Land-based Studies provides an innovative and contemporary programme of study which introduces learners to the wide range of opportunities in this sector. It combines knowledge, understanding and skills that are valued by industry and the world of work and it can be delivered successfully in both urban and rural locations.

The Diploma will enable learners to progress into Further and Higher Education and future employment. Learners following a Diploma in Environmental and Land-based Studies will also:

- develop Functional Skills in English, mathematics and ICT
- produce a project which complements the Principal Learning and/or supports progression
- have a wide choice of Additional and Specialist Learning from which they can choose other qualifications which reflect their interests and abilities.

1.3 How do I start using this specification?

- Your school or college must pass through the Government Gateway process in order to receive approval to offer Diplomas in Environmental and Land-based Studies. Gateway 1 approved consortia started teaching Diplomas in 2008, Gateway 2 approved consortia start teaching Diplomas in 2009, and Gateway 3 is approving consortia to start teaching in 2010. More information is available on the DCSF website:
www.dcsf.gov.uk
- If you are a Gateway approved centre working as part of a consortium delivering Diplomas, you will also need to register your centre with us. (See Section 5.2.) This will enable AQA to ensure that you receive all the material you need to help you to deliver units and to enter your learners for examinations. This is particularly important where examination material is issued before the entry deadline. You can let us know by completing the appropriate registration forms. We will send copies to your exams officer and they are also available on the AQA website:
www.aqa.org.uk/admin/p_entries.html
- Almost all examination centres in England and Wales are approved by either AQA or City & Guilds or both. A small minority are not. If your centre is new to both AQA and City & Guilds, please contact our centre approval section at:
centreapproval@aqa.org.uk

1.4 How do I find out more?

Use Ask AQA – our online information service

Centres offering AQA-City & Guilds Diplomas will have 24-hour access to answers to the most commonly-asked questions at:

www.aqa.org.uk/rn/askaqa.php

If the answer to your question is not available you can submit a query for our team. Our target response time is two days.

Contact your Diploma Advisor

You may also contact the Diploma Advisor for your region. Please check current details on:

www.diplomainfo.org.uk

Diploma Advisors have particular expertise in:

- supporting centres and consortia on Gateway applications
- curriculum development and delivery including consortium operation
- assessment and quality assurance
- dealing with work experience.

Attend a Teacher Support meeting

Details of the full range of current Teacher Support meetings are also available on our website. There is a link to our fast and convenient online booking system for Teacher Support meetings at:

events.aqa.org.uk/ebooking/

If you need to contact the Teacher Support team you can call us on 01483 477860 or email us at:

teachersupport@aqa.org.uk

Contact the Exams Office Support department

Our Exams Office Support department offers administrative support for the Diplomas. There is an office team to deal with your queries about:

- general administration
- general documents
- results documents
- timetable information
- publication orders.

You can contact us on 0870 410 1836 or email: **eos@aqa.org.uk**

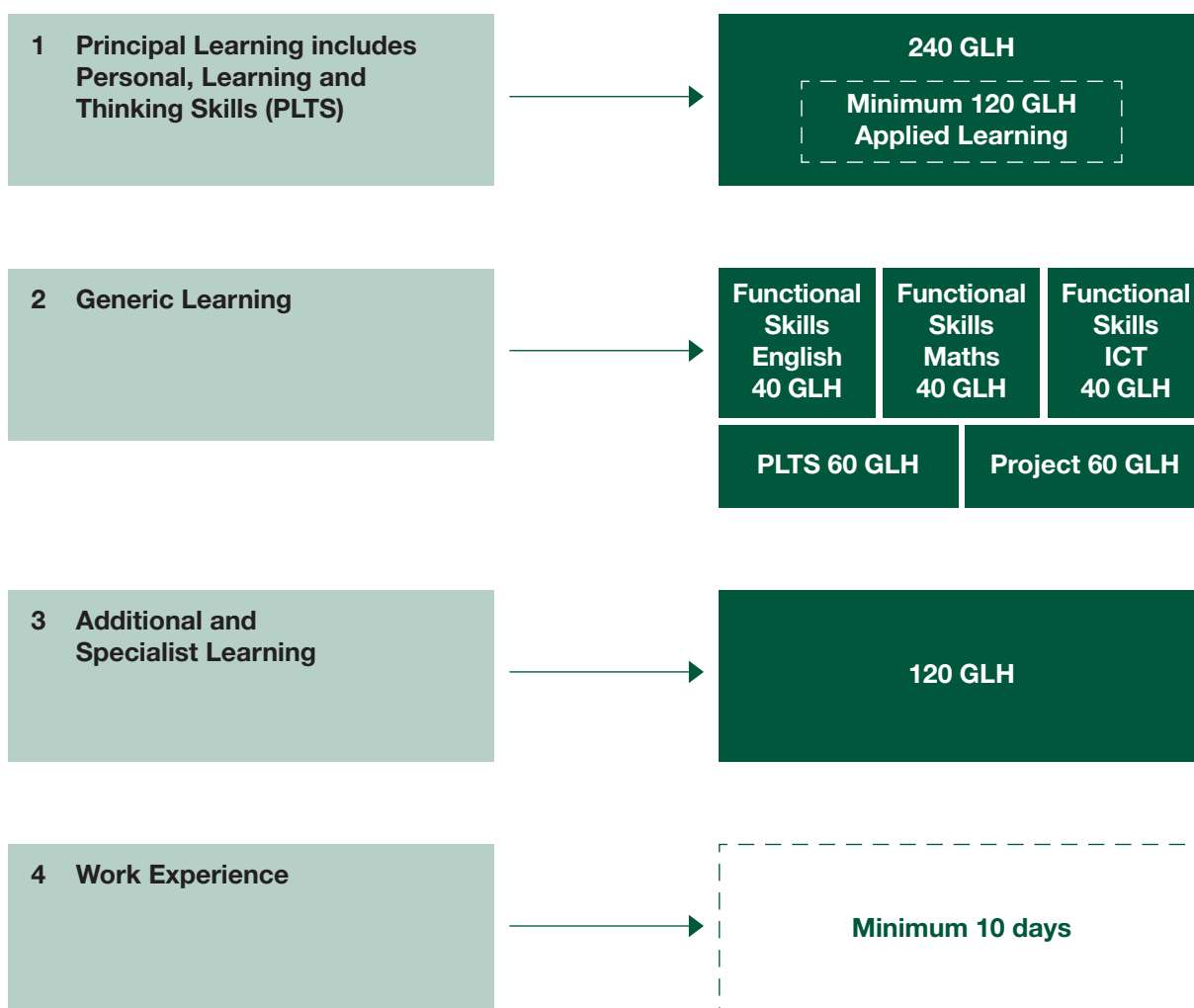
The department includes AQA's five Regional Officers who can provide up-to-date information, advice, support and guidance at a local level in your region. To contact the Regional Officer for your area, see:

www.aqa.org.uk/regional_officer.php

2 Specification at a glance

2.1 Foundation Diploma at a glance – 600 GLH (guided learning hours)

- comparable to 5 GCSEs grade D–G
- 1 year full-time study or 2 years part-time with National Curriculum programmes of study
- all components are compulsory



2.2 Level 1 Principal Learning in Environmental and Land-based Studies at a glance

- all 6 units are compulsory

Unit 1 30 GLH

The natural environment

Internally assessed

Unit 2 30 GLH

Environmental and Land-based production, systems and services

Internally assessed

Unit 3 30 GLH

Introduction to working in the Environmental and Land-based sector

Internally assessed

Unit 4 60 GLH

Working with plants and animals

Internally assessed

Unit 5 30 GLH

Introducing the role and value of plants and animals to society

Externally assessed

Unit 6 60 GLH

Sustainability and the importance of sustainable use of the environment

Internally assessed

3 Principal Learning

3.1 Personal, Learning and Thinking Skills

The Framework of Personal, Learning and Thinking Skills 11–19 comprises six groups of skills that, together with the Functional Skills of English, mathematics and ICT, are essential to success in learning, life and work. For each group there is a focus statement that identifies the main PLTS in that group. This is followed by a set of outcome statements that are indicative of behaviours and personal qualities associated with each group of skills.

Each group of skills is distinctive and coherent. The groups are also inter-connected. Learners are likely to encounter skills from several groups in any one learning experience.

Listed below are the PLTS that are integrated within the Assessment criteria in each unit. A copy of the PLTS framework should be given to each learner. Following these descriptors is a table showing the PLTS in the six units of the Level 1 Principal Learning in Environmental and Land-based Studies.

Independent enquirers

Focus:

Young people process and evaluate information in their investigations, planning what to do and how to go about it. They take informed and well-reasoned decisions, recognising that others have different beliefs and attitudes.

Young people:

IE1 identify questions to answer and problems to resolve

IE2 plan and carry out research, appreciating the consequences of decisions

IE3 explore issues, events or problems from different perspectives

IE4 analyse and evaluate information, judging its relevance and value

IE5 consider the influence of circumstances, beliefs and feelings on decisions and events

IE6 support conclusions, using reasoned arguments and evidence

Creative thinkers

Focus:

Young people think creatively by generating and exploring ideas, making original connections. They try different ways to tackle a problem, working with others to find imaginative solutions and outcomes that are of value.

Young people:

CT1 generate ideas and explore possibilities

CT2 ask questions to extend their thinking

CT3 connect own and others' ideas and experiences in inventive ways

CT4 question own and others' assumptions

CT5 try out alternatives or new solutions and follow ideas through

CT6 adapt ideas as circumstances change

Reflective learners

Focus:

Young people evaluate their strengths and limitations, setting themselves realistic goals with criteria for success. They monitor their own performance and progress, inviting feedback from others and making changes to further their learning.

Young people:

RL1 assess themselves and others, identifying opportunities and achievements

RL2 set goals with success criteria for their development and work

RL3 review progress, acting on the outcomes

RL4 invite feedback and deal positively with praise, setbacks and criticism

RL5 evaluate experiences and learning to inform future progress

RL6 communicate their learning in relevant ways for different audiences

Team workers

Focus:

Young people work confidently with others, adapting to different contexts and taking responsibility for their own part. They listen to and take account of different views. They form trusting relationships, resolving issues to reach agreed outcomes.

Young people:

TW1 co-operate with others to work towards common goals

TW2 reach agreements, managing discussions to achieve results

TW3 adapt behaviour to suit different roles and situations

TW4 show fairness and consideration to others

TW5 take responsibility, showing confidence in themselves and their contribution

TW6 provide constructive support and feedback to others

Self-managers

Focus:

Young people organise themselves, showing personal responsibility, initiative, creativity and enterprise with a commitment to learning and self-improvement. They actively embrace change, responding positively to new priorities, coping with challenges and looking for opportunities.

Young people:

SM1 seek out challenges or new responsibilities and show flexibility when priorities change

SM2 work towards goals, showing initiative, commitment and perseverance

SM3 organise time and resources, prioritising actions

SM4 anticipate, take and manage risks

SM5 deal with competing pressures, including personal and work-related demands

SM6 respond positively to change, seeking advice and support when needed

SM7 manage their emotions, and build and maintain relationships

Effective participators

Focus:

Young people actively engage with issues that affect them and those around them. They play a full part in the life of their school, college, workplace or wider community by taking responsible action to bring improvements for others as well as themselves.

Young people:

EP1 discuss issues of concern, seeking resolution where needed

EP2 present a persuasive case for action

EP3 propose practical ways forward, breaking these down into manageable steps

EP4 identify improvements that would benefit others as well as themselves

EP5 try to influence others, negotiating and balancing diverse views to reach workable solutions

EP6 act as an advocate for views and beliefs that may differ from their own

This table shows the coverage of PLTS in the Principal Learning units of the Foundation Diploma in Environmental and Land-based Studies.

Level 1 Principal Learning in Environmental and Land-based Studies

| PLTS | IE | CT | RL | TW | SM | EP |
|--------|----|----|----|----|----|----|
| Unit 1 | ★ | | | ★ | | |
| Unit 2 | ★ | | | | | |
| Unit 3 | | | ★ | | | ★ |
| Unit 4 | | | | | ★ | |
| Unit 5 | ★ | | | | | |
| Unit 6 | ★ | ★ | | | | ★ |

3.2 Functional Skills signposting

The units may use and/or contribute towards the underpinning skills and knowledge of the Functional Skills in the following areas, depending on the precise nature of the work done in the Principal Learning. If work is generated by computer then the Functional Skill marked* will be used.

| Principal Learning | Functional Skills | | |
|--|--|--|---|
| Unit | English | Mathematics | Information and communication technology |
| Unit 1 The natural environment | <ul style="list-style-type: none"> • Speaking and listening Level 1 • Reading Level 1 • Writing Level 1 | <ul style="list-style-type: none"> • Representing situations using mathematics Level 1 • Analysing and processing using mathematics Level 1 • Interpreting and presenting results Level 1 | <ul style="list-style-type: none"> • Use ICT systems Level 1 • Find and select information Level 1 • Develop, present and communicate information Level 1 |
| Unit 2 Environmental and Land-based production, systems and services | <ul style="list-style-type: none"> • Speaking and listening Level 1 • Reading Level 1 • Writing Level 1 | <ul style="list-style-type: none"> • Representing situations using mathematics Level 1 | <ul style="list-style-type: none"> • Use ICT systems Level 1 • Find and select information Level 1 • Develop, present and communicate information Level 1 |
| Unit 3 Introduction to working in the Environmental and Land-based sector | <ul style="list-style-type: none"> • Speaking and listening Level 1 • Reading Level 1 • Writing Level 1 | | <ul style="list-style-type: none"> • Use ICT systems Level 1 • Find and select information Level 1 • Develop, present and communicate information Level 1* |
| Unit 4 Working with plants and animals | <ul style="list-style-type: none"> • Speaking and listening Level 1 • Reading Level 1 • Writing Level 1 | <ul style="list-style-type: none"> • Representing situations using mathematics Level 1 • Analysing and processing using mathematics Level 1 • Interpreting and presenting results Level 1 | <ul style="list-style-type: none"> • Use ICT systems Level 1 • Find and select information Level 1 • Develop, present and communicate information Level 1 |

3

| Principal Learning | Functional Skills | | |
|---|--|--|---|
| Unit | English | Mathematics | Information and communication technology |
| Unit 5 Introducing the role and value of plants and animals to society | <ul style="list-style-type: none"> • Speaking and listening Level 1 • Reading Level 1 • Writing Level 1 | <ul style="list-style-type: none"> • Representing situations using mathematics Level 1 • Analysing and processing using mathematics Level 1 • Interpreting and presenting results Level 1 | <ul style="list-style-type: none"> • Use ICT systems Level 1 • Find and select information Level 1 • Develop, present and communicate information Level 1* |
| Unit 6 Sustainability and the importance of sustainable use of the environment | <ul style="list-style-type: none"> • Speaking and listening Level 1 • Reading Level 1 • Writing Level 1 | <ul style="list-style-type: none"> • Representing situations using mathematics Level 1 • Analysing and processing using mathematics Level 1 • Interpreting and presenting results Level 1 | <ul style="list-style-type: none"> • Use ICT systems Level 1* • Find and select information Level 1* • Develop, present and communicate information Level 1* |

3.3 Sector-related industries

It is important that learners receive as broad an experience of the Environmental and Land-based sector as possible. The sector covers three broad clusters of industry:

- 1 Land management and production
- 2 Animal health and welfare
- 3 Environmental industries.

Teachers are urged to refer to, and use examples from, the following seventeen industries where appropriate and relevant:

- agricultural crops
- agricultural livestock
- aquaculture
- fencing
- floristry
- land-based engineering
- production horticulture
- trees and timber
- animal care
- animal technology
- equine
- farriery
- veterinary nursing
- environmental conservation
- fisheries management
- game and wildlife management
- landscape.

However, learners must be aware that all industries use and are influenced by the environment, whether they are directly involved in the Environmental and Land-based sector or not. Teachers should refer to, and use examples from, related industries outside the sector where appropriate and relevant.

3.4 Level 1 Units

Level 1 Unit 1: The natural environment

What is this unit about?

The Environmental and Land-based sector works in the natural world. Whether it is farmers looking after fields of crops or caring for production animals, a power company putting new electricity pylons up, a water company laying new pipes and renovating canals, a local council looking after its grass football pitches or a conservation group caring for a special woodland, stream or marsh, they all have to deal with the land and water and the plants and animals that live on and in them.

Knowing how these natural environments are put together and the interdependencies of the plants and animals which live there, enables the work going on in them to be carried out properly, safely and with minimum disruption to living things.

This Level 1 unit looks at the basic components of a natural environment. The unit's content, delivery guidance and assessment requirements offer learners the opportunity to develop their Personal, Learning and Thinking Skills through a project approach. By requiring learners to explore and investigate the components of natural environments and learn how organisations in them work, learners can develop an appreciation of the similarities and differences between natural environments, the challenges they pose and how they can be used and cared for.

The practical aspect of this unit helps learners to understand the theoretical concepts. There are experiential learning opportunities here as well as the chance to make links with the content in other Level 1 units.

This unit has particular emphasis for the following Personal, Learning and Thinking Skills (PLTS):

- independent enquirers
- team workers.

Guided learning hours

This unit has 30 GLH assigned to it, of which approximately 5 hours will be needed for the assessment. Details of specific controls needed in relation to the internal assessment are shown in the Assessment section of this unit. Overall information on controls is on pages 84–88 of this specification.

Content details

| Learning outcomes The learner will: | Assessment criteria The learner can: | PLTS |
|--|--|-------------|
| 1 Know the key components of land-based and aquatic environments | a describe the key components of land and aquatic environments | |
| | b identify the range of plants and animals in a habitat | |
| 2 Know how feeding webs work | a outline how plants and animals are linked in a feeding web | |
| 3 Know the factors that affect the environment | a describe how soil types affect use | |
| | b describe the effects of weather patterns on species and habitats | |
| | c describe the growth and distribution of plants and animals in an environment | |
| 4 Be able to determine uses for environments using field research techniques | a survey an environment as part of a team | TW1 |
| | b record the results of a survey | |
| | c interpret the results of a survey to identify basic uses for an environment | IE4 |

Where the Assessment criteria show a direct link to an area of the PLTS framework, it is referenced here. Further information on PLTS is available on pages 10–12 of the specification and also within this unit in the section on Personal, Learning and Thinking Skills.

Scope of content

This section gives details of the scope of content to be covered in the teaching of this unit, to ensure that all the Learning outcomes can be met. This includes examples relating to breadth and depth where applicable.

It is important that, through the Level 1 Principal Learning in Environmental and Land-based Studies, learners receive as broad an experience of the whole sector as possible. Teachers are urged to refer to, and use examples from, appropriate industries where relevant. Details of these industries may be found on page 14 of the specification.

Learning outcome 1

This outcome is concerned with developing learners' knowledge of the basic components of a range of different habitats. Teachers must provide learners with an understanding of the similarities as well as the differences between the habitats listed below, and the range of common plants and animals that can be found within them. Learners must know that the physical and behavioural qualities of the plants and animals found in a habitat are matched to the habitat's conditions and how the balance of biotic and abiotic elements of habitats is maintained.

The habitats learners are to be made aware of include:

- woodland
- hedgerow
- mountain
- grassland
- heathland
- urban
- coastal
- salt water
- fresh water.

Teachers must ensure that learners can identify a range of plants and animals within a habitat, including:

- reptiles
- amphibians
- fish
- birds
- mammals
- insects
- trees
- shrubs
- herbaceous plants
- annuals
- perennials.

Learning outcome 2

This outcome looks at the relationships between plants and animals in a range of habitats. The basic principles of animal–plant animal–animal interdependency must be clear and learners must know how feeding webs are constructed and what they signify. They must know at a simple level how feeding webs are affected by changes to the plants and animals in the habitat, eg new species coming in, existing species going out, increase and decrease in numbers of a species in the web. Learners must know what is meant by trophic level and be able to interpret a simple web comprising at least three trophic levels.

Learners must be able to identify the role of plants and animals in the food chain, including:

- primary producers
- herbivores
- carnivores
- detritivores, scavengers and decomposers.

Learning outcome 3

This outcome is mainly concerned with the biotic part of the habitat. Learners must build their knowledge of soils, by looking at the different types of soil, their main components and how soil structure affects the uses to which soils are put by those managing the land. Learners must know why soil fertility matters and how, in a simple way, this is created and maintained.

Learners are to be made familiar with the six common types of soils in the UK:

- clay
- sand
- silt
- loam
- peat
- chalk.

Simple analysis of soils through field tests should be covered:

- soil texture – finger and thumb simple test with use of key, sieving or sedimentation
- soil structure – observe crumb structure and compare with keys
- soil pH – pH probes, or universal indicator in moistened sample.

The relationship between the types of soil in an area and the use to which the land is put must be understood. Learners must be aware how the qualities and factors in an environment facilitate or discourage use of land for a given purpose. They should appreciate how a combination of environmental factors contributes to decisions on land use.

There are examples of different land use in all parts of the Environmental and Land-based sector. For example, the use of land for the following activities could offer contexts in which to study the link between use and the environment:

- agriculture – eg growing food crops; keeping food animals
- production horticulture – eg growing flowers, food or amenity plants
- trees and timber – eg commercial woodlands or forests; amenity areas
- environmental conservation – eg sites of special scientific interest
- game and wildlife management – eg deer; game-birds; fish
- landscape – eg grass; ornamental plants; lakes; reservoirs; canals
- recreation – eg golf courses; race courses; sports pitches; recreational animals
- building – eg foundations.

Learners are expected to understand the effects of seasonal weather and climate on the growth and distribution of plants and animals in a habitat. The seasonal weather patterns will include:

- temperature
- rainfall and humidity
- wind direction and speed
- sunshine duration and intensity.

Teachers must ensure that learners understand that the factors above combine to affect environments. The species chosen to illustrate the effects of weather and climate should be representative of the habitat and will comprise the following according to the environment being considered:

- flowering plants
- non-flowering plants
- mammals
- reptiles
- birds
- insects
- fish.

The key factors affecting the growth and distribution of plants and animals in a habitat will comprise:

- climate (rainfall, sunlight, temperature ranges)
- physical environment (including soil type, pH and nutrients)
- population (predation and competition)
- food availability
- human activity
- pests and diseases.

Learning outcome 4

Teachers must ensure that learners know how to conduct a survey of a habitat using simple field techniques. Learners must be aware that scientific work requires accuracy of observation and reporting.

Learners must use simple keys to identify the range of plants and animals in the habitat. Their identification should use only common English names, but the need for Latin names to enable consistent and accurate identification should be clear. They must understand that a biological key is an important reference tool, which enable researchers to work to common standards.

The survey will include simple soil analysis and weather observations. Learners must be taught how to interpret survey results and to identify appropriate uses for the habitat based on the findings obtained.

Assessment

This unit is assessed through a centre set and marked assessment. Internal assessments are subject to moderation by AQA-City & Guilds.

Learners will undertake an investigation into an environment to determine its suitability for a specific land use. They will reflect on the approaches they adopted and identify improvements they could make if the exercise were to be repeated. The skills developed here will be important to subsequent units. In this way learners will mirror the processes and decision-making activities taking place within Environmental and Land-based businesses and enterprises confronting similar situations.

The assignment requires that learners work as a team to collect data for a survey of a chosen environment, including results from a soil analysis test and weather observations. An interpretation of the collected data, and a description of the chosen environment, is then required for the learner to identify specific uses for the environment.

The approach is flexible to allow learners to undertake the practical assignment in a range of suitable habitats and for consortia to make best use of local and accessible venues and organisations.

Task setting

Internal assessments must aim to be holistic in nature and encourage learners to produce evidence to cover the Assessment criteria.

The assignment set must cover the tasks as set out in the table below.

| Task | Form(s) of evidence | LO mapping |
|---|--|--------------|
| Survey of an environment to determine suitability for specific uses | The following must be provided: <ul style="list-style-type: none">records of soil tests and weather observationsoutline of a feeding weba report describing the environment and its suitability for specific use | LO1, 2, 3, 4 |

Duration

The assessment is not time constrained. The following is a guide to appropriate times for the assessment activities:

Practical research – 3 hours

Preparation and presentation of report – 2 hours.

Sector relevant purpose

The assessment activity will mirror processes and decision-making used in the Environmental and Land-based sector.

Demand

Teachers should guide learners to carry out sufficient soil tests to ensure that the main components of the area are recognised.

Weather observations should be collected over a period of a month and supplemented by anecdotal information for the remainder of the year.

The report may be in any format (eg PowerPoint, written report, oral report) aimed at the owner of the environment.

Task taking

Details of controls that should be applied during the taking of the assessment tasks are set out on pages 84–86 of the specification.

Weighting of Learning outcomes

| Learning outcomes | Marks | Weighting |
|--|-----------|-------------|
| 1 Know the key components of land-based and aquatic environments | 6 | 12.5% |
| 2 Know how feeding webs work | 6 | 12.5% |
| 3 Know the factors that affect the environment | 15 | 31.3% |
| 4 Be able to determine uses for environments using field research techniques | 21 | 43.8% |
| Total | 48 | 100% |

Assessment grid

Please note that the descriptions in this marking grid relate to the top of each band. Further guidance on using marking grids is available in the Assessment section of this specification.

| Learning outcomes | Band 1 | Band 2 | Band 3 |
|--|---|---|--|
| | The learner has: | | |
| | 0 to 2 marks | 3 to 4 marks | 5 to 6 marks |
| 1 Know the key components of land-based and aquatic environments | Described a few key components of an environment. Identified a limited range of plants and animals in a habitat. | Described, with some detail, some of the key components of an environment. Identified a range of plants and animals in a habitat. | Comprehensively described most key components of an environment. Identified a comprehensive range of plants and animals in a habitat. |
| | 0 to 2 marks | 3 to 4 marks | 5 to 6 marks |
| 2 Know how feeding webs work | Outlined a feeding web making some attempt to show the linking of plants and animals. | Outlined a feeding web making an appropriate and mostly accurate attempt to show the linking of plants and animals. | Outlined a feeding web making a comprehensive, coherent and accurate attempt to show the linking of plants and animals. |
| | 0 to 5 marks | 6 to 10 marks | 11 to 15 marks |
| 3 Know the factors that affect the environment | Described, in limited detail, how soil types affect use. Described, in limited detail, the effects of weather patterns on species and habitats. Described, in limited detail, the growth and distribution of plants and animals in an environment. | Described how soil types affect use. Described the effects of weather patterns on species and habitats. Described the growth and distribution of plants and animals in an environment. | Described with accuracy and detail how soil types affect use. Described with accuracy and detail the effects of weather patterns on species and habitats. Described a detailed, accurate and thorough description of the growth and distribution of plants and animals in an environment. |
| | 0 to 7 marks | 8 to 14 marks | 15 to 21 marks |
| 4 Be able to determine uses for environments using field research techniques | Surveyed an environment with limited involvement with others. Recorded weak and limited results from plant and animal observations, soil tests and weather observations. Interpreted some of results of the survey with limited linking to use of the environment and a weak indication of suitability. | Surveyed an environment, working with others. Recorded with some detail results from plant and animal observations, soil tests and weather observations. Interpreted most of the results of the survey, correctly linking it to use of the environment with an indication of suitability. | Surveyed an environment, working well with others. Recorded, accurately and in comprehensive detail, results from plant and animal observations, soil tests and weather observations. Interpreted, fully and accurately, most of the results of the survey, linking it accurately to use of the environment, with justified indication of suitability. |

Guidance for delivery

This unit is very practical and there are many opportunities to set learning in meaningful outdoor situations. Learners can cover much of the content in the field observing soils, plants and animals in their natural states. The choice of habitats is open but links with Environmental and Land-based businesses can be strengthened by using contextualised habitats such as a water company's river, a local ecology group's woodland, an inner city farm or a flower grower's field.

This unit enables learners to explore the physical and biological environment and to have their learning assessed through a hands-on investigation of an environment to decide whether a proposed use is possible and desirable.

Teachers should explore different environments with learners. Simple analysis of different local environments can show that the differences between them are real, significant and measurable.

The environmental characteristics of a river bank mean that its use will be different from that to which a farmer's field or a moorland meadow can be put. Knowing what is in an environment and how weather, soils, plants and animals affect it helps to ensure that we use it in the best way.

Electricity companies could be approached to look at how the characteristics of their environments affect where their sub-stations or pylons are sited. Water companies could show learners how their waterways and canals depend upon the special characteristics of the soils and weather that exist there.

Food growers can show how the soil, plants and animals in their fields and waterways affect the high quality of their produce. Equine businesses and enterprises could confirm that the grazing land for their horses has to have the right soils, weather, plants and animals. Councils and inner city farms can show how they exploit their soils and weather, and benefit from the plants and animals that use it.

Learners should see that the issues here are linked. Weather, soil and living things all affect the uses to which land is put and the significance of changes to any can have implications for the ways in which land can be used.

There are opportunities for collaborative work, for individual work and for the development of Functional Skills as learners read and write, handle measurements, talk with businesses and enterprises and organise themselves to undertake a project approach to this unit.

The theme for this unit is 'the productive and working environments' and links very closely to Level 1 Unit 2: Environmental and Land-based production, systems and services, and Level 1 Unit 3: Introduction to working in the Environmental and Land-based sector.

Opportunities for applied learning

Linking this unit's content to the Environmental and Land-based sector's challenges and activities is natural. Learners can develop their knowledge and understanding of these issues from professionals and organisations working in the field. This will help learners to see these issues from the perspective of Environmental and Land-based organisations, and to learn how organisations address them.

If local organisations can be encouraged to contribute, they can offer learners a spectrum of experiences. These could include some of the following:

- hosting of learner visits and assignment work on land where project activities can take place
- setting learners' theory in a practical context
- supervising project work on real sector premises
- showing learners how commercial environmental analyses are taken
- allowing learners to shadow sector staff taking readings in the field
- providing real time commercial data for learners to use in their own work
- giving talks about their jobs, organisations and how learners operate
- helping to gather evidence of learners' abilities as learners work on sector premises
- liaising with learners as they request access to premises
- reinforcing health and safety issues in the sector
- setting learners real life problems to solve for a real sector organisation
- coming to learners' project presentations and questioning learners about them.

The contextualisation continues into the assessment, which asks learners to explore the suitability of an environment for a stated purpose. By setting the brief in a professional context, learners are consistently working on issues with commercial/professional significance.

Working with other learners in groups on project work where they are taking an active role in the group's deliberations, setting their own goals and taking responsibility for group development help to set learning in context.

Suggested prior learning

Learners must have a sound basic education in Science and Geography.

Personal, Learning and Thinking Skills

The list below is indicative of the way this unit supports the development of PLTS, as opposed to the achievement of PLTS that are possible through the assessment. The unit supports the development of more PLTS than are covered through the Assessment criteria alone.

Alternative approaches could be selected.

The learner could develop PLTS by:

Independent enquirers

- identifying questions to answer and problems to resolve when using basic keys to identify plants and animals found within a habitat
- planning and carrying out research, appreciating the consequences of decisions
- using basic scientific techniques to determine the components of soils which will provide skills that can be used in landscaping

Creative thinkers

- generating ideas and exploring possibilities when constructing a simple food web for a habitat, naming the producers and consumers
- asking questions to extend their thinking when investigating the relevance of different soil types to a range of land uses

Reflective learners

- reviewing progress, acting on the outcomes when using basic scientific techniques to determine the components of soils
- evaluating experiences and learning to inform future progress when constructing a food web

Team workers

- collaborating with others to work towards common goals when identifying species and using scientific techniques to carry out soil tests and collect weather data

Self-managers

- organising time and resources when collecting weather data which will provide skills that could be utilised in the wind energy industry
- working towards goals, showing initiative, commitment and perseverance.

Opportunities for Functional Skills development

This unit and its associated learning activities will provide the learner with opportunities to develop and use English, mathematics and ICT in a number of ways.

The content of this unit will require extensive research on topics such as land and aquatic environments, plants and animals. Through this activity learners will be exposed to a range of texts and formats, and opportunities for reading skills development will be available. Furthermore, the conducting of a survey will provide a wide range of skills development opportunities including number work, reading and interpreting information, and finally using writing skills (and/or verbal skills) to report findings.

Suggested learning resources

The following resources may be helpful but centres are not expected to provide them all:

Books

Soffe, R. J. (2003). *The Agricultural Notebook*. Published: Blackwell Science. ISBN: 978-0632058293.

Graham, I. (2004). *Soil (Earth's Precious Resources Series)*. Published: Heinemann Library. ISBN: 978-0431115542.

Park, C. (2000). *Dictionary of Environment and Conservation*. Published: OUP Oxford. ISBN: 978-0198609964.

Peterson, R. T.; Mountfort, G.; Hollom, P. A. D. (2004). *Birds of Britain and Europe*. Published: Collins. ISBN: 978-0007192342.

Johnson, O. (2006). *Collins Tree Guide*. Published: Collins. ISBN: 978-0007207718.

Rose, F.; O'Reilly, C. (2006). *The Wild Flower Key – How to identify wild plants, trees and shrubs in Britain and Ireland*. Published: Frederick Warne Publishers Ltd. ISBN: 978-0723251750.

Rose, F. (1999). *Colour Identification Guide to the Grasses, Sedges, Rushes and Ferns of the British Isles and North Western Europe*. Published: Viking. ISBN: 978-0670806881.

Virdee, S. R.; Mackenzie, A.; Ball, A. S. (2001). *Instant Notes in Ecology*. Published: Bios Scientific Publishers Ltd. ISBN: 978-1859962572.

Ashman, M.; Puri, G. (2002). *Essential Soil Science: A Clear and Concise Introduction to Soil Science*. Published: Wiley-Blackwell. ISBN: 978-0632048854.

Brown, L. (2002). *Applied Principles of Horticultural Science*. Published: Butterworth-Heinemann. ISBN: 978-0750653428.

Soffe, R. J. (2005). *The Countryside Notebook*. Published: Blackwell Science. ISBN: 978-1405112314.

Thompson, G.; Turk, J. (2007). *Earth Science and the Environment (4th ed.)*. Published: BrooksCole. ISBN: 978-0495114024.

Begon, M.; Townsend, C. A.; Harper, J. L. (2005). *Ecology: From Individuals to Ecosystems*. Published: Wiley-Blackwell. ISBN: 978-1405111171.

CDs, CD-ROMs and DVDs

- Al Gore (2006). *An Inconvenient Truth*. DVD.
- David Attenborough (1995). *The Private Life of Plants*. DVD.
- Stace, E.C.; van der Meijden, R.; de Kort, I. (2004). *Interactive Flora of the British Isles*. DVD ROM.

Websites

- RSPB www.rspb.org.uk
- Department for Environment, Food & Rural Affairs www.defra.gov.uk
- Environmental Agency www.environment-agency.gov.uk
- FSC (Field Studies Council) www.field-studies-council.org
- Natural England www.naturalengland.org.uk
- Forestry Commission GB www.forestry.gov.uk
- Soil Association www.soilassociation.org
- BBC Science and Nature www.bbc.co.uk/sn

Level 1 Unit 2: Environmental and Land-based production, systems and services

What is this unit about?

The different ways in which humans use plants and animals affect our environment in distinct ways. Throughout history, humans have used, manipulated and managed their environment, and what is in it, to meet their own needs. Some of these actions have been positive and some negative. We have used our natural resources and our plants and animals for a range of roles, and as humans have developed so our use of wild and domesticated plants and animals has increased and diversified.

The purpose of this unit is to provide learners with the opportunity to investigate how our society interacts with the environment, and how it uses its plants and animals to create a wide range of essential goods and services. It will allow the learner to develop the necessary knowledge and skills to reflect on the benefits that humans are able to derive from the environment in which they live.

This understanding of the relationship between production, systems, and services, and the way in which the environment can be utilised, will be highly useful for learners considering a career in the Environmental and Land-based sector. Learners will develop an understanding of the physical, economic and social influences that affect the distribution and location of different production systems and an awareness of employment opportunities in a range of industries.

The theme for this unit is 'the productive and working environments'. The unit contributes to this theme by introducing learners to the meanings of the terms 'environment use' and 'production', and will enable learners to explore employment opportunities.

This unit has particular emphasis for the following Personal, Learning and Thinking Skills (PLTS):

- independent enquirers.

Guided learning hours

This unit has 30 GLH assigned to it, of which 3 hours will be needed for the assessment. Details of specific controls needed in relation to the internal assessment are shown in the Assessment section of this unit. Overall information on controls is on pages 84–88 of this specification.

Content details

| Learning outcomes The learner will: | Assessment criteria The learner can: | PLTS |
|---|---|-------------|
| 1 Know the different types of Environmental and Land-based production systems and services | a identify types of Environmental and Land-based production systems and services | |
| | b describe the types and range of goods and services that humans are able to derive from the environment | |
| 2 Know the plants and animals used in Environmental and Land-based production systems | a identify the types of animals, both wild and domesticated, that are used in the production of goods and services from the environment | |
| | b identify the types of plants, both wild and cultivated, that are used in the production of goods and services from the environment | |
| 3 Be able to use basic methods to identify plants and animals in land use or production systems | a identify plants and animals within a production system | |
| | b record plants and animals within a production system | |
| 4 Understand the influences on location of Environmental and Land-based production systems | a explain the key features of production systems that influence location | |
| | b explain the key factors that influence the location of a range of production systems | IE5 |

Where the Assessment criteria show a direct link to an area of the PLTS framework, it is referenced here. Further information on PLTS is available on pages 10–12 of the specification and also within this unit in the section on Personal, Learning and Thinking Skills.

Scope of content

This section gives details of the scope of content to be covered in the teaching of this unit, to ensure that all the Learning outcomes can be met. This includes examples relating to breadth and depth where applicable.

It is important that, through the Level 1 Principal Learning in Environmental and Land-based Studies, learners receive as broad an experience of the whole sector as possible. Teachers are urged to refer to, and use examples from, appropriate industries where relevant. Details of these industries may be found on page 14 of the specification.

Learning outcome 1

Learners need to gain as wide an appreciation as possible of the range of ways in which the Environmental and Land-based sector's enterprises and organisations use the environment to create products, goods and services which are required by society.

Learners must be guided to recognise that our use of the environment and its plants and animals are central to commercial food production; wildlife and conservation; recreation and leisure; and resource extraction. Learners must know how each of these areas comprises a variety of Environmental and Land-based businesses providing numerous products and services to consumers, industries and other commercial organisations, within and outside the Environmental and Land-based sector, both in the UK and abroad.

Learning outcome 2

Teachers must help learners to appreciate some of the different and important ways in which Environmental and Land-based enterprises and organisations use plants and animals. The emphasis is on the range and diversity of our use of wild and domesticated plants and animals and on the assorted products that arise from them. Learners must know how intensive production systems, both domesticated and wild, for commercially important plants and animals affect productivity levels and quality:

- commercial food production – farming, horticultural crops, fruit orchards, market gardening
- intensive and extensive animal production systems
- managed landscape – parks, woodland, moorlands, sea shores.

Teachers must cover the use of wild and domesticated plants and animals for the following:

- plants for food – cereal crops, fruit crops, vegetable crops, drinks, herbs, spices, flavourings, animal feed and forages
- plants for clothing – cotton, flax, hemp, sisal, and synthetic fabrics such as rayon
- plants for shelter, fuel and paper
- plants for pharmaceuticals and medicines
- animals for food – dairy and meat products
- animals for clothing/fibre – wool/hair, hides/leather
- animals for labour – draught, protection, hunting
- animals for fertiliser and land management.

Learners are expected to be able to link products with the original plants and animals from which they are derived:

- the most common breeds of domesticated animals – cattle, sheep, goats, pigs, poultry, working dogs, fish, horses
- common wild animals – rabbits, foxes, mice, deer, pigeons, game birds.

Learning outcome 3

Teachers must ensure that learners are able to identify some of the common plants and animals in production systems. The system can be wild or managed but it has to contain a mixture of plants and animals. The identification methods should be rigorous and learners should create full and accurate records:

- survey methods – transects, metre squares, quadrats
- identification methods – identification keys, reference books
- recording methods – photography, tables, charts, specimens.

Learning outcome 4

Teachers must explain to learners the link between a production system and its location. Learners must be able to explain why plants and animals in wild or domesticated production systems occur in a particular area and the implications this has for the businesses and organisations running it. The ways in which systems affect the natural environment in which they sit should be addressed.

Teachers must explain to learners the key factors that influence the location of a range of production systems:

- physical features eg geology, topography, aspect, soil type, climate, and rainfall
- economic factors eg access to markets, availability of raw materials, transport infrastructure, labour, availability and skills
- social factors eg planning constraints, pressure groups, market requirements, demand, societal differences.

Assessment

This unit is assessed through a centre set and marked assignment. Internal assessments are subject to moderation by AQA-City & Guilds.

The learner will complete an assignment based on a range of differing production systems, both natural and human-influenced, within the region. The assignment will include selected examples of commercial food and plant production, recreation and leisure and wildlife conservation. The learner will explore how humans interact with their environment and its plants and animals, in the generation of both goods and services from the environment. The learner will demonstrate an understanding of the range of goods and services that society is able to derive from active management of the environment. The learner will also need to consider the range of factors that influence the location and distribution of differing environment use systems, the interactions that exist between alternative environment uses, and the impact of humans.

The learner will, with appropriate regard to Health and Safety and other legislation, collect, identify and record key plants and/or animals within a selected environment use system and describe the goods and services that these produce. The collection may take the form of a photographic record, and plants may be collected and presented from cultivated systems, but **not** from the wild.

Task setting

Internal assessments must aim to be holistic in nature and encourage learners to produce evidence to cover the Assessment criteria.

The assignment set must cover the tasks as set out in the table below.

| Task | Form(s) of evidence | LO mapping |
|---|---|------------|
| Identification of plants and animals within a production system | The following must be provided: <ul style="list-style-type: none"> records of plants and animals within a production system a description of the type and range of plants and animals | LO2, 3 |
| Report on the choice of location for the production system | The following must be provided: <ul style="list-style-type: none"> a description of the key features of the business and the environment factors that would influence location and distribution of the production system | LO1, 3, 4 |

Duration

The assessment is not time constrained. The following is a guide to appropriate times for the assessment activities:

Practical research – 2 hours

Preparation and presentation of report – 1 hour.

Sector relevant purpose

The chosen production system for research must be related to the Environmental and Land-based sector. The assessment will therefore mirror processes and decision-making used in the Environmental and Land-based sector.

Demand

Teachers should guide learners in recording all the plants and animals identified within a production system.

Learners must be aware of the function of the chosen production system and the reason for using plants and animals. They must also appreciate the factors of the environment that may have influenced the location and distribution of the production system.

The report may be in any format (eg PowerPoint, written report, oral report) aimed at the owner of the environment.

Task taking

Details of controls that should be applied during the taking of the assessment tasks are set out on pages 84–86 of the specification.

Weighting of Learning outcomes

| Learning outcomes | Marks | Weighting |
|---|-----------|-------------|
| 1 Know the different types of Environmental and Land-based production systems and services | 9 | 18.8% |
| 2 Know the plants and animals used in Environmental and Land-based production systems | 9 | 18.8% |
| 3 Be able to use basic methods to identify plants and animals in land use or production systems | 15 | 31.3% |
| 4 Understand the influences on location of Environmental and Land-based production systems | 15 | 31.3% |
| Total | 48 | 100% |

Assessment grid

Please note that the descriptions in this marking grid relate to the top of each band. Further guidance on using marking grids is available in the Assessment section of this specification.

| Learning outcomes | Band 1 | Band 2 | Band 3 |
|---|---|---|---|
| | The learner has: | | |
| | 0 to 3 marks | 4 to 6 marks | 7 to 9 marks |
| 1 Know the different types of Environmental and Land-based production systems and services | Partially identified types of Environmental and Land-based production systems and service. Briefly described the types and range of goods and services that humans are able to derive from the environment. | Identified types of Environmental and Land-based production systems and service. Described the types and range of goods and services that humans are able to derive from the environment. | Comprehensively identified types of Environmental and Land-based production systems and service. Comprehensively described the types and range of goods and services that humans are able to derive from the environment. |
| | 0 to 3 marks | 4 to 6 marks | 7 to 9 marks |
| 2 Know the plants and animals used in Environmental and Land-based production systems | Partially identified the types of animals, both wild and domesticated, that are used in the production of goods and services from the environment. Partially identified the types of plants, both wild and cultivated, that are used in the production of goods and services from the environment. | Identified the types of animals, both wild and domesticated, that are used in the production of goods and services from the environment. Identified the types of plants, both wild and cultivated, that are used in the production of goods and services from the environment. | Comprehensively identified the types of animals, both wild and domesticated, that are used in the production of goods and services from the environment. Comprehensively identified the types of plants, both wild and cultivated, that are used in the production of goods and services from the environment. |
| | 0 to 5 marks | 6 to 10 marks | 11 to 15 marks |
| 3 Be able to use basic methods to identify plants and animals in land use or production systems | Used basic methods, to a limited standard, to identify and record plants and/or animals in an environmental and land-based production system. | Used basic methods to identify and record plants and/or animals in an environmental and land-based production system. | Used basic methods, to a high standard, to identify and record plants and/or animals in an environmental and land-based production system. |
| | 0 to 5 marks | 6 to 10 marks | 11 to 15 marks |
| 4 Understand the influences on location of Environmental and Land-based production systems | Described some of the key features of a range of common environment use systems. Explained some of the key factors that influence the location of a range of environmental and land-based production systems. | Described most of the key features of a range of common environment use systems. Explained most of the key factors that influence the location of a range of environmental and land-based production systems. | Comprehensively described most of the key features of a range of common environment use systems. Comprehensively explained most of the key factors, that influence the location of a range of environmental and land-based production systems. |

Guidance for delivery

The choice of production systems is open. Learners should have direct contact with plants and animals in production systems. This might be on a commercial animal or arable farm, or a commercial horticultural business, in a commercial forestry enterprise, or perhaps on a fish or game farm. Wild production systems should be included and can be usefully compared with domesticated systems.

It is expected that learners will learn from each other through discussions around the different types of production system in use. Some integration with geography may help to identify factors that influence the location and distribution of systems. Visits to a range of enterprises in the locality will be an advantage, as the unit will encourage discussions between learners with members of production industry and will help learners to understand broad uses of the environment for commercial and non-commercial activities.

The theme for the unit is 'the productive and working environments'. This unit contributes to this theme by focusing on the components of the natural environment and how they might be of suitable use for Environmental and Land-based organisations. The unit has been designed so that current topics can be discussed openly by learners with members of industry.

This unit has links with Level 1 Unit 1: The natural environment, and Level 1 Unit 3: Introduction to working in the Environmental and Land-based sector. Benefits can be obtained by integrating these units and developing teaching and learning strategies across the whole theme 'the productive and working environments'.

Opportunities for applied learning

Applied learning opportunities can take many forms.

If local organisations can be encouraged to contribute, they can offer learners a spectrum of experiences. These could include some of the following:

- hosting of learner visits and assignment work on land where project activities can take place
- setting learners' theory in a practical context
- supervising project work on their premises
- showing learners how commercial environmental analyses are taken
- allowing learners to shadow their staff taking readings in the field
- providing real time commercial data for learners to use in their work
- giving talks about their work
- helping to gather evidence of learners' abilities as learners work on their premises
- liaising with learners as they request access to premises
- reinforcing health and safety issues in the sector
- setting learners real life problems to solve for their organisation
- coming to learners' project presentations and questioning learners about them.

Working with other learners in groups on project work where they are taking an active role in the group's deliberations, setting their own goals and taking responsibility for group development help to set their learning in context.

Suggested prior learning

A general education including Science, would benefit learners and a general interest in the Environmental and Land-based sector.

Personal, Learning and Thinking Skills

The list below is indicative of the way this unit supports the development of PLTS, as opposed to the achievement of PLTS that are possible through the assessment. The unit supports the development of more PLTS than are covered through the Assessment criteria alone.

Alternative approaches could be selected.

The learner could develop PLTS by:

Independent enquirers

- assessing the environmental impact of common environment use practices
- considering the influence of circumstances on the location and distribution of environment use systems
- seeking answers to their questions when selecting their plants

Creative thinkers

- selecting and utilising appropriate techniques for identifying and recording plants and/or animals
- asking questions to find out the full range of products and services within production systems
- adapting their thinking about the locations of Environmental and Land-based systems when discussing their chosen plants

Team workers

- co-operating with other learners when collecting plant samples

Self-managers

- organising time and resources in the production of work to ensure deadlines are met
- demonstrating a degree of commitment and perseverance when working towards their finished report

Effective participators

- discussing with their peers the plants and animals which they have chosen
- thinking carefully about how to progress with the assessment, and breaking it down into manageable steps.

Opportunities for Functional Skills development

This unit and its associated learning activities will provide the learner with opportunities to develop and use English, mathematics and ICT in a number of ways.

As well as standard research of the topics within this unit and the formal reporting of findings, the survey activity provides learners with various mathematical skills development opportunities. Taking aside the actual physical collection of numerical data, the presentation methods and ability to understand standard recording methods of such data will need to be developed. The survey activity can also include the development of measurement skills and the use of whole numbers, fractions, decimals and percentages. Statistical information can be further refined by the calculation of mean and range of a set of numbers.

Suggested learning resources

Books

Soffe, R. J. (2003). *The Agricultural Notebook*. Published: Blackwell Science. ISBN: 978-0632058293.

Graham, I. (2004). *Soil (Earth's Precious Resources Series)*. Published: Heinemann Library. ISBN: 978-0431115542.

Park, C. (2008). *Dictionary of Environment and Conservation*. Published: OUP Oxford. ISBN: 978-0198609964.

Johnson, O. (2006). *Tree Guide*. Published: Collins. ISBN: 978-0007207718.

Rose, F.; O'Reilly, C. (2006). *The Wild Flower Key – How to identify wild plants, trees and shrubs in Britain and Ireland*. Published: Frederick Warne Publishers Ltd. ISBN: 978-0723251750.

Ashman, M.; Puri, G. (2002). *Essential Soil Science: A Clear and Concise Introduction to Soil Science*. Published: Blackwell Science Ltd. ISBN: 978-0632048854.

Brown, L. (2002). *Applied Principles of Horticultural Science*. Published: Butterworth-Heinemann. ISBN: 978-0750653428.

Soffe, R. J. (Editor) (2005). *The Countryside Notebook*. Published: Blackwell Science. ISBN: 978-1405112314.

Thear, K.; Fraser, A. *The complete book of raising Livestock and Poultry*. Published: Pan Books. ISBN: 978-0330301589.

Websites

- Natural England www.naturalengland.org.uk
- Environmental Agency www.environment-agency.gov.uk
- FSC (Field Studies Council) www.field-studies-council.org
- DEFRA www.defra.gov.uk
- Forestry Commission GB www.forestry.gov.uk
- The Wildlife Trusts www.wildlifetrusts.org

Level 1 Unit 3: Introduction to working in the Environmental and Land-based sector

What is this unit about?

Working in the Environmental and Land-based sector requires skill, commitment and the ability to work as a member of a team. The rewards of a career in the Environmental and Land-based sector are many and varied for those with good qualifications and the personal skills to make the most of the opportunities in this modern, exciting and constantly changing sector.

The purpose of this unit is to provide learners with an understanding of the jobs, training and qualifications needed for work. It will provide learners with an insight into the range of jobs on offer and how the sector's well-respected qualifications and commitment to lifelong learning enable new entrants to make successful careers in the sector.

Because job satisfaction and career development depend on matching the challenges of a job with the skills and experiences of individuals wanting to do that job, the unit shows learners how they can review their own strengths and weaknesses to help them to select the right employment for them.

The Environmental and Land-based sector demands the highest standards of safety from its workers and it is a generic part of all jobs in the sector. This unit helps learners to see the value of adopting professional attitudes to the principles and practices of safety when using tools and machinery, and the importance of behaving responsibly when working individually and with others.

This unit has particular emphasis for the following Personal, Learning and Thinking skills (PLTS):

- reflective learners
- effective participators.

Guided learning hours

This unit has 30 GLH assigned to it, of which 4 hours will be needed for the assessment. Details of specific controls needed in relation to the internal assessment are shown in the Assessment section of this unit. Overall information on controls is on pages 84–88 of this specification.

Content details

| Learning outcomes The learner will: | Assessment criteria The learner can: | PLTS |
|---|--|-------------|
| 1 Know the requirements of jobs in the Environmental and Land-based sector | a identify a range of jobs in the Environmental and Land-based sector | |
| | b state the skills and qualifications required for various jobs | |
| | c outline the safe use of a range of tools and equipment | |
| 2 Be able to apply for jobs in the Environmental and Land-based sector | a assess their own personal skills as required for a specific job | RL1 |
| | b complete an application for a job in the Environmental and Land-based sector | |
| 3 Know the common hazards and risks when working in the Environmental and Land-based sector | a identify common hazards and risks in the workplace | |
| | b describe improvements in the workplace that will reduce hazards and risks | EP4 |

Where the Assessment criteria show a direct link to an area of the PLTS framework, it is referenced here. Further information on PLTS is available on pages 10–12 of the specification and also within this unit in the section on Personal, Learning and Thinking Skills.

Scope of content

This section gives details of the scope of content to be covered in the teaching of this unit, to ensure that all the Learning outcomes can be met. This includes examples relating to breadth and depth where applicable.

It is important that, through the Level 1 Principal Learning in Environmental and Land-based Studies, learners receive as broad an experience of the whole sector as possible. Teachers are urged to refer to, and use examples from, appropriate industries where relevant. Details of these industries may be found on page 14 of the specification.

Learning outcome 1

A suitable range of enterprises must be covered to reflect the interest of the learners, and coverage of a number of industries is expected. The learners must be given sufficient information that they can apply their learning generically across other industries eg construction, leisure and tourism, food preparation and manufacture.

This outcome requires learners to develop an appreciation of the jobs on offer in the sector. The jobs should be representative of the wide range of industries within the sector and include employment opportunities in other sectors with interests in the natural environment, such as waste, construction, food, leisure and tourism, and the utility sectors.

It is expected that learners will be able to see similarities in some grades of jobs across the industries – such as craft, supervisory, technical and managerial – and understand the differences between them. Learners must know the focus and significance of the jobs they study, the responsibilities these jobs would normally carry and how the jobs link with others to create career opportunities:

- craft (eg groom, groundsman, gardener, kennel assistant)
- supervisors (eg zookeeper, foreman, head groom)
- technicians (eg laboratory worker, head greenkeeper, farrier, head gamekeeper)
- managers (eg fish farm, glasshouse, arable farm, estate).

Learners must also understand how the qualifications for these jobs relate to the skills, knowledge and professional attitudes necessary to do them, and how further professional development through training and education opens new employment opportunities.

Learners must know the importance to job skills, job satisfaction, job safety and career development of developing their communication, numeracy, ICT, team working and initiative skills.

The contribution of vocational qualifications to career development should be covered. The potential contribution of the following to a learner's career should be covered:

- on the job training eg National Vocational Qualifications (NVQs); apprenticeships; National Proficiency Council awards
- progression pathways eg Foundation, Advanced or Higher Diplomas; GCSEs and A levels; higher education
- industry qualifications eg British Horse Society; Institute of Groundsmanship.

The emphasis should be on how these qualifications and lifelong learning together can support learners' development, realise learners' potential and offer rewarding careers.

Learners must know what is involved in a range of craft level jobs by undertaking appropriate and representative tasks using simple tools and equipment in a safe and professional manner. The choice of tools and equipment will depend upon the tasks being undertaken and should include hand tools and simple powered equipment where safety considerations allow. These should include tools and equipment associated with handling and care of animals and the care and maintenance of plants and landscape areas in wild and managed environments.

Learners must be able to do the following:

- select, transport and return tools and equipment
- use tools and equipment safely and correctly
- undertake routine maintenance of tools and equipment
- store tools and equipment.

The range of tools and equipment will be dependent on the tasks undertaken. Some generic examples include:

- hand tools
- tractors, trailers and grass mowing machinery
- animal handling, restraining and riding equipment
- pruning and tree maintenance equipment
- potting and soil mixing equipment
- food preparation equipment.

Learning outcome 2

Teachers must provide the opportunity for learners to assess their own personal strengths and skills to allow each learner to choose a suitable job in the Environmental and Land-based sector that may interest them.

Learners must be shown how to gather evidence of their own skills, knowledge and attitudes and reflect on the significance of their analyses for the jobs they wish to do.

Learners must use their findings to apply for a job in an Environmental or Land-based organisation where they are required to match their skills, knowledge and attitudes to the professional responsibilities and personal specifications of the job. Learners must appreciate the significance of team working and communication skills to the jobs and how they might develop skills.

Learning outcome 3

Learners must appreciate that working in the Environmental and Land-based sector can be potentially hazardous, and know why and how these hazards relate to the tasks and activities typical of a range of jobs in the sector. Elementary data on hazards, safety and welfare issues in the sector will define the scale and nature of the issue.

Learners must identify hazards and risks in familiar or common work places and be able to connect the hazards/risks to the effects they may have on people working there. The emphasis should be on learners understanding the range of different risks and hazards that workers face rather than an in-depth study of a few common hazards. Learners must consider biohazards and biorisks as well as non-living ones.

Some types of hazard will be industry-specific. The examples below are commonly found in Environmental and Land-based workplaces:

- slippery or uneven surfaces
- accidents arising from the misuse of machinery
- accidents from handling animals
- transferable diseases from animals to humans
- unsafe preparation of food for humans
- soil, dust, fumes and chemicals
- noise
- falls from heights (ladders, trees, roofs, grain stores).

Having considered potential threats to workers' health and safety, learners must be encouraged to propose and describe improvements to the work place that will reduce hazard and risk levels, and know how this will improve workers' safety and welfare.

Teachers must ensure that learners know how to minimise risks and hazards in the workplace, including:

- staff training
- tidy work areas
- machinery and equipment maintenance
- correct and appropriate use of personal protective equipment (PPE)
- cleanliness in food preparation areas
- awareness of the need for good personal hygiene
- conducting regular risk assessments and safety audits.

Assessment

This unit is assessed through a centre set and marked assignment. Internal assessments are subject to moderation by AQA-City & Guilds.

The learner will complete an assignment which will reflect a career option within the Environmental and Land-based sector that they are interested in pursuing at the time of completing the assignment. Ideally the assignment should be carried out during a work placement or based upon information gathered from practical situations.

This assessment has been designed as an introduction to working in the Environmental and Land-based sector. It will cover the skills needed to apply for a job and to work in a safe and responsible manner. This assignment should be considered as a reflective assessment, allowing the learner to assess their own strengths and weaknesses in both applying for a job and monitoring safety practices at work.

This method of assessment has been chosen to reflect the work in a particular industry within or outside the sector and the implications relating to safe working practices and responsible behaviour. It will also integrate the theoretical learning in the classroom with good industrial practice.

Task setting

Internal assessments must aim to be holistic in nature and encourage learners to produce evidence to cover the Assessment criteria.

The assignment set must cover the tasks as set out in the table below.

| Task | Form(s) of evidence | LO mapping |
|-----------------------|--|------------|
| Application for a job | <p>The following must be provided:</p> <ul style="list-style-type: none">• list of jobs roles and their demands and requirements• self-assessment of personal strengths and weaknesses• application for a job• description on ways to minimise hazards and risks related to the job• suggestions of where in the job's description and responsibilities there may be risks to their own health, welfare and safety• suggestions for ways to minimise these hazards and risks related to the job | LO1, 2, 3 |

Duration

The assessment is not time constrained. The following is a guide to appropriate times for the assessment activities:

Practical research – 2 hours

Preparation and presentation – 2 hours.

Sector relevant purpose

Learners must apply for a job specific or related to the Environmental and Land-based sector. The learner should identify a job that they would like to apply for from a range of real jobs, ideally ones that are currently available. This will give the learner a better understanding of the job market and the application process for the Environmental and Land-based sector.

Demand

The assignment requires the learner to know the range of job opportunities, training needs and the personal skills, qualities and qualifications in order to apply for a job. Whilst investigating job opportunities the learner should review their own personal strengths and weaknesses and use their assessment to identify a suitable job for application. When completing the job application the learners should use a real job, ideally one that is being advertised, and follow the application procedure required for that particular job.

The assignment will also require the learner to think about what the job might involve by identifying common hazards and risks and describing improvements to reduce them.

The report may be in any format (eg PowerPoint, written report, oral report).

Task taking

Details of controls that should be applied during the taking of the assessment tasks are set out on pages 84–86 of the specification.

Weighting of Learning outcomes

| Learning outcomes | Marks | Weighting |
|---|-----------|-------------|
| 1 Know the requirements of jobs in the Environmental and Land-based sector | 15 | 31.3% |
| 2 Be able to apply for jobs in the Environmental and Land-based sector | 18 | 37.5% |
| 3 Know the common hazards and risks when working in the Environmental and Land-based sector | 15 | 31.3% |
| Total | 48 | 100% |

Assessment grid

Please note that the descriptions in this marking grid relate to the top of each band. Further guidance on using marking grids is available in the Assessment section of this specification.

| Learning outcomes | Band 1 | Band 2 | Band 3 |
|---|---|--|---|
| | The learner has: | | |
| | 0 to 5 marks | 6 to 10 marks | 11 to 15 marks |
| 1 Know the requirements of jobs in the Environmental and Land-based sector | <p>Identified a brief range of jobs in the Environmental and Land-based sector.</p> <p>Briefly stated the skills and qualifications required for various jobs.</p> <p>Briefly outlined the correct use, transport, storage and routine maintenance of a range of tools and equipment.</p> | <p>Identified a range of jobs in the Environmental and Land-based sector.</p> <p>Stated the skills and qualifications required for various jobs in detail.</p> <p>Outlined with some detail the correct use, transport, storage and routine maintenance of a range of tools and equipment.</p> | <p>Identified a comprehensive range of jobs in the Environmental and Land-based sector.</p> <p>Comprehensively stated the skills and qualifications required for various jobs.</p> <p>Comprehensively outlined the correct use, transport, storage and routine maintenance when using a range of tools and equipment.</p> |
| | 0 to 6 marks | 7 to 12 marks | 13 to 18 marks |
| 2 Be able to apply for jobs in the Environmental and Land-based sector | <p>Assessed some of his/her own personal skills with those required for a specific job.</p> <p>Partially completed, an application for a job.</p> | <p>Assessed his/her own personal skills with those required for a specific job.</p> <p>Completed an application for a job.</p> | <p>Assessed in detail his/her own personal skills with those required for a specific job.</p> <p>Completed a comprehensive application for a job.</p> |
| | 0 to 5 marks | 6 to 10 marks | 11 to 15 marks |
| 3 Know the common hazards and risks when working in the Environmental and Land-based sector | <p>Identified some of the hazards and risks when working.</p> <p>Described basic improvements that will reduce hazards and risks.</p> | <p>Identified the hazards and risks when working clearly.</p> <p>Described improvements that will reduce hazards and risks.</p> | <p>Identified clearly and in detail, a wide range of hazards and risks when working.</p> <p>Described comprehensive improvements that will reduce hazards and risks.</p> |

Guidance for delivery

This unit is designed to give learners a broad understanding of the variety of jobs in the Environmental and Land-based sector. It is important that learners gain an insight into these jobs by participating in as wide a range of job-related practical tasks and activities as possible. The emphasis is on the range rather than the depth of learners' skills in the tasks they carry out.

While tasks and activities undertaken by learners may be quite specific to a particular job, opportunities to consider similar tasks and activities in jobs in other industries within the sector should be followed up. For example, learners may be maintaining grass in a park, but there are jobs which involve caring for grass on golf courses, sports clubs, grass research centres, equine centres, farms, private and municipal gardens, wildlife areas, canal banks, river edges etc.

When delivering this unit, it is suggested that teachers use a wide variety of different methods and techniques including lectures, class discussions, small group and class work, outside speakers, practical sessions, demonstrations, and visits. This is a very practical unit so active participation in a range of practical activities should be encouraged.

Learners could share their experiences with other members of their class in an open discussion forum covering specific topics. This would enable learners to gain a wide appreciation of the sector and the relevant job roles.

The assignment could be carried out during a work placement or based upon information gathered from practical situations. Wherever possible the work placement should be in a relevant industry. The work experience period can be used to encourage learners to contribute their experiences from realistic industry situations and to provide opportunities for assessment. It is suggested that centres consider providing learners with a pro-forma log for gathering evidence. Realistic job vacancies should be used where possible.

It would be useful for learners to visit local businesses and establishments or for centres to invite speakers to explain the relevance of working in the sector and the importance of safe working practices, and to emphasise that the generic skills developed can be used in any working environment.

In order to match the appropriate and relevant training/qualification to job roles, it will be valuable if learners are introduced to apprenticeship schemes and other essentially skills-based training including National Vocational Qualifications and proficiency tests. The latter are required, in some cases, by legislation eg 'safe use of chainsaws' and 'safe use of pesticides'. The need for further subject related qualifications, ie National Certificates/Diplomas, Vocational Diplomas and Degrees, is important and can be researched by reviewing Specialist Colleges' prospectuses and websites. This information will be invaluable for the learner to assess his/her practical and personal skills before completing an application for a job. Realistic job vacancies should be used for the application where possible.

The theme for this unit is 'the productive and working environments'.

This unit has links with Level 1 Unit 1: The natural environment, and Level 1 Unit 2: Environmental and Land-based production, systems and services. All the learning in this unit can be integrated across into the other units by using appropriate teaching and learning strategies. This unit addresses many of the fundamental topics that are required in other Level 1 units and it will provide learners with the stimulation and interest to start developing a career in the sector.

Opportunities for applied learning

Applied learning opportunities can take many forms.

If local organisations can be encouraged to contribute, they can offer learners a spectrum of experiences. These could include some of the following:

- hosting of learner visits and assignment work during which project activities can take place
- setting learners' theory in a practical context
- supervising project work on their premises
- showing learners how commercial hazard and risk assessment are taken
- allowing learners to shadow their staff
- providing commercial data for learners to use in their work
- giving talks about their work
- helping to gather evidence of learners' abilities as learners work on their premises
- liaising with learners as they request access to premises
- reinforcing professional health and safety standards in the sector
- setting learners real life problems to solve for their organisation
- coming to learners' project presentations and questioning learners about them.

Working with other learners in groups on project work where they are taking an active role in the group's deliberations, setting their own goals and taking responsibility for group development help to set their learning in context.

Suggested prior learning

It would be advantageous if learners had previous opportunities or expressed an interest to work in the sector. It is suggested that learners should study Level 1 Unit 2: Environmental and Land-based production, systems and services, prior to or in conjunction with, this unit.

Some curriculum development in Science would be advantageous.

Personal, Learning and Thinking Skills

The list below is indicative of the way this unit supports the development of PLTS, as opposed to the achievement of PLTS that are possible through the assessment. The unit supports the development of more PLTS than are covered through the Assessment criteria alone.

Alternative approaches could be selected.

The learner could develop PLTS by:

Independent enquirers

- identifying questions to ask when investigating job requirements
- asking specific questions about the correct use of tools and equipment, in some cases referring to operator handbooks

Creative thinkers

- identifying work place risks, reviewing the solutions before reaching a conclusion

Reflective learners

- matching themselves with opportunities and their achievements when assessing themselves for job vacancies
- inviting feedback and dealing positively with praise, setbacks and criticism during discussions with supervisors/employers

Team workers

- recognising the need to co-operate with others in order to work towards common goals when identifying skills required for work
- adapting their behaviour to suit different roles and situations such that they always work responsibly

Self-managers

- organising their own time carefully and prioritising actions when carrying out the assignment
- working towards goals, showing initiative, commitment and perseverance

Effective participators

- identifying improvements that would benefit others as well as themselves when assessing risks
- breaking tasks down to manageable steps.

Opportunities for Functional Skills development

This unit and its associated learning activities will provide the learner with opportunities to develop and use English, mathematics and ICT in a number of ways.

Since job applications are a main topic of this unit, there are various opportunities to develop the learners' reading and writing skills. For example, the accessing and interpretation of a range of job advertisements will enable learners to develop reading techniques. Furthermore, devising job applications and providing the information in a selection of formats will facilitate writing skills development opportunities.

If work for this unit is generated electronically, the learner will have the opportunity to develop skills and/or evidence for the Functional Skills in ICT.

Suggested learning resources

Books

Soffe, R. J. (2003). *The Agricultural Notebook*. Published: Blackwell Science. ISBN: 978-0632058297.

Hughes, P. (2007). *Introduction to Health and Safety at work*. Published: Butterworth-Heinemann Ltd. ISBN: 978-0750685030.

HSE. (2000). *Management of Health and Safety at Work*. Published: Health and Safety Executive. ISBN: 978-0717624881.

Warren, D. (2001). *Small Animal Care and Management*. Published: Delmar Learning. ISBN: 978-0766814240.

CDs, CD-ROMs and DVDs

- Multimedia Ltd (2007). *Pet Vet Focus*. PC DVD ROM.
- Fastforward Signature DVD (2006). *How to Care For Your Pets*. DVD.
- David Attenborough (1995). *The Private Life of Plants*. DVD.

Websites

- The Wildlife Trusts www.wildlifetrusts.org
- Department for Environment, Food & Rural Affairs www.defra.gov.uk
- BBC www.bbc.co.uk/nature/animals
- British Veterinary Nursing Association www.bvna.org.uk
- Institute of Horticulture www.horticulture.org.uk

Level 1 Unit 4: Working with plants and animals

What is this unit about?

The Environmental and Land-based sector is known for its work with plants and animals. From veterinary professionals to farmers, from golf course keepers to country park managers, the sector's businesses depend upon knowing how to use and care for plants and animals correctly.

Our builders, waste management companies and our food, water and power producing companies also operate in an environment in which wild plants and animals live, so these businesses too have to know how to care for plants and animals appropriately and ensure that work disturbs them as little as possible.

In this unit, learners will learn why wild and cultivated plants and wild and domesticated animals matter and how we can provide for them. They will look at the conditions necessary for plants and animals to thrive, how good standards of care contribute to health and how the specific welfare needs of domesticated animals can be met.

Learners will identify common plants and animals and the signs of good and poor health. The unit will include consideration of some of the common pests and disease-causing agents. Learners will carry out routine and non-routine care tasks for animal and plants.

The unit encourages a broad approach. It offers excellent opportunities to develop important practical skills and personal confidence in learners when working with animals, and when using tools and machinery safely and efficiently. The unit is very practical and learners are expected to develop team working skills.

Learners will find this unit useful in developing the skills and knowledge for a career in the horticultural or animal care industries.

This unit has particular emphasis for the following Personal, Learning and Thinking skills (PLTS):

- self-managers.

Guided learning hours

This unit has 60 GLH assigned to it, of which 10 hours will be needed for the assessment. Details of specific controls needed in relation to the internal assessment are shown in the Assessment section of this unit. Overall information on controls is on pages 84–88 of this specification.

Content details

| Learning outcomes The learner will: | Assessment criteria The learner can: | PLTS |
|---|---|------|
| 1 Know the physical and environmental conditions that affect plant and animal growth and reproduction | a identify the conditions required for healthy plant and animal growth and reproduction | |
| | b recognise common plant and animal pests, disorders and diseases | |
| | c recognise signs of health and illness in plants and animals | |
| 2 Be able to use tools and equipment safely | a use a range of tools and equipment safely | |
| | b record safe practice when using tools and equipment | |
| 3 Be able to care for animals | a identify a range of common wild and domesticated/managed animals | |
| | b carry out the safe care of animals | SM1 |
| 4 Be able to care for plants | a identify a range of common wild and cultivated plants | |
| | b carry out the safe care of plants | SM1 |

Where the Assessment criteria show a direct link to an area of the PLTS framework, it is referenced here. Further information on PLTS is available on pages 10–12 of the specification and also within this unit in the section on Personal, Learning and Thinking Skills.

Scope of content

This section gives details of the scope of content to be covered in the teaching of this unit, to ensure that all the Learning outcomes can be met. This includes examples relating to breadth and depth where applicable.

It is important that, through the Level 1 Principal Learning in Environmental and Land-based Studies, learners receive as broad an experience of the whole sector as possible. Teachers are urged to refer to, and use examples from, appropriate industries where relevant. Details of these industries may be found on page 14 of the specification.

Learning outcome 1

This outcome builds learners' knowledge of what plants and animals require to live and stay healthy. Learners must know the circumstances in which plants and animals are normally kept and know how their surroundings provide the necessary conditions for them to exist and thrive. The essential generic conditions for healthy plants and for animals must be clear. Learners must be able to link these conditions to the requirements of animals/plants and know how changes in the conditions will affect animals/plants living there.

Teachers must ensure that learners are able to identify the physical and environmental conditions that affect growth and reproduction of plants and animals in their natural or managed environment climate, including:

- weather and climate
- location and aspect
- shelter
- space
- pollution
- quality and duration of light
- predators and disease
- competition
- availability of sources of food and water.

Teachers must make sure that learners recognise the advantages of the artificial conditions in which domesticated animals and cultivated plants are kept, and know how these artificial conditions ameliorate or control many of the conditions listed above.

Learners must know the health indicators of a range of plants and animals. They must be able to identify familiar symptoms of healthy and diseased plants and animals.

Learners must be able to relate common plant pests, disorders and diseases to causative agents, in a general way.

Agents to be covered are:

- insects (eg aphid, beetles, weevils, caterpillars, larva, mites etc)
- slugs and snails
- rodents and birds
- fungus, virus and bacteria (eg mildew, mould, rot, blight, rust, scab)
- environmental (eg frost, water-logging, scorching, mineral deficiency)

Learners must be able to recognise and record signs of common animal disorders or diseases caused by bacteria viruses and insects, eg fleas, mites and ticks (chosen so that the symptoms can be observed by learners):

- skin and body covering (fur/feathers, scales)
- eyes, ears, nose and mouth
- posture, movement and behaviour
- breathing
- appetite and water intake
- urine and faeces.

Learning outcome 2

Teachers must ensure that learners are able to use tools and equipment correctly and efficiently and in a responsible and safe manner. The choice of tools and equipment will depend upon the tasks being undertaken and should include hand tools and simple powered equipment where safety considerations allow. Tools and equipment associated with handling and care of animals and the care and maintenance of plants in wild and managed environments must be included.

Learners must be made aware of how to carry out the following:

- selecting, transporting and returning tools, machinery and equipment
- using tools, machinery and equipment safely and correctly
- routine maintenance of tools, machinery and equipment
- storage of tools, machinery and equipment.

Relevant tools, machinery and equipment will include:

- hand tools
- animal handling and restraining equipment
- plant handling and maintenance equipment
- equipment to transport plants and animals
- health and safety equipment
- feeding and watering equipment
- housing equipment
- plant propagation equipment
- plants and animals observation equipment
- cleaning equipment.

Learners must be able to identify and record safe practice when using tools, equipment or machinery.

Learning outcome 3

Learners must be taught to recognise a range of common wild and domesticated animals, including examples of reptiles, amphibians, fish, birds and mammals. They must know the outline characteristics of these five classes of vertebrate, which underpin the classifications.

Learners must understand the duty of care obligations of those working with animals and details of the five freedoms to which animals are entitled. Learners must recognise how these freedoms are provided for the animals they are studying:

- freedom from hunger and thirst
- freedom from discomfort
- freedom from pain, injury, or disease
- freedom to express normal behaviour
- freedom from fear and distress.

Learners must also be taught, in simple terms, the conditions required for reptiles, amphibians, fish, birds and mammals to breed and grow, and they must know how appropriate conditions are created and maintained for breeding of these animals.

Learners must be shown how they will care for a selection of animals and fulfil the five freedoms entitlement through routine and non-routine activities involved in:

- feeding
- watering
- housing
- health and welfare.

The care activities must include observations for animal ill health and teachers must prepare learners to record their activities, tasks and observations in an accurate and comprehensive way. Learners must also know common failings in animal care, why they arise and how they can be avoided.

Learning outcome 4

Learners must be able to recognise a range of common wild and cultivated plants, which include grasses and other monocots, and a variety of dicot plants. Examples must be taken from as wide a collection as possible and cover woody and herbaceous flowering plants and will include:

- commercial food plants (eg cereals, vegetables, fruit)
- trees, shrubs, bushes
- annuals and perennials
- herbaceous ornamental plants
- herbs and spices.

Learners must also be taught, in outline, the uses to which these plants are put.

Learners must know the conditions required for these plants to grow and breed. Teaching will also prepare learners to provide care for a selection of plants and will include the following care activities:

- planting
- containerising
- feeding
- watering
- housing
- mulching
- propagating
- general maintenance
- simple pest control.

Care activities must include observations for ill health and learners must be shown how to record their activities, tasks and observations in an accurate and comprehensive way. Learners must also know common failings in plant care, why they arise and how they can be avoided.

Assessment

This unit is assessed through a centre set and marked assignment. Internal assessments are subject to moderation by AQA-City & Guilds.

This unit will need to be assessed carefully to ensure that wild and domesticated species and the skills required are covered adequately. It is important that the learner can recognise and record signs of animal and plant health and illness. The learner must be able to use tools and equipment safely and responsibly in order to be able to take care of the plants and animals.

To conclude the assessment, the learner should be able to describe the physical and environmental factors that affect the growth and reproduction of plants and animals in their natural or managed environments.

The methods of assessment have been chosen so that they reflect the work in a particular industry within or outside the sector and the implications relating to safe working practices and responsible behaviour. It will also integrate the theoretical learning in the classroom with good industrial practice.

Task setting

Internal assessments must aim to be holistic in nature and encourage learners to produce evidence to cover the Assessment criteria.

The assignment set must cover the tasks as set out in the table below.

| Task | Form(s) of evidence | LO mapping |
|----------------------------|---|--------------|
| Care of plants and animals | The following must be provided: <ul style="list-style-type: none">• a report on the factors that affect growth and reproduction• a description of the condition of healthy and unhealthy plants and animals• a log of care activities undertaken and their effects• a log describing the safe use of tools and equipment | LO1, 2, 3, 4 |

Duration

The assessment is not time constrained. The following is a guide to appropriate times for the assessment activities:

Research – 3 hours

Routine or non-routine care of animals – 2 hours

Routine or non-routine care of plants – 2 hours

Preparation and presentation of report – 3 hours.

Sector relevant purpose

This assignment will give the learner experience in working with, and caring for, plants and animals in a safe and responsible manner. Being able to identify the health of plants and animals is essential for a wide range of Environmental and Land-based sector jobs.

Demand

Learners must be given the opportunity to care for a selection of two different animal species and two plant species. There are advantages to using species in which learners have a personal or employment-related interest. The care activities can be routine or non-routine and should cover as many aspects of the animal's life cycle as possible including reproduction. Care activities for plants should include propagation. Learners must use tools and machinery safely.

Signs of good health and symptoms of illness must be recorded. If certain conditions are not present, for example parasites, disorders and diseases, other methods such as photographs, videos and plant/animal collections can be used.

A work log must be completed when caring for the plants and animals. This must include the following:

- a witness statement for **each** animal species which includes details of the care
- a witness statement for **each** plant species which includes details of the care
- a record of the safe practices used to ensure responsible use of tools and equipment.

The report may be in any format (eg PowerPoint, written report, oral report).

Task taking

Details of controls that should be applied during the taking of the assessment tasks are set out on pages 84–86 of the specification.

Weighting of Learning outcomes

| Learning outcomes | Marks | Weighting |
|---|-----------|-------------|
| 1 Know the physical and environmental conditions that affect plant and animal growth and reproduction | 9 | 18.8% |
| 2 Be able to use tools and equipment safely | 15 | 31.3% |
| 3 Be able to care for animals | 12 | 25% |
| 4 Be able to care for plants | 12 | 25% |
| Total | 48 | 100% |

Assessment grid

Please note that the descriptions in this marking grid relate to the top of each band. Further guidance on using marking grids is available in the Assessment section of this specification.

| Learning outcomes | Band 1 | Band 2 | Band 3 |
|---|--|--|--|
| | The learner has: | | |
| | 0 to 3 marks | 4 to 6 marks | 7 to 9 marks |
| 1 Know the physical and environmental conditions that affect plant and animal growth and reproduction | <p>Identified some of the physical and environmental conditions that affect the growth and reproduction of plants and animals in their natural or managed environment.</p> <p>Recognised some of the common plant and animal pests, disorders and diseases.</p> <p>Recognised some of the common signs of health and illness in animals.</p> | <p>Identified the physical and environmental conditions that affect the growth and reproduction of plants and animals in their natural or managed environment.</p> <p>Recognised the common plant and animal pests, disorders and diseases.</p> <p>Recognised the common signs of health and illness in animals.</p> | <p>Identified the majority of the physical and environmental conditions that affect the growth and reproduction of plants and animals in their natural or managed environment.</p> <p>Recognised the majority of common plant and animal pests, disorders and diseases.</p> <p>Recognised the majority of the common signs of health and illness in animals.</p> |
| | 0 to 5 marks | 6 to 10 marks | 11 to 15 marks |
| 2 Be able to use tools and equipment safely | <p>Used a range of tools and equipment, demonstrating limited safety practices and poor responsibility.</p> <p>Briefly recorded the correct use, transport, storage and routine maintenance of a range of tools and equipment.</p> | <p>Used a range of tools and equipment, demonstrating safety practices and a responsible manner.</p> <p>Recorded with some detail the correct use, transport, storage and routine maintenance of a range of tools and equipment.</p> | <p>Used a range of tools and equipment, demonstrating a high level of safety practices and high responsibility.</p> <p>Clearly and comprehensively recorded the correct use, transport, storage and routine maintenance of a range of tools and equipment.</p> |
| | 0 to 4 marks | 5 to 8 marks | 9 to 12 marks |
| 3 Be able to care for animals | <p>Identified some of the common wild and domesticated/managed animals.</p> <p>Safely carried out the routine or non-routine care (five freedoms) of a selection of animals to a basic standard.</p> | <p>Identified a range of common wild and domesticated/managed animals.</p> <p>Safely carried out the routine or non-routine care (five freedoms) of a selection of animals to a moderate standard.</p> | <p>Identified a wide range of common wild and domesticated/managed animals.</p> <p>Safely carried out the routine or non-routine care (five freedoms) of a selection of animals to a high standard.</p> |
| | 0 to 4 marks | 5 to 8 marks | 9 to 12 marks |
| 4 Be able to care for plants | <p>Identified some of the common wild and cultivated plants.</p> <p>Safely carried out the routine or non-routine care of plants, both prior to and after planting, to a basic standard.</p> | <p>Identified a range of common wild and cultivated plants.</p> <p>Safely carried out the routine or non-routine care of plants, both prior to and after planting, to a moderate standard.</p> | <p>Identified a wide range of common wild and cultivated plants.</p> <p>Safely carried out the routine or non-routine care of plants both prior to and after planting, to a high standard.</p> |

Guidance for delivery

This is a very practical unit so the active involvement of learners in a range of practical activities is encouraged.

When delivering this unit, it is suggested that teachers should use a wide variety of different active learning methods and techniques, practical sessions, demonstrations, class discussions, small group work, and outside speakers.

Visits to local enterprises and facilities can support delivery, for example:

- local wildlife or nature reserves
- school/college grounds and gardens
- pet shops
- parks
- farms (arable/mixed or livestock)
- garden centres
- veterinary premises
- National Trust/English Heritage gardens and parks
- private and community gardens.

There are opportunities for learners to work in small groups to undertake some aspects of the care. Learners should be able to follow instructions correctly and be supervised during practical activities.

The species used and the care tasks undertaken will depend upon the availability of animal and plant resources. All resources must be safe for use by learners. Animals should be kept in accordance with the five freedoms and their care standards must comply with legal obligations.

Some learners may have personal and/or workplace experience in working with plants and animals, which they can share with peers.

Observations of wild animals can be difficult. Attracting wildlife to an area can be useful eg a bird table or feeding station may attract local birds and wildlife. Developing a wildlife area at the school or centre and growing plants and flowers that encourage and support wildlife may also be useful.

Collecting fruit, flowers and/or leaf specimens of plants will help with plant identification. Visits at different times of the year to the same location will help learners to appreciate the changes in plants and animal species over time.

Learners could grow plants from seeds, cuttings, young plants and bulbs eg sunflowers, beans, potatoes, tomatoes and flowers. Planting these in different growing media, containers or in areas with varying amounts of light and shade will help to raise awareness of how physical and environmental factors affect growth and reproduction.

The theme for this unit is 'plants and animals'. This unit contributes to the theme by introducing learners to the importance of wild/cultivated plants and wild/domesticated animals, how to care for them and some of the common pests and diseases. This unit has links with Level 1 Unit 5: Introducing the role and value of plants and animals to society. Benefits can be obtained by integrating some of the teaching and learning strategies across both units.

Opportunities for applied learning

Applied learning opportunities can take many forms.

If local organisations can be encouraged to contribute, they can offer learners a spectrum of experiences. These could include some of the following:

- hosting of learner visits and assignment work during which project activities can take place
- setting learners' theory in a practical context
- supervising project work on their premises
- showing learners how commercial work with plants and animals is undertaken
- allowing learners to shadow their animal or plant care staff
- providing commercial data for learners to use in their work
- giving talks about their work
- helping to gather evidence of learners' abilities as learners work on their premises
- liaising with learners as they request access to premises
- reinforcing professional animal health welfare and safety standards in the sector
- setting learners real life problems to solve for their organisation
- coming to learners' project presentations and questioning learners about them.

Working with other learners in groups on project work where they are taking an active role in the group's deliberations, setting their own goals and taking responsibility for group development help to set their learning in context.

Suggested prior learning

Some curriculum development in Science would be advantageous. Previous experience of or interest in caring for plants and animals at home or via work experience would be advantageous.

Personal, Learning and Thinking Skills

The list below is indicative of the way this unit supports the development of PLTS, as opposed to the achievement of PLTS that are possible through the assessment. The unit supports the development of more PLTS than are covered through the Assessment criteria alone.

Alternative approaches could be selected.

The learner could develop PLTS by:

Independent enquirers

- planning and carrying out research into and then monitoring and maintaining the five animal freedoms
- identifying, analysing and evaluating information on how physical and environmental factors affect the growth, health and wellbeing of plants and animals

Creative thinkers

- using a variety of evidence to identify species ie from tracks, seeds, leaves
- assisting in the adapted care of plants and animals when there is a change in its health or circumstances, or for different life stages

Reflective learners

- reviewing progress regarding care of plants and animals, and acting upon the outcomes
- evaluating practical experiences and learning in plant and animal care and acting upon this

Team workers

- co-operating with others to complete tasks such as practical aspects of the care of plants and animals

Self-managers

- assisting in completion of practical tasks in an appropriate and safe manner in a realistic time
- adapting own working to ensure the safety of plants and animals, and selecting suitable equipment to be used for practical tasks once risks have been assessed

Effective participators

- proposing practical ways forward in manageable steps eg selecting suitable tools, equipment and machinery.

Opportunities for Functional Skills development

This unit and its associated learning activities will provide the learner with opportunities to develop and use English, mathematics and ICT in a number of ways.

There are significant opportunities for reading skills development through learners' research of the various topics within the unit. In addition the practical aspect involving the care of plants and animals can afford opportunities for learners to develop reading skills around the following of instructions. Writing skills and some mathematical skills can be improved through the reporting on environmental matters.

Suggested learning resources

Books

McKay, G. (2008). *The Encyclopedia of Animals: a complete visual guide*. Published: Weldon Owen. ISBN: 978-0520244061.

Kindersley, D. (1998). *DK Nature Encyclopedia*. Published: Dorling Kindersley Publishers Ltd. ISBN: 978-0789434111.

Heiney, P. (1998). *Home Farm – A practical guide to the good life*. Published: Dorling Kindersley Publishers Ltd. ISBN: 978-0751304619.

Rodwell, J. S. (2006). *Natural Vegetation classification*. Published: NHBS. ISBN: 978-1861075741.

Forey, P. (2007). *Trees (Identification Guides)*. Published: Flame Tree Publishing Co Ltd. ISBN: 978-1844518555.

Wild Flowers. Published: Collins (2004). ISBN: 978-0007178544.

Chinery, M. (2007). *Insects – Amazing Images of fascinating creatures*. Published: Cassell Illustrated. ISBN: 978-1844035533.

Chinery, M. (2006). *Garden Wildlife*. Published: Collins ISBN: 978-0007209903.

Garden Flowers. Published: Collins (2005). ISBN: 978-0007200696.

Warren, D. (2009). *Small Animal Care and Management*. Published: Cengage Learning. ISBN: 978-1418041052.

CDs, CD-ROMS and DVDs

- David Attenborough (2003). *Life on Earth*. DVD.
- (2007). *British Trees and Woodland*. DVD.

Websites

- | | |
|--|--|
| • RSPB | www.rspb.org.uk |
| • British Veterinary Nursing Association | www.bvna.org.uk |
| • Institute of Horticulture | www.horticulture.org.uk |
| • ADAS UK Ltd | www.adas.co.uk |
| • The British Horse Society | www.bhs.org.uk |
| • Royal Botanic Gardens | www.kew.org |
| • Department for Environment, Food & Rural Affairs | www.defra.gov.uk |
| • The National Science Digital Library | http://nsdl.org |

Level 1 Unit 5: Introducing the role and value of plants and animals to society

What is this unit about?

We should not take for granted the ways in which plants and animals contribute to our society, and in turn how humans influence their habitats. The balance of characteristics of an area determines whether plants or animals can live and grow, and the effects of introducing a new species.

The unit looks at the value which society places on wild and cultivated plants and wild and domesticated animals, as well as the implications for the environment and society of their management and use. It will introduce the different ways in which society uses plants and animals, and how flora and fauna influence the characteristics of the land and its use. The unit will provide learners with an insight into how recreational management, animals and plant production, animal health and welfare, and food production industries look after plants and animals.

This unit supports ideas and principles encountered in other Level 1 units. It contributes to the theme of 'plants and animals' including the significance of plants and animals in the different areas in which they live and how they determine the characteristics of the landscapes and their uses by society.

This unit has links with Level 1 Unit 1: The natural environment, and Level 1 Unit 4: Working with plants and animals.

This unit has particular emphasis for the following Personal, Learning and Thinking skills (PLTS):

- independent enquirers.

Guided learning hours

This unit has 30 GLH assigned to it, which includes any time needed for assessment preparation. Learners will sit an examination lasting 1 hour.

Content details

| Learning outcomes The learner will: | Assessment criteria The learner can: | PLTS |
|--|---|-------------|
| 1 Know the value of plants and animals to society | a describe how plants and animals are used by society | |
| | b describe the value of plants and animals to society | |
| | c outline the role of plants and animals in a human food chain | |
| 2 Know the relationship between environmental factors, plants, animals and humans | a describe how combinations of environmental factors, plants and animals create different landscapes and land uses | |
| | b identify the potential threats to plants, animals and the environment from human impact | |
| 3 Know the meaning of habitat biodiversity | a recognise different levels of biodiversity | |
| | b outline the implications for the biodiversity of a habitat of monoculture production | IE1 |
| 4 Be able to determine how Environmental and Land-based businesses and enterprises use plants and animals to benefit society | a identify the benefits of different plants and animals in a habitat to different Environmental and Land-based businesses and enterprises | |
| | b evaluate how Environmental and Land-based businesses and enterprises work with plants and animals in a habitat | IE4 |
| | c assess a habitat's benefit to Environmental and Land-based business and enterprise activity | |

Where the Assessment criteria show a direct link to an area of the PLTS framework, it is referenced here. Further information on PLTS is available on pages 10–12 of the specification and also within this unit in the section on Personal, Learning and Thinking Skills.

Scope of content

This section gives details of the scope of content to be covered in the teaching of this unit, to ensure that all the Learning outcomes can be met. This includes examples relating to breadth and depth where applicable.

It is important that, through the Level 1 Principal Learning in Environmental and Land-based Studies, learners receive as broad an experience of the whole sector as possible. Teachers are urged to refer to, and use examples from, appropriate industries where relevant. Details of these industries may be found on page 14 of the specification.

Learning outcome 1

Learners must be provided with a wide appreciation of the different ways in which plants and animals meet human needs. They should consider both wild and cultivated plants and wild and domesticated animals, and the obvious ways in which they contribute to our requirements.

Learners must know how plants and animals contribute to our requirements for:

- food and drink
- shelter and protection
- tools
- materials
- clothing
- transport
- chemicals
- energy
- medicine and pharmaceuticals
- recreation and leisure.

Learners must consider the benefits of plants and animals to society in terms of their:

- financial contribution
- aesthetic values
- recreational significance
- products which facilitate human health
- role in environmental management.

Learners must be able to identify the role of plants and animals in the human food chain, including a range of:

- plants consumed directly by humans
- plants used as food for herbivores/omnivores, which are kept by humans
- herbivores and their food products consumed by humans
- carnivores eaten by humans.

Learners must know the energy flows and the energy efficiency implications of humans consuming producers, herbivores and carnivores.

Learning outcome 2

Learners must look at how combinations of plants and animals create different areas. They must know that the plant and animal combinations in an area reflect the biological and physical conditions in it, and how this influences what can establish itself and thrive. Learners must look at a range of environments in terms of the physical conditions that exist in them and the types of living organisms they contain, including:

- green spaces
- wild areas
- recreational areas
- urban areas
- aquatic areas
- commercial production units.

Learners must know the positive and negative impacts of human activities on landscapes and land use, including:

- physical degradation and improvement activities
- competition and disease through changes to flora or fauna
- pollution.

Learning outcome 3

Learners must know what is meant by biodiversity and cover examples of real habitats with different degrees of biodiversity. The reasons for, and implications of, commercial monoculture farming must be covered, including the effects on biodiversity. The range of commercial monoculture activities must be covered. The short- and long-term significance of monoculture production on biodiversity levels must be clear.

Learning outcome 4

To achieve this outcome, learners must relate the plants and animals in a habitat to the activities of enterprises that could make appropriate use of them. Learners must evaluate the range of ways in which the different plants and animals in the habitat might be used. They must be helped to understand how a commercial enterprise might manage the process of using those plants and animals in which it is interested to best commercial and environmental advantage.

Learners must evaluate the suitability and effectiveness of the processes and procedures adopted by enterprises when working with its plants and animals in the habitat. The extent to which the habitat and its plants and animals meet the full needs of the enterprises using the habitat must also be evaluated.

Assessment

This unit is assessed through an external examination set and marked by AQA-City & Guilds.

The purpose of the 1-hour paper is linked to the role of plants and animals.

In order to prepare for the examination, learners are required to study a habitat. Centres can select an appropriate habitat provided that it meets the following criteria. The habitat must:

- be representative of the local area with which learners are familiar
- be an area to which humans have access to enable learners to consider human impact
- be a site with a relatively simple physical layout, the main points of which can be recorded by learners in a simple diagram
- have good levels of biodiversity – containing at least three trophic levels of plants and animals
- contain plants or animals which have some use to society – recreational, medical, nutritional etc
- be of a size that enables learners to consider a representative range of plants and animals living there and the human impact on it
- allow investigation records to be created and stored electronically.

Examination specification

Duration: 1 hour

Assessment type: Written short answer test

Number of marks: 48

| Learning outcomes | Assessment criteria | Marks | Weighting |
|--|---|-----------|-------------|
| 1 Know the value of plants and animals to society | a describe how plants and animals are used by society | 12 | 25% |
| | b describe the value of plants and animals to society | | |
| | c outline the role of plants and animals in a human food chain | | |
| 2 Know the relationship between environmental factors, plants, animals and humans | a describe how combinations of environmental factors, plants and animals create different landscapes and land uses | 12 | 25% |
| | b identify the potential threats to plants and animals from human impact | | |
| 3 Know the meaning of habitat biodiversity | a recognise different levels of biodiversity | 12 | 25% |
| | b outline the implications for the biodiversity of a habitat of monoculture production | | |
| 4 Be able to determine how Environmental and Land-based businesses and enterprises use plants and animals to benefit society | a identify the benefits of different plants and animals in a habitat to different Environmental and Land-based businesses and enterprises | 12 | 25% |
| | b evaluate how Environmental and Land-based businesses and enterprises work with plants and animals in a habitat | | |
| | c assess the suitability of a habitat for Environmental and Land-based business and enterprise activity | | |
| Total | | 48 | 100% |

Guidance for delivery

This unit is very practically oriented. Learners will benefit from carrying out and recording their own field observations, which they can analyse and assess. Learners will need to be equipped with the practical skills to investigate an area.

The unit is applied with natural links to the activities of Environmental and Land-based enterprises, which will give learners important job-related insights.

The practical work can be supported by small group activities.

It is expected that learners will learn from each other through discussions and sharing of investigation results. Some integration with geography may help to identify factors that influence the location and distribution of plants and animals.

The theme for this unit is 'plants and animals'. This unit contributes to this theme by providing learners with a broad understanding of the significance of plants and animals. It encourages learners to look at different areas in which plants and animals live and appreciate how the flora and fauna determine the characteristics of the landscapes and uses to which these areas are put by society. This unit has links with Level 1 Unit 1: The natural environment, and Level 1 Unit 4: Working with plants and animals.

3

Opportunities for applied learning

Links with the Environmental and Land-based sector are broad and accessible for this unit. Learners will be able to extend or apply the skills and knowledge gained in this unit through:

- visiting speakers (professionals and amateurs) working in the Environmental and Land-based sector, who will have valuable knowledge of how plants and animals are used by society
- learning the perspectives of businesses and enterprises working with animal and plant products, commodities and services, and individuals and organisations working to protect plants and animals
- access to a range of professional organisations' resources and their guidance on plants and animals
- looking for flora and fauna in a range of different open spaces and also in professionally managed production areas, such as commercial animal and plant production sites
- working with data or information provided by sector organisations
- shadowing employees working on important projects and programmes.

Personal, Learning and Thinking Skills

The list below is indicative of the way this unit supports the development of PLTS, as opposed to the achievement of PLTS that are possible through the assessment. The unit supports the development of more PLTS than are covered through the Assessment criteria alone.

Alternative approaches could be selected.

The learner could demonstrate other PLTS by:

Independent enquirers

- exploring the uses and benefits of plants and animals from the different perspectives of consumers, enterprises, and organisations whose interests are to protect plants and animals
- researching the combinations of environmental factors, plants and animals in landscapes and land use

Creative thinkers

- exploring the possibilities for plant and animal use by society, the role of plants and animals in the food chain and the potential hazards from human impact
- asking questions to extend their thinking on the implications of biodiversity of habitats of monoculture production
- connecting own and others' experiences of plant and animal use by society, or the role of plants and animals in the food chain
- questioning own and others' assumptions about the use of plants and animals by, and their benefits to, society

Reflective learners

- evaluating experiences and learning in investigating the food chain, habitat or ecosystem and reflecting on this to inform future progress
- inviting feedback of their work and reacting positively to the comments made as praise or constructive criticism
- showing that they can cope with setbacks in undertaking their work and reflecting on what improvements could be made to the task

Team workers

- showing fairness and consideration to others when working as a group in planning the investigation
- providing constructive support and feedback to others as appropriate in any group practical work, discussions or other activity

Self-managers

- working towards goals when investigating plants and animals in a food chain, habitat or ecosystem
- organising time and resources to ensure the necessary tasks occur in the investigation
- building and maintaining relationships with others in the investigation activity

Effective participators

- discussing any issues of concern in any activity or task especially when learners are working on an industry-related issue, which requires them to interact with Environmental and Land-based professionals in the field
- proposing practical and realistic ways forward, breaking objectives down into manageable steps, learners will be able to investigate and plan the activity effectively to meet the overall task.
- identifying improvements to the task if issues arise to ensure that the overall objective is reached and the plan is suitable.

Opportunities for Functional Skills development

This unit and its associated learning activities will provide the learner with opportunities to develop and use English, mathematics and ICT in a number of ways.

Research skills are at the heart of this unit given the range of interlinked topics within it. There are extensive research activities which can be used to challenge the learners' reading and writing skills. In particular, the investigative activity will require planning both in terms of practical work and in the reporting of findings in a clear and cohesive manner.

If work for this unit is generated electronically, the learner will have the opportunity to develop skills and/or evidence for the Functional Skills in ICT.

Suggested learning resources

Books

- Johnson, P. (2008). *The Armchair Naturalist: How to be Good at Nature without Really Trying*. Published: Icon Books Ltd. ISBN: 978-1840468823.
- David, A. (2002). *The World Encyclopedia of Birds & Birdwatching*. Published: Lorenz Books. ISBN: 978-0754810032.
- Kavanagh, J.; Leung, R. (2002). *Cows & Horses: A Field Guide to Familiar Breeds (Pocket Naturalist)*. Published: Waterford Press. ISBN: 978-1583551929.
- Mears, R.; Taylor, B. (2005). *Nature Detectives' Handbook*. Published: Miles Kelly Publishing Ltd. ISBN: 978-1842366370.
- Chandler, D.; Unwin, M. (2007). *RSPB Children's Guide to Birdwatching*. Published: Christopher Helm Publishers Ltd. ISBN: 978-0713687958.
- Elphick, J.; Woodward, J. (2003). *RSPB Pocket Birds*. Published: Dorling Kindersley Publishers Ltd. ISBN: 978-0751336788.
- Reader's Digest. (2005). *Britain's Wildlife, Plants and Flowers* Published: Reader's Digest. ISBN: 978-0276440403.
- Moss, S. (2004). *Garden Birds (Collins GEM)*. Published: Collins. ISBN: 978-0007176144.
- Sterry, P. (2006). *Complete British Wild Flowers*. Published: Collins. ISBN: 978-0007204694.
- Sterry, P. (2007). *Complete British Trees*. Published: Collins. ISBN: 978-0007211777.
- Sterry, P. (2005). *Complete British Animals*. Published: Collins. ISBN: 978-0007201372.
- Sterry, P. *Collins Complete Guide to British Wildlife: A Photographic Guide to Every Common Species (Complete British Guides)*. Published: Collins (2008). ISBN: 978-0007236831.
- Buczacki, S. T. (2007). *Garden Natural History (New Naturalist)*. Published: Collins. ISBN: 978-0007139941.
- Hall, J. E.; Kirby, K. J.; Whitbread, A. M. (JNCC 2004). *National Vegetation Classification Field Guide to Woodland (JNCC National Vegetation Classification Field Guide)*. Published: Joint Nature Conservation Committee. ISBN: 978-1861075543.
- Bang P.; Dahlstrom, P.; Mears, R. (2006). *Animal Tracks and Signs (Pocket Nature Guide)*. Published: OUP Oxford. ISBN: 978-0199299973.
- Olsen, L.; Sunesen, J.; Pedersen, B. V. (2001). *Small Woodland Creatures (Natural History Pocket Guides)*. Published: OUP Oxford. ISBN: 978-0198507970.
- Attenborough, Sir D. (1994). *The Private Life of Plants*. Published: BBC Books. ISBN: 978-0563370239.
- Trees (Identification Guides)*. Published: Flame Tree Publishing Co Ltd (2007). ISBN: 978-1844518555.
- Wild Flowers (Collins GEM)* Published: Collins (2004). ISBN: 978-0007178544.
- Chinery, M.; Hosking, D.; Hosking, J. (2004). *Butterflies (Collins GEM)*. Published: Collins. ISBN: 978-0007178520.
- Chinery, M. (2008). *Amazing Insects: Images of Fascinating Creatures*. Published: Firefly Books. ISBN: 978-1554073528.
- Harding, P.; Outen, A. (2004). *Mushrooms (Collins GEM)*. Published: Collins. ISBN: 978-0007183074

Websites

- Environmental Agency www.environment-agency.gov.uk
- FSC (Field Studies Council) www.field-studies-council.org
- Natural England www.naturalengland.org.uk
- Forestry Commission GB www.forestry.gov.uk
- Soil Association www.soilassociation.org
- The Wildlife Trusts www.wildlifetrusts.org
- Department for Environment, Food & Rural Affairs www.defra.gov.uk

Level 1 Unit 6: Sustainability and the importance of sustainable use of the environment

What is this unit about?

Careful use of the environment today is essential to ensure that future generations have the resources and environments they will need.

People and businesses in the Environmental and Land-based sector must recognise this responsibility by taking care to avoid waste and pollution, to use resources carefully and to comply with current and new legislation when they plan and carry out their work. Misuse of the environment will lead to a decline in the quality and range of its resources.

The purpose of this unit is to enable learners to assess how human activity and Environmental and Land-based enterprises affect the environment and to ensure that it remains balanced, productive and supports us all.

Learners will review the impact of people and business on the environment and think about the natural resources which are used to provide products and services. It will also involve consideration of the different types of pollution which occur in the environment locally and globally and their effects on the Environmental and Land-based sector.

Energy use is increasing across the world and an awareness of it is developed in this unit. Learners undertake a simple energy audit and also discover the developments which are taking place to create alternative forms of energy for future generations.

Legislation and environmental law affect the preservation and conservation of the landscape, and learners will become aware of how legislation influences many environmental activities.

The unit concludes with learners being able to draw from their experiences and therefore being able to make simple judgements about the use of sustainable practices.

The theme for the unit is 'developing the sustainable environment'. This unit contributes to the theme by introducing the basic principle of sustainability, the importance of the sustainable use of the environment and the human impacts on the natural world.

This unit has particular emphasis for the following Personal, Learning and Thinking Skills (PLTs):

- independent enquirers
- creative thinkers
- effective participators.

Guided learning hours

This unit has 60 GLH assigned to it, of which 8 hours will be needed for the assessment. Details of specific controls needed in relation to the internal assessment are shown in the Assessment section of this unit. Overall information on controls is on pages 84–88 of this specification.

Content details

| Learning outcomes The learner will: | Assessment criteria The learner can: | PLTS |
|--|---|-------------|
| 1 Know how human activity affects the environment | a outline the range of human activity that affects the environment | |
| | b describe local, national and global impacts of people and businesses on the environment | |
| | c outline the relationship between the Environmental and Land-based sector and climate change | |
| 2 Understand the importance of sustainability | a explain the importance of the sustainable use of the environment | |
| | b identify examples of sustainable use of the environment | |
| 3 Know how to minimise the impact of people, businesses and enterprises on the environment | a outline actions that can be taken to protect the environment for the future | EP4 |
| | b outline actions required to reduce the use of non-renewable energy | |
| | c outline actions required to reduce pollution and manage waste in Environmental and Land-based organisations | |
| 4 Be able to assess how Environmental and Land-based enterprises affect the environment | a identify the range of resources used in Environmental and Land-based organisations | IE2 |
| | b present data derived from measuring energy use | |
| | c generate ideas on possible sources and types of pollution in a habitat | CT1 |
| | d identify impacts of people and businesses in the Environmental and Land-based sector on the environment | |

Where the Assessment criteria show a direct link to an area of the PLTS framework, it is referenced here. Further information on PLTS is available on pages 10–12 of the specification and also within this unit in the section on Personal, Learning and Thinking Skills.

Scope of content

This section gives details of the scope of content to be covered in the teaching of this unit, to ensure that all the Learning outcomes can be met. This includes examples relating to breadth and depth where applicable.

It is important that, through the Level 1 Principal Learning in Environmental and Land-based Studies, learners receive as broad an experience of the whole sector as possible. Teachers are urged to refer to, and use examples from, appropriate industries where relevant. Details of these industries may be found on page 14 of the specification.

Learning outcome 1

Coverage of this outcome will develop learners' knowledge of the many and varied ways in which human activity affects our environment. Learning programmes must include the uses of land and aquatic environments as detailed below. Learners must know how the factors below affect UK and world environments and the scale and implications for the plants and animals living in the affected areas:

- resource for food supply – agriculture and forestry; modern methods of food production; changing habitats and land use (draining of wetlands, changes to hedgerows, marginalisation fertilisers, pesticides, biodiversity, productivity); fisheries (sustainable and unsustainable fishing); aquaculture
- energy source – conventional, alternative, fossil fuels, nuclear, solar, wind, wave, geothermal, bio-energy
- source for recreation – land and water use; forestation/deforestation; effects on habitats and soils; changes to plants and animals in area; non-native and exotic plants and trees
- source of medicines in land and aquatic environments
- resources for industrial products – raw materials, waste, accidents and damage in land and aquatic environments
- transport and infrastructure – water, air and land transport, energy use, towns, cities, utilities, pollution.

Learners must know how these issues affect Environmental and Land-based businesses working in the affected areas and which impacts are particularly attributable to the activities of these businesses. Learners must be made aware of the range of important products and services that come from businesses working in the environment. Coverage of this unit must give learners some idea of the balance that needs to be made between these essential products and services and the effects on the environment of producing them.

Learners must know how and why Environmental and Land-based businesses are contributing to climate change and what the sector is doing to reduce its contribution and minimise its effects. Learners should also know how climate change is affecting these businesses currently and what future effects on them may be anticipated.

Learning outcome 2

Teachers must ensure that learners are familiar with the concept, definitions and principles of sustainability. They must know the different ways in which sustainability principles affect the practices of society and of Environmental and Land-based businesses. Learners must be able to link a wide range of examples of sustainable practice to their positive effects in the environment through the science that underpins them.

Learning outcome 3

This outcome is concerned with the ways in which society is acting to minimise the impact of people and businesses on the environment. Learners must know the ways in which past, present and future actions have reduced or will reduce the impact of humans, on issues detailed in Learning outcome 1.

Learners must know in general terms which organisations are influential in reducing the impacts set out in Learning outcome 1, in reducing the use of non-renewable energy sources and in reducing pollution and managing waste more effectively.

Learners must cover the basic science of impact reduction activities and learn how these achieve their results. The contribution of local approaches such as popular awareness, individual and community action as well as national approaches through education, legislation and financial incentives and penalties should be clear. The ways in which society's access to the countryside is controlled must be known, as should the ways in which managing this access can reduce society's impact on the environment.

Teachers must make learners aware of methods of reducing the use of non-renewable energy, including:

- use of renewable forms of energy, especially if locally produced
- reducing energy use
- minimising loss of energy (eg insulation).

Teachers must make learners aware of common sources of pollution and types of pollution, including:

- air pollution
- water pollution
- soil pollution
- agricultural pollution
- industrial pollution
- transport pollution (car, ship and plane)
- commercial and domestic pollution
- radioactive pollution
- chemical pollution
- invasive species pollution
- biological pollution
- light pollution
- visual pollution
- noise pollution
- natural dust, smoke from forest/grass fires, volcanoes.

Teachers must make sure that learners are aware of how waste can be managed or recycled for an Environmental and Land-based enterprise or organisation and that this process is based upon the following actions:

- reducing energy and material use
- re-using materials to gain best value
- recycling to retain or extend the value of materials.

Learning outcome 4

Teachers must prepare learners to be able to undertake an assessment of how an Environmental and Land-based business affects its environment. Learners must be able to carry out and interpret a simple energy audit of a business and identify the source, nature and types of pollution the business is producing. They must also be able to identify the resources the business uses and the sources from which they come.

The impact of the business's activities and pollution products on the environment must be assessed. The impact assessment must also include the effects of people where the environment is shared.

The assessment must include qualitative and quantitative information. Learners must be able to gather and interpret data from different sources to produce reliable and relevant deductions based on it for the impact standing of the business.

Assessment

This unit is assessed through a centre set and marked assessment. Internal assessments are subject to moderation by AQA-City & Guilds.

The assignment will be an investigation of the environmental impact of an Environmental and Land-based production unit or service. The energy audit will give learners an insight into the importance of sustainability to the Environmental and Land-based sector.

Task setting

Internal assessments must aim to be holistic in nature and encourage learners to produce evidence to cover the Assessment criteria.

The assignment set must cover the tasks as set out in the table below.

| Task | Form(s) of evidence | LO mapping |
|---|--|--------------|
| Assessment of the impact of the activities of an Environmental and Land-based enterprise and natural phenomena on its environment | The following must be provided: <ul style="list-style-type: none">• data from an energy audit• recommendations for the business for actions to manage resources energy, pollution and waste sustainably• recommendations supported by justification of why sustainable actions matter to society and to business | LO1, 2, 3, 4 |

Duration

The assessment is not time constrained. The following is a guide to appropriate times for the activities:

Research – 3 hours

Data from an energy audit – 3 hours

Recommendations for actions to manage energy use, pollution and waste – 2 hours.

Sector relevant purpose

The energy audit and report into the environmental impact of business activities must be related to the Environmental and Land-based sector to provide sector relevant purpose.

Demand

A report is to be produced as evidence of the achievement of the Assessment criteria. This will include research on how human activity affects the environment and can be minimised, the importance of sustainability and the practical assessment of an Environmental and Land-based enterprise.

The practical section of the assignment requires the learner to identify an enterprise where they will be able to conduct an energy audit and identify the impact that they have on the environment. Data from the energy audit and a description of how any pollution or waste identified impacts on the environment must also be included in the report.

The report may be in any format (eg PowerPoint, written report, oral report) aimed at the owner of the environment.

Task taking

Details of controls that should be applied during the taking of the assessment tasks are set out on pages 84–86 of the specification.

Weighting of Learning outcomes

| Learning outcomes | Marks | Weighting |
|--|-----------|-------------|
| 1 Know how human activity affects the environment | 9 | 18.8% |
| 2 Understand the importance of sustainability | 12 | 25% |
| 3 Know how to minimise the impact of people, businesses and enterprises on the environment | 12 | 25% |
| 4 Be able to assess how Environmental and Land-based enterprises affect the environment | 15 | 31.3% |
| Total | 48 | 100% |

Assessment grid

Please note that the descriptions in this marking grid relate to the top of each band. Further guidance on using marking grids is available in the Assessment section of this specification.

| Learning outcomes | Band 1 | Band 2 | Band 3 |
|--|---|--|---|
| | The learner has: | | |
| | 0 to 3 marks | 4 to 6 marks | 7 to 9 marks |
| 1 Know how human activity affects the environment | <p>Outlined a small range of human activities affecting the environment.</p> <p>Described some local, national and global impacts of people and businesses on the environment.</p> <p>Outlined a basic relationship between climate change and the Environmental and Land-based sector.</p> | <p>Outlined a range of human activities affecting the environment.</p> <p>Described in detail some local, national and global impacts of people and businesses on the environment.</p> <p>Outlined the relationship between climate change and the Environmental and Land-based sector.</p> | <p>Outlined a comprehensive range of human activities affecting the environment.</p> <p>Described clearly and in detail a comprehensive range of local, national and global impacts of people and businesses on the environment.</p> <p>Outlined a clear and detailed relationship between climate change and the Environmental and Land-based sector.</p> |
| | 0 to 4 marks | 5 to 8 marks | 9 to 12 marks |
| 2 Understand the importance of sustainability | <p>Explained, in basic outline terms, the importance of the sustainable use of the environment.</p> <p>Identified some basic aspects of sustainable use of the environment.</p> | <p>Explained the importance of the sustainable use of the environment.</p> <p>Identified aspects of sustainable use of the environment.</p> | <p>Explained, fully and with examples, the importance of the sustainable use of the environment.</p> <p>Identified a comprehensive range of aspects of sustainable use of the environment.</p> |
| | 0 to 4 marks | 5 to 8 marks | 9 to 12 marks |
| 3 Know how to minimise the impact of people, businesses and enterprises on the environment | <p>Outlined some actions required to protect the environment for the future.</p> <p>Outlined some actions required to reduce some use of non-renewable energy, indicating a benefit.</p> <p>Outlined some actions required to reduce incidence of some pollution and waste, indicating a benefit.</p> | <p>Outlined actions required to protect the environment for the future.</p> <p>Outlined actions required to reduce the use of non-renewable energy, indicating some benefits.</p> <p>Outlined actions required to reduce the incidence of pollution and waste, indicating some benefits.</p> | <p>Outlined, clearly and in detail, actions required to protect the environment for the future.</p> <p>Outlined a comprehensive range of actions required to reduce many uses of non-renewable energy, indicating a good range of benefits.</p> <p>Outlined a comprehensive range of actions required to reduce incidences of pollution and waste, indicating a good range of benefits.</p> |

Assessment grid (continued)

| Learning outcomes | Band 1 | Band 2 | Band 3 |
|---|--|--|---|
| | The learner has: | | |
| | 0 to 5 marks | 6 to 10 marks | 11 to 15 marks |
| 4 Be able to assess how Environmental and Land-based enterprises affect the environment | <p>Identified a limited range of resources used in Environmental and Land-based organisations.</p> <p>Presented some data derived from basic measurement of energy use.</p> <p>Generated a few ideas on possible sources and types of pollution.</p> <p>Identified a few impacts on the environment of people and businesses in the Environmental and Land-based sector.</p> | <p>Identified a range of resources used in Environmental and Land-based organisations.</p> <p>Presented data derived from measuring a range of energy uses.</p> <p>Generated ideas on possible sources and types of pollution.</p> <p>Identified impacts on the environment of people and businesses in the Environmental and Land-based sector.</p> | <p>Identified a clear and comprehensive range of resources used in Environmental and Land-based organisations.</p> <p>Presented data derived from measuring a good range of energy uses.</p> <p>Generated a range of detailed ideas on possible sources and types of pollution.</p> <p>Identified a detailed range of impacts on the environment of people and businesses in the Environmental and Land-based sector.</p> |

Guidance for delivery

An important aspect in the delivery of this unit is the opportunity to undertake field work and site visits. The research into how people and businesses use, interact with and impact on the environment enables the learners to meet people from a range of industries and to review how a production affects the environment. The Environmental and Land-based sector will be able to provide habitats that are used for products and services which will support a site survey. The coverage should include aquatic as well as land-based habitats.

Local enterprises or organisations should be used to review sources and types of pollution supported by classroom sessions and research by the learners. Simple survey guides can be produced to help with the identification of the pollution types and to help with collation of the information. Organisations such as the Environment Agency may be able to support learners' understanding of pollution by actively displaying pollution monitoring equipment used. Electrofishing may also be a method displayed to learners by the organisation to show the health of tributaries of rivers. This also gives the learners the opportunities to make links with organisations and to develop future career aspirations or plans.

Forms of renewable energy can be researched but field trips to wind power production units, if they can be arranged, will enable the learners to appreciate their scale and their impact on the environment. New and developing energy supplies may also be available to give contrast to the visual impact of turbines.

Climatic change is widely publicised and learners can gain a great deal of information from published reports, newscasts and the internet. A range of information is available to review factors relating to types of energy and their impact on global warming.

An energy audit can be accomplished with limited resources within an enterprise such as a green house or farrowing house. Measurements such as temperature or light use can be measured/monitored in a manager's office. The information can be displayed graphically or in tables, and groups can exchange data if applicable. There is also the opportunity for learners to apply computer skills in using IT-based monitoring technology and using software programmes to present their findings and conclusions.

Environmental law can be brought to life and contextualised if it is presented by the industry such as the Environment Agency, local councils, National Park rangers, rural police officers and Areas of Outstanding Natural Beauty (AONB) service managers. All these will be involved in managing and implementing environmental law in its widest sense. Learners can understand that legislation plays a role in all areas in facilitating and restricting access. All these can be combined with field trips to assess the implementation of the law. This is also an opportunity for learners to meet people within the industry, in a range of different job roles.

The unit is developed around the theme of sustainability and the last section within the unit enables the learner to develop practical knowledge in this theme, with support from the teacher. The importance of sustainable use of land and aquatic habitats on local and global scales can widen the horizons of learners to include example habitats which are outside the UK in order for learners to assess how these may be affected by the use of resources. Buzz groups or discussion sessions can be used and global issues can be debated. A local site survey can be implemented to review how human activity can be minimised within a habitat for future generations will emphasise the theme of sustainability.

With the use of field trips, guest speakers, site visits, and practical application, learners should be able to develop an applied understanding of sustainability and its importance to the Environmental and Land-based sector and gain the opportunity to review a wide sector of job roles.

This unit has links with:

- Level 1 Unit 1: The natural environment
- Level 1 Unit 2: Environmental and Land-based production, systems and services
- Level 1 Unit 3: Introduction to working in the Environmental and Land-based sector
- Level 1 Unit 4: Working with plants and animals.

Benefits can be obtained by selecting appropriate teaching and learning strategies eg co-teaching, using the data from this unit as the basis for further work, and creating a single purposeful activity.

Opportunities for applied learning

This unit's content is central to the Environmental and Land-based sector's challenges and activities. Learners can develop their knowledge and understanding of 'green' issues from professionals and organisations working in the field.

Organisations might offer some of the opportunities listed below. In doing so, they will help learners to see these issues from the organisation's perspective and learn how organisations address them.

Opportunities for applied learning can take many forms, including:

- contact with local businesses to find out ways in which people and businesses use and affect the environment
- local business hosting learner visits and assignment work on land where project activities can take place
- discussing with learners the expected benefits to the land organisation of adopting 'green' practice
- creating a plan which learners discuss to show how human activities on a natural habitat can be minimised
- opportunities for learners to monitor the progress of local real world 'green' initiatives
- setting learners' theory in a practical context
- supervising project work on real sector premises
- showing learners how commercial environmental analyses are taken
- allowing learners to shadow sector staff taking readings in the field
- providing real time commercial data for learners to use in their own work
- working with learners to plan how waste can be managed/or recycled
- giving talks about their business's approaches to recycling, sustainable resourcing and practice
- helping to gather evidence of learners' abilities as they work on sector premises
- liaising with learners as they request access to premises
- reinforcing health and safety issues in the sector
- challenging learners to propose solutions to real life problems
- attending learners' project presentations and questioning them.

Learners working in groups on project work where individual learners are taking an active role in the group's deliberations, setting their own goals and taking responsibility for group development, will help to set learning in context.

Suggested prior learning

Learners should have a basic understanding of science.

Personal, Learning and Thinking Skills

The list below is indicative of the way this unit supports the development of PLTS, as opposed to the achievement of PLTS that are possible through the assessment. The unit supports the development of more PLTS than are covered through the Assessment criteria alone.

Alternative approaches could be selected.

The learner could develop PLTS by:

Independent enquirers

- exploring issues when identifying common sources of pollution
- supporting conclusions using reasoned arguments when explaining climate change implications

Creative thinkers

- trying out alternatives when developing plans to minimise damage
- generating ideas and exploring possibilities when planning waste management strategies

Reflective learners

- reviewing progress when carrying out a survey to review the impacts of people and business on the environment

Team workers

- co-operating with others when surveying habitats
- reaching agreements when sharing ideas and information on the energy topics

Self-managers

- organising time and resources when carrying out surveys and recording information

Effective participators

- acting as an advocate for views when planning waste management strategies.

Opportunities for Functional Skills development

This unit and its associated learning activities will provide the learner with opportunities to develop and use English, mathematics and ICT in a number of ways.

Considerable reading and research can be incorporated into this unit providing opportunities to develop both reading and writing skills. However, should it be desirable, learners can also feed back on their discoveries regarding such topics as environmental impact and global warming via a presentation, thus enabling them to review and improve their communication skills. The part of the unit which involves an energy audit is a good chance to enhance learners' mathematical skills, specifically skills such as percentages, decimals and fractions, mean and range, and interpreting numerical information in graphical formats.

If work for this unit is generated electronically, the learner will have the opportunity to develop skills and/or evidence for the Functional Skills in ICT.

Suggested learning resources

Books

Jackson, A. R. W.; Jackson, J. M. (2000). *Environmental Science: The Natural Environment and Human Impacts*. Published: Prentice Hall. ISBN: 978-0582414457.

Houghton, J. (2004). *Global Warming: The Complete Briefing*. Publisher: Cambridge University Press. ISBN: 978-0521528740.

Schnellhuber, H. J.; Cramer, W.; Nakicenovic, N.; Wigley, T.; Yohe, G.; Pachauri, R. (Editors). (2006). *Avoiding Dangerous Climate Change*. Published: Cambridge University Press. ISBN: 978-0521864718.

Evans, R. L. (2007). *Fuelling Our Future: An Intro to Sustainable Energy*. Published: Cambridge University Press. ISBN: 978-0521684484.

Cassedy, E. S. (2008). *Prospects for Sustainable Energy: A Critical Assessment*. Published: Cambridge University Press. ISBN: 978-0521018371.

Schaeffer, J. (2005). *Real Goods Solar Living Sourcebook: Your Complete Guide to Renewable Energy*. Published: Real Goods Trading Corporation. ISBN: 978-0916571054.

Glasson, J.; Therivel, R.; Chadwick, A. (2005). *Introduction to Environmental Impact Assessment*. Published: Taylor & Francis Ltd. ISBN: 978-0415338370.

Bruges, J. (2008). *The Big Earth Book*. Published: Alastair Sawday Publishing. ISBN: 978-1906136123.

Malkina-Pykh, I. G.; Pykh, Y. A. (Editors). (2002). *Sustainable Energy: Resources, Technology & Planning*. Published: WIT Press. ISBN: 978-1853129391.

Addiscott, T. M. (2005). *Nitrate, Agriculture and the Environment*. Published: CABI. ISBN: 978-0851999135.

Clay, J. A. (2003). *World Agriculture & the Environment*. Published: Island Press. ISBN: 978-1559633703.

Elliott, J. (1999). *An Introduction to Sustainable Development*. Published: Routledge. ISBN: 978-0415191517.

Millennium Ecosystem Assessment. (2005). *Ecosystems and Human Well-Being*. Published: Island Press. ISBN: 978-1597260404.

Gouldie, A. S. (2005). *The Human Impact on the Natural Environment: Past, Present, and Future*. Published: Wiley-Blackwell. ISBN: 140512704X.

CDs, CD-ROMs and DVDs

- David Attenborough (2008). *The Truth About Climate Change*. DVD.

Websites

- Environmental Agency www.environment-agency.gov.uk
- FSC (Field Studies Council) www.field-studies-council.org
- Natural England www.naturalengland.org.uk
- Forestry Commission GB www.forestry.gov.uk
- Soil Association www.soilassociation.org
- The Wildlife Trusts www.wildlifetrusts.org

4 Assessment guidance

The following guidance is applicable to all lines of learning and at all levels. The guidance will be available within the specifications and contained in other relevant publications that support Diploma qualifications made available to consortia/centres.

4.1 Task setting

Guidance

Each internally assessed unit has guidance related to task setting within the Assessment section.

Clear guidance, with exemplars of suitable internal assessment, is available to all consortia centres in order to ensure that suitable tasks are set. AQA-City & Guilds will give extra guidance on task setting through its moderators and they will review a selection of proposed tasks to check that these are suitable at the early advisory visits.

The teacher at a centre with overall responsibility for internal standardisation is also responsible for the standardisation of task setting.

Guidance is provided on the total amount of time that a task should take, on the amount of time that specific activities within a task should take and on the form of supervision expected.

The Assessment structure within each unit clearly states what must be covered in the assessment and must be used in order to set appropriate assignments. The units also give details of the demand expected in each assessment task and the overall sector purpose that must be adhered to.

The Weighting of Learning outcomes in relation to marking should also be used as guidance in task setting, so that teachers can allocate appropriate depth and breadth to different areas of the assignment.

Moderation

All centres will receive an early visit by their moderator, which will include guidance on assignment/task setting for internally set and marked units. This visit will also include guidance on marking.

Centres will also receive detailed feedback following moderation of any units, which includes appropriateness of the task set.

4.2 Task taking

Internal assessment

Control criteria for internally assessed assignments

The internal assignments must all be taken using controls where appropriate. The forms of evidence required in a unit will drive the controls needed. The following controls should be in place for certain forms of assessment. Where there is specific guidance required beyond that stated below, it will be found in the Assessment section of the unit concerned.

| Form of evidence | Method of control | | | | | | | | | |
|---|--|---|-----------------------------|---------------------------------|--|-------------------------------|---|--------------------------|-------------|-----------------------------------|
| | Attendance by moderator or Video/DVD recording | Photographs to confirm individual work or product | Witness statement | Bibliography or list of sources | Signed notes evidencing questions asked by teacher | Transcript or audio recording | Log or journal event/business with financial record if applicable | Learner's own record | Supervision | Submission of artefact or product |
| Performance | 1 | | 2 | | | | | | | |
| Research of relevant sources of material | | | | 1 | 2 | | | | | |
| Record of interviews with business, industry or third party representatives | | | 2 with learner's own record | | | 1 with evidence of permission | | 2 with witness statement | | |
| Artefact or Production | 2 | 2 | 2 | | | 2 | | | 1* | 1* |
| Practical assignment/experiment | 2 | 2 | 2 | | | 2 | | | 1* | 1 if possible |
| Set up and run an event or business | | | 3 | | | | 2 | 2 | 1* | |
| Portfolio of evidence | | | | | | | | | | 1* |
| Presentation of ideas | | | 2 | | | 1 | | | | |
| Report | | | | | 2 where applicable | | | | | 1* |
| Career plan/personal development plan | | | | | | | | | | 1* |
| Witness statement | | | | | | | | | | 1* |
| Job application | | | | | | | | | | 1* |

Please note:

Control methods rated 1 must be used. Those rated 2 may be used if employing the favoured method is not practical and has been agreed with the centre's moderator. They may also be used as a way of providing additional evidence of the learner's having met the Assessment criteria. Those rated 3 are optional forms of control that may be employed.

*Where the number 1 is followed by an asterisk, this indicates that any other control methods may accompany but not substitute the use of this method.

4

Supervision of learners' work

Learners' work for assessment should be carried out under direct supervision when this is appropriate to the task. Some items of work must use direct supervision as per the controls table. Where direct supervision is not practical the table above shows the controls that would need to be in place and therefore allow the teacher to authenticate that the work is the learner's own.

All learners must sign that the work submitted is their own and teachers/assessors must confirm that the work assessed is solely that of the learner concerned and was conducted under the conditions required by the specification.

Guidance by the teacher

The work assessed must be solely that of the learner concerned. Any assistance given to an individual learner which is beyond that given to the group as a whole must be recorded.

External assessment

Timing of external assessments

The external assessments will be timetabled twice a year, in January and June and the dates will be published at the start of the academic year.

4.3 Task marking

Guidance on applying the unit Assessment grid

When assessing learners' work, teachers/assessors should consider the level of attainment demonstrated in four broad areas within the demands and context of the specific unit being assessed:

- the depth and breadth of understanding
- the level of skills
- the level of synthesis, analysis and evaluation
- the level of independence and originality.

In the Assessment grid for each unit, mark ranges are specified for each Learning outcome. When assessing a learner's work, teachers/assessors should use their professional judgement to identify, for each Learning outcome, the mark band description within which that work falls and then the mark within that range that best describes the depth and quality of the work. To achieve the higher mark bands, learners should show greater depth and breadth of understanding, higher level skills, higher levels of synthesis, analysis and evaluation and higher levels of independence and originality. Work that clearly meets all the requirements of the mark band description should be awarded the maximum mark identified.

Aspects of the work that might fall short of meeting the description in full, but which do not, in the judgement of the teacher/assessor sufficiently influence the overall level of achievement to merit the work being assigned to a lower mark band, will reduce the mark awarded within the identified range available. This can be expressed as identifying the 'best-fit' approach, where the areas of strength in the work submitted by the learner can be allowed to compensate for weaknesses in other areas.

Assessors will use archived exemplars as they become available as a reference point. By comparing their own learners' work with archive work which has an assessment commentary attached, the assessor will be able to position the work either on a higher or lower point.

Moderators will also use exemplar work in their early advisory visits to consortia/centres to aid in the consistent application of the marking grids.

Assessment of group work

Group work is a useful way of obtaining information for some activities but it is important that individual learners meet the Assessment criteria requirements. Teachers/assessors assessing the evidence will need to be convinced of its individual authenticity. Questioning can be used in order to clarify the validity, authenticity and sufficiency of evidence and, under these circumstances, the teacher/assessor may wish to include a dated witness statement detailing this evidence. It is expected that the use of such statements will be kept to a minimum so that they constitute a very minor part of the submitted evidence.

Annotation of written/photographic evidence can also be used to detail an individual's contribution.

It is recognised that there can be instances where learners are required to carry out tasks as part of a group and the group-working skills are an integral part of the assessment requirements. In such cases this general guidance on group work will be superseded by the specific requirements and instructions of the individual unit(s).

Internal standardisation of marking

The centre is required to standardise the assessment across different teachers and teaching groups, within and across units, to ensure that all work at the centre has been judged against the same standards. If two or more teachers are involved in marking units, one teacher must be designated as responsible for internal standardisation.

Common pieces of work must be marked on a trial basis and differences between assessments discussed at a training session in which all teachers involved must participate.

The teacher responsible for standardising the marking must ensure that the training includes the use of reference and archive materials such as work from a previous year or examples provided by AQA-City & Guilds. The centre is required to send to the moderator a signed Centre Declaration Sheet (confirming that the marking of work at the centre has been standardised). If only one teacher has undertaken the marking, that person must sign this form.

Claiming and moderation of internal assessment

Claiming and moderation of internal assessment will only be available in the summer term at fixed dates that will be published at the start of the academic year.

Unfair practice

At the start of the course, the supervising teacher is responsible for informing learners of the AQA-City & Guilds Regulations concerning malpractice. Learners must not take part in any unfair practice in the preparation of work to be submitted for assessment, and must understand that to present material copied directly from books or other sources, without acknowledgement, will be regarded as deliberate deception. Centres must report suspected malpractice to AQA-City & Guilds.

Authentication of learners' work

Both the learner and the teacher are required to sign declarations confirming that the work submitted for assessment is the learner's own. The teacher declares that the work was conducted under the specified conditions and records details of any additional assistance.

Work other than that of the learner can be utilised in coursework for research and reference, but must be fully acknowledged.

Malpractice

Learners must **not**:

- submit work which is not their own
- lend work to other learners
- allow other learners access to, or the use of, their own independently-sourced source material (this does not mean that learners may not lend their books to another learner, but learners should be prevented from plagiarising other learners' research)
- include work copied directly from books, the internet or other sources without acknowledgement and attribution
- submit work typed or word-processed by a third person without acknowledgement.

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

If malpractice is suspected, the Examinations Officer should be consulted about the procedure to be followed.

Where suspected malpractice in coursework/portfolios is identified by a centre after the learner has signed the declaration of authentication, the Head of Centre must submit full details of the case to AQA-City & Guilds at the earliest opportunity. The form JCQ/M1 should be used. Copies of the form can be found on the JCQ website (www.jcq.org.uk/).

Malpractice in coursework/portfolios discovered prior to the learner signing the declaration of authentication need not be reported to AQA-City & Guilds, but should be dealt with in accordance with the centre's internal procedures. AQA-City & Guilds would expect centres to treat such cases very seriously. Details of any work which is not the learner's own must be recorded on the coursework/portfolio cover sheet or other appropriate place.

Moderation

A moderator will be assigned to each consortium for each line of learning. The moderator, through AQA-City & Guilds' processes check the setting, taking and marking of internal assessments.

Moderation has two stages. The first is the technical advisory visit to check matters such as coverage of applied learning, understanding of controlled conditions, coverage of PLTS and arrangements for internal standardisation, including use of the marking grids. There is also a requirement at the advisory visits for moderators to see examples of assessment tasks that will be used for internal assessment.

The second stage of moderation is to check the taking and marking of assessments. This stage will take place at fixed times in the academic year, and may be through postal moderation or through a visit to a consortia/centre. This will depend on the line of learning and the type of evidence submitted. The moderator will review a sample of units and the marks awarded by the consortium, in line with national standards. The consortium may be asked to review its marking following this process. In extreme cases, the work of all learners will be re-marked by the moderator.

5 Administration

5.1 Availability of Principal Learning units

All internally assessed Principal Learning units for this specification are available to claim once a year in June, commencing 2010. External assessments will be timetabled twice a year, in January and June, and the dates will be published at the start of the academic year.

5.2 Centre registration

Centres wishing to prepare learners for this specification should apply for approval to offer Principal Learning before teaching begins. Completed application forms should be submitted to Centre Registration, AQA, Stag Hill House, Guildford, Surrey, GU2 7XJ. Applications can only be considered from centres which have received approval through the Gateway process to offer Level 1 Principal Learning in Environmental and Land-based Studies. Further details of the approval process are available on the website at: www.diplomainfo.org.uk

5.3 Centre requirements

Resources

Centres must have access to sufficient equipment in the centre or in other centres within the consortium to ensure that learners have the opportunity to cover all the practical activities. Any requirement for specialised equipment is to be found in the description of the units themselves.

Health and safety

The importance of safe working practice and the demands of the Health and Safety at Work Act 1974 must be stressed to all learners. Learners have responsibilities for maintaining the safety of others as well as their own. Anyone behaving in an unsafe fashion must be stopped and a suitable warning given by the teacher responsible. It is essential that all learners acquire habits required to promote health and safety in the workplace and that their learning avoids potentially unpleasant or dangerous consequences.

Centre staff

Centre staff should be technically competent in all the areas for which they are delivering education and training and/or should also have relevant experience of providing the necessary practical training.

Continuing Professional Development (CPD)

Centres are expected to support their staff in ensuring that their knowledge and skills in the vocational area remain current and take account of any national or legislative developments.

5.4 Entries

Please refer to the current version of Entry Procedures and Codes for up-to-date entry procedures. You should use the following entry codes for the Principal Learning units:

Unit 1 (ELS1U1)

Unit 2 (ELS1U2)

Unit 3 (ELS1U3)

Unit 4 (ELS1U4)

Unit 5 (ELS1U5)

Unit 6 (ELS1U6)

5.5 Quality assurance

Internal quality assurance

Registered centres must have effective quality assurance systems to ensure optimum delivery and assessment of qualifications. Quality assurance includes initial centre registration by AQA-City & Guilds and the centre's and/or consortium's own internal procedures for monitoring quality. Centres are responsible for internal quality assurance and AQA-City & Guilds is responsible for external quality assurance.

National standards and rigorous quality assurance are maintained by the use of:

- AQA-City & Guilds external examinations
- AQA-City & Guilds externally set briefs or assignments
- internal quality assurance
- AQA-City & Guilds external moderation.

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

- the setting of appropriate tasks (see Section 4.1)
- the application of appropriate control of tasks (see Section 4.2)
- training in the use of the Assessment grid (see Section 4.3)
- completion by the person responsible for internal standardisation of the Centre Declaration Sheet to confirm that internal standardisation has taken place (see Section 4.3)
- the completion by learners and teachers/assessors of the record form for each learner's work (see Section 4.3).

External quality assurance

External quality assurance is provided by the two stage moderation system described in Section 4.3. External moderation of internally assessed work is carried out to ensure that assessment is valid and reliable, and that there is good assessment practice in centres and that national standards are maintained.

In order to carry out their quality assurance role, external moderators must have appropriate teaching and vocational knowledge and expertise. AQA-City & Guilds will appoint external moderators and will ensure that they attend regular training and development meetings designed to keep them up-to-date, to ensure standardisation of all assessments and to share good practice.

External moderators:

- provide advice and support to staff in centres
- ensure the quality and consistency of assessments within and between centres and over time by the use of systematic sampling
- regularly visit centres to ensure that they continue to meet the centre registration requirements of AQA-City & Guilds
- provide feedback to centres and to AQA-City & Guilds.

In order to monitor compliance with JCQ requirements, particularly for administering external tests, JCQ inspectors will regularly visit centres.

AQA-City & Guilds requires the Head of Centre to:

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

5.6 Irregularities

Centres must inform AQA of any irregularity, including any learner who arrives late for a test. For detailed instructions please refer to the current JCQ *Instructions for Conducting Examinations* which is available to view or to download from the JCQ's website:

www.jcq.org.uk

5.7 Awarding grades and reporting results

The Foundation Diploma in Environmental and Land-based Studies will be reported on a three-grade scale: A*, A and B. Learners who fail to reach the minimum standard for grade B will be recorded as U (Unclassified) and will not receive a qualification certificate.

The Principal Learning and Level 1 Project will be graded separately and will use the same grading system as the Diploma. Principal Learning and the Level 1 Project will be separately certificated but learners will not receive individual certificates for units of Principal Learning.

5.8 Certification of the Diploma

AQA-City & Guilds is a registered Diploma Awarding Body and will certificate the Diploma in accordance with the requirements and timetable to be published separately by QCA. AQA conducts the administration of the Principal Learning units for this specification on behalf of AQA-City & Guilds.

5.9 CABs, DABs and the Diploma aggregation service

AQA is recognised as a Component Awarding Body and offers the widest range of GCE and GCSE qualifications of any unitary awarding body in the UK. These are listed in QCA's Diploma Catalogue. Similarly, City & Guilds is recognised as a Component Awarding Body and offers the widest range of NVQ, VRQ and City & Guilds' own brand qualifications, which are listed in QCA's Diploma Catalogue.

AQA-City & Guilds has been recognised as a Component Awarding Body to certificate Environmental and Land-based Studies Principal Learning and Project qualifications for Diplomas.

AQA-City & Guilds has been recognised as a Diploma Awarding Body by QCA in order to certificate whole Diploma qualifications for the Diploma in Environmental and Land-based Studies at all three levels.

Learners who have registered for Diploma awards with AQA-City & Guilds will on completion receive a Diploma certificate and a Diploma transcript. The transcript will conform to QCA's specification in terms of the design and information included. The data for the transcript will be supplied by the Diploma aggregation service which is designed to enable the data sharing, results aggregation and grading supporting functions required for the operation of the Diploma as a composite qualification.

5.10 Enquiries about results

The services available for enquiries about results include a clerical check, re-mark of external assessments and re-moderation of internally assessed work. Requests must be submitted within the specified period after the publication of results for individual assessments.

In cases where a post-results enquiry reveals inaccurate assessment, the result may be confirmed, raised or lowered.

For further details of enquiries about results services, please consult the current version of the JCC *Post-Results Services* booklet.

5.11 Re-sits and shelf-life of unit results

Unit results remain available to count towards certification, whether or not they have already been used, as long as the specification is still valid.

Learners may re-sit a unit any number of times within the shelf-life of the specification. The best result for each unit will count towards the final qualification.

Learners will be graded on the basis of the work submitted for assessment.

5.12 Access arrangements and special consideration

We have taken note of the provisions of the Disability Discrimination Act (DDA) 1995 in developing and administering this specification.

We follow the guidelines in the Joint Council for Qualifications (JCQ) document: *Regulations and Guidance Relating to Candidates who are Eligible for Adjustments in Examination GCSE, GCE, GNVQ, AEA, Entry Level, Basic Skills & Key Skills Access Arrangements and Special Consideration*. This is published on the JCQ website:

www.jcq.org.uk/access_arrangements/

or you can follow the link from our website:

www.aqa.org.uk/admin/p_special_3.html

Access arrangements

We can make arrangements so that learners with disabilities, special educational needs and temporary injuries can access the assessment. These arrangements must be made **before** the examination. For example, we can produce a Braille paper for a learner with visual impairment.

Special consideration

We can give special consideration to learners 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 AQA-City & Guilds by the Examinations Officer at the centre.

5.13 Language of examinations

We will provide units for this specification in English only.

5.14 Qualification titles

The qualification based on this specification is:

AQA-City & Guilds Level 1 Principal Learning in Environmental and Land-based Studies.

Appendix A

Connections to other qualifications

The Foundation Diploma in Environmental and Land-based Studies incorporates the following qualifications:

Functional Skills qualifications in English, mathematics and ICT

For details of the AQA Functional Skills specifications please go to:

www.aqa.org.uk/qual/gcse/functional_skills.php

For details of the City & Guilds Functional Skills specifications please go to:

www.cityandguilds.com/functionalskills

The Level 1 Project qualification

For details of the AQA-City & Guilds Level 1 Project specification go to:

www.diplomainfo.org.uk/aboutdiplomas/projects.html

Appendix B

Additional and Specialist Learning for the Foundation Diploma in Environmental and Land-based Studies

The complete list of accredited qualifications which has been recognised as eligible for Additional and Specialist Learning for the Foundation Diploma in Environmental and Land-based Studies is published on the National Database of Accredited Qualifications. Visit:

www.accreditedqualifications.org.uk

AQA and City & Guilds qualifications which have been recognised as eligible for Additional and Specialist Learning for the Diploma in Environmental and Land-based Studies are also published on:

www.diplomainfo.org.uk

Appendix C

Other issues

European Dimension

AQA-City & Guilds has taken account of the 1988 Resolution of the Council of the European Community in preparing this specification and associated specimen units.

Environmental Education

AQA-City & Guilds has taken account of the 1988 Resolution of the Council of the European Community and the Report *Environmental Responsibility: An Agenda for Further and Higher Education* 1993 in preparing this specification and associated specimen units.

Avoidance of Bias

AQA-City & Guilds has taken great care in the preparation of this specification and specimen units to avoid bias of any kind.

Level 1 – Principal Learning

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