

Unit 32: Environmental Education for Outdoor Adventure

Unit code:	Y/502/5800
QCF Level 3:	BTEC National
Credit value:	10
Guided learning hours:	60

● Aim and purpose

The aim of this unit is to familiarise learners with the environment including rocks, geographical forces, habitats and ecology.

● Unit introduction

Success in the outdoor adventure sector isn't just dependent on physical fitness, technical ability and individual skill. Knowledge of the different environments in which activities take place is also essential. Environmental information can greatly enhance the outdoor experience for all concerned.

The natural world is a fascinating and wonderful place, and outdoor activities are enhanced by the environment. In fact, outdoor activity participation and the natural environment are inextricably entwined.

A knowledge of landscapes and their development, the ecosystems within them, and how they influence activities in the outdoors, is important for learners aspiring to work in this area.

Learners will investigate the major rock types in the British Isles, and consider how relevant outdoor activities are influenced by the different types of rock.

Learners will explore landscape development, gaining an understanding of the geographical forces involved, including weathering, erosion and deposition.

Learners will investigate the concept of habitats, and will explore those that are found in the British Isles such as woodland, heathland and hedgerows, considering the distinctive features of each.

To conclude, learners will investigate an ecosystem, and the organisms within it, and will consider methods used to identify organisms.

● Learning outcomes

On completion of this unit a learner should:

- 1 Know about the major rock types in the British Isles and their influence on outdoor and adventurous activities
- 2 Know about the geographical forces that influence landscape development
- 3 Know about the different habitats found in the British Isles
- 4 Be able to communicate information about an ecosystem.

Unit content

1 Know about the major rock types in the British Isles and their influence on outdoor and adventurous activities

Rock types: igneous eg granite, gabbro; sedimentary eg limestone, sandstone; metamorphic eg marble, slate; origins (intrusive, extrusive, sedimentary, metamorphosed); properties and characteristics

Influence on outdoor and adventurous activities: eg climbing styles, walking progress, choice of routes, health and safety

2 Know about the geographical forces that influence landscape development

Geographical forces: weathering (chemical, physical) eg carbonation, hydrolysis, frost action, action of plant roots; erosion (water, ice, human) eg rivers, sea, glaciers, ice sheets, trampling; deposition (water, ice, wind, chemical, human)

Landscape development: shape of landscape eg U and V-shaped valleys, truncated spurs, hanging valleys, gorge, spit, sea stacks and arches; karst scenery eg cave formation; scenery associated with different rock types eg Dartmoor (granite), Malham Cove (limestone), Harrison's Rocks (sandstone)

3 Know about the different habitats found in the British Isles

Habitats: eg woodland, moorland, grassland, heathland, hedgerows, wetlands, rivers, ponds, salt marshes, sand dunes; distinctive features (altitude, rainfall, temperature, exposure, soil type, nutrient status, flora, fauna, climatic climax)

4 Be able to communicate information about an ecosystem

Ecosystems: a biological community of interrelated organisms and their physical environment eg grouse moor, non-grouse moor

Factors influencing ecological distribution: distribution of organisms within an ecosystem; biotic eg plants and animals; abiotic eg soil, temperature, rainfall, aspect, exposure; the necessity of adaptation for survival; interrelationship of ecosystems eg food webs/chains/primacy orders

Identification resource: eg leaflet, poster or guided walk

Assessment and grading criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria for a pass grade describe the level of achievement required to pass this unit.

Assessment and grading criteria		
To achieve a pass grade the evidence must show that the learner is able to:	To achieve a merit grade the evidence must show that, in addition to the pass criteria, the learner is able to:	To achieve a distinction grade the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
P1 describe the major rock types found in the British Isles and their influence on outdoor and adventurous activities	M1 explain the influence that the major rock types found in the British Isles have on outdoor and adventurous activities	
P2 describe the geographical forces that influence landscape development, and the effects of those forces	M2 explain the geographical forces that influence landscape development, and the effects of those forces	
P3 describe four different habitats found in the British Isles		
P4 describe a selected ecosystem and the factors that influence ecological distribution within it	M3 explain how factors influence ecological distribution within a selected ecosystem	D1 analyse how factors influence ecological distribution within a selected ecosystem
P5 design and produce a resource that could be used to identify different organisms within a selected ecosystem. [IE1, IE2, IE3, CT1, CT2, CT3, CT5]	M4 analyse the resource as a means to identify different organisms within a selected ecosystem.	D2 suggest possible improvements for a resource to identify different organisms within a selected ecosystem.

PLTS: This summary references where applicable, in the square brackets, the elements of the personal, learning and thinking skills applicable in the pass criteria. It identifies opportunities for learners to demonstrate effective application of the referenced elements of the skills.

Key	IE – independent enquirers	RL – reflective learners	SM – self-managers
	CT – creative thinkers	TW – team workers	EP – effective participators

Essential guidance for tutors

Delivery

This unit requires activities that enable learners to relate theory to practice in the outdoor environment. Delivery of outdoor activities needs to embrace a wide variety of environments to enable learners to be effective practitioners in the field.

For the content on rock types, the initial theoretical delivery can be reinforced by practical experience. Learners could visit the countryside to experience the influences of rock type first-hand. These visits could be integrated with delivery of other practical units. Learners could be given tasks such as identifying rock types in a particular area. Learners could explore different rock types by going on expeditions to other areas. When the element changes (for example, in land-based from climbing to caving, or in water-based from kayaking to canoeing), tutors should ensure that the unit is integrated and that learners are aware of any evident rock changes.

The content on geographical forces and landscape development can be covered in a similar way to that on rock types. For help delivering the theory there are many useful resources on the internet, on CD ROM and in textbooks.

To reinforce learning, integration with other practical units can prove valuable. Residential trips to learn about landscape development will also be useful. Visits could be arranged with different countryside agencies to cover particular aspects of landscape development. For example, in the Yorkshire Dales, the National Park Authority carries out guided walks to show the effect of weathering on karst scenery; in Upper Wharfedale, the National Trust Warden provides educational opportunities in this perfect example of a glaciated valley. First-hand experience is important when covering habitats.

When covering ecosystems, it is important to stress that they are the product of the rock type, geographical influence and resultant habitat. Learners could collaborate to produce a leaflet, poster or even a guided walk to demonstrate learning.

Local authority countryside services, the National Trust or National Park authorities may all prove to be useful here in providing information and practical sessions, such as pond-dipping and vegetation identification. Learners could provide an end-product that the agency might use, ie a poster to be produced and displayed in a National Park information centre or a local youth hostel.

Outline learning plan

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

The outline learning plan demonstrates one way in planning the delivery and assessment of this unit.

Topic and suggested assignments/activities and/assessment
Introduction and overview of the unit
Assignment 1: Major Rock Types (P1, M1). Tutor introduces the assignment brief. Field visit all day covering Assignment 1
Tutor-led theory session: earth structure – where rocks come from and rock cycle
Tutor-led theory session: rocks and effects on landscape. Clips, slides etc of rock climbs and how they are affected by rock type. Caving in limestone areas. Walking affected by vegetation, affected by terrain due to underlying rock. Watersports only in areas where there is surface water due to underlying rock.
Learner practical activities, looking at examples of rock climbs and how they are affected by rock type, caving in limestone areas, walking affected by vegetation, and by terrain due to underlying rock, watersports only in areas where there is surface water due to underlying rock
Assignment workshop and learner-initiated private study for Assignment 1
Assignment 2: Geographical Forces (P2, M2). Tutor introduces the assignment brief. Theory session investigating how the landscape has been affected by weathering, erosion and deposition. Use examples and diagrams and photographs, visual aids (video/slides/posters/photographs) etc
Learner practical activities: visit sites where processes of weathering, erosion and/or deposition are evident. Exploring water erosion: evident in caves/rivers/gorges, wind erosion, chemical/mechanical weathering
Tutor-led theory session: investigating how the landscape has been affected by weathering, erosion and deposition. Use examples and diagrams and photographs, Visual aids (video/slides/posters/photographs) etc
Learner practical activities: visit sites where processes of weathering, erosion and/or deposition are evident. Evidence of water erosion: evident in caves/rivers/gorges, wind erosion, chemical/mechanical weathering
Assignment workshop and learner-initiated private study for Assignment 2
Assignment 3: Different Habitats (P3). Tutor introduces the assignment brief.
Tutor-led theory session: habitats, discussing different types of habitats, what is a habitat? Define and discuss main habitat types. Use examples and diagrams and photographs, visual aids (video/slides/posters/photographs)
Learner practical activities looking at habitats in the field: visit a habitat. Discuss distinctive features associated with this habitat and any factors that influence distribution of plant/animal species. Opportunity to identify species and discuss any potential threats to the ecosystems within this habitat
Tutor-led theory session: investigating how the landscape has habitats, use examples and diagrams and photographs, visual aids (video/slides/posters/photographs) etc
Learner practical activities looking at habitats in the field: visit a habitat. Discuss distinctive features associated with this habitat and any factors that influence distribution of plant/animal species. Opportunity to identify species and discuss any potential threats to the ecosystems within this habitat
Assignment workshop and learner-initiated private study for Assignment 3
Assignment 4: Ecosystems (P4, M3, D1, P5, M4, D2). Tutor introduces the assignment brief. Tutor-led theory session: what is an ecosystem? Discuss transfer of energy through different ecosystems
Learner practical activities looking at ecosystems in the field. Visit an ecosystem, identify species and discuss any potential threats to the species within this ecosystem
Consolidate learning – assignment workshop and learner private study

Topic and suggested assignments/activities and/assessment

Learner practical activities looking at ecosystems in the field. Visit an ecosystem, identify species and discuss any potential threats to the species within this ecosystem. Meet with countryside warden and consider methods of communicating/educating the public with regards to identification of organisms

Learner practical activities looking at ecosystems in the field. Visit an ecosystem, identify species and discuss any potential threats to the species within this ecosystem. Meet with countryside warden and consider methods of communicating/educating the public with regards to identification of organisms

Assignment workshop: group discussion focusing on improvements to the resource and learner-initiated private study

Evaluation of the unit

Assessment

For P1, learners need to know the origins of the three major rock types in the British Isles. Learners should apply their knowledge of the formation and properties of different rock types by producing a description of associated features of the landscape. Learners must also describe how these rock types influence outdoor activities.

For P2, learners should understand processes of weathering, erosion and deposition, providing one example of each, and the subsequent effects on the shape of the landscape. Assessment evidence could be in the form of a report or a presentation.

For P3, learners should investigate and describe four major habitat types found in the British Isles using commonly encountered sources of information. A definition of habitat needs to be researched and understood. Learners could be allocated different habitats so that the fullest range possible is covered. Assessment evidence could be in the form of a presentation supported by a tutor witness statement.

For P4, learners need to describe a specific ecosystem and show a basic level of understanding of the factors that influence distribution in the specific ecosystem.

For P5, learners need to design and produce a practical resource for identifying different organisms within an ecosystem.

For M1, which links to P1, learners need to explain the influence that the major rock types in the British Isles have on outdoor and adventurous activities. Learners need to provide details and give reasons and/or evidence to support their explanation. Similarly, grading criterion M2 links to P2, and requires an explanation of the geographical forces that influence landscape development and the effects of those forces.

For M3, which links to P4, learners need to explain how factors listed in the *Unit content* influence ecological distribution in a specific ecosystem. This criterion requires an understanding of how an ecosystem differs from a habitat because of the influence of the organisms living within it, as well as the other abiotic factors.

For M4, learners need to analyse their resource, giving reasoning and showing thorough understanding.

For D1, learners need to analyse how factors influence ecological distribution within their selected ecosystem. Learners need to consider each factor, and say how they are related and how they contribute to ecological distribution within the selected ecosystem. Learners could provide an end-product that an agency might use, such as a poster to be produced and displayed in a National Park information centre or a local youth hostel. Learners could produce a handout covering all the information about organisms in a particular ecosystem – which could be carried about to aid delivery.

For D2, learners need to suggest improvements to the resource that they have designed (P5) and analysed (M4).

Programme of suggested assignments

The table below shows a programme of suggested assignments that cover the pass, merit and distinction criteria in the assessment and grading grid. This is for guidance and it is recommended that centres either write their own assignments or adapt any Edexcel assignments to meet local needs and resources.

Criteria covered	Assignment title	Scenario	Assessment method
P1, M1	Major Rock Types	Having gained a work placement with your local authority countryside services, you have been asked to research and carry out a practical exploration of major rock types, geographical forces, habitats and ecosystems.	Report
P2, M2	Geographical Forces		Report
P3	Different Habitats		Presentation and witness statement
P4, M3, D1, P5, M4, D2	Ecosystems		Report A resource that could be used to identify different organisms

Links to National Occupational Standards, other BTEC units, other BTEC qualifications and other relevant units and qualifications

This unit forms part of the BTEC Sport sector suite. This unit has particular links with the following unit titles in the BTEC Sport suite:

Level 2 Sport	Level 3 Sport
Injury in Sport	Impact and Sustainability in Outdoor Adventure
Sports Development	Skills for Water-based Outdoor and Adventurous Activities
Outdoor and Adventurous Activities	Skills for Land-based Outdoor and Adventurous Activities
Work Experience in the Sports Industry	Leading Water-based Outdoor and Adventurous Activities
Leading Outdoor and Adventurous Activities	Leading Land-based Outdoor and Adventurous Activities
Expedition Experience	Outdoor and Adventurous Expeditions
	Alternative Pursuits for Outdoor Adventure

This unit links with the National Occupational Standards (NOS) for:

- Outdoor Education, Development Training and Recreation at Level 3.

Essential resources

A comprehensive store of educational resources pertinent to environmental education would prove useful, for example, DVDs, videos, slides, pictures etc. Learners require access to the outdoors to gain first-hand experience of landscapes, habitats and ecosystems. Learners also need access to the equipment determined by the identification resource they design for example, cameras and binoculars.

Employer engagement and vocational contexts

This unit focuses on the practical aspects of environmental interpretation and gives learners the background knowledge and skills they need to work in the outdoors and talk about the environment. Centres are encouraged to develop links with local Countryside Services. This could be via talks from, or visits to, Countryside Services bases and locations.

Indicative reading for learners

Textbooks

Dearling A and Armstrong H – *Youth Action and the Environment* (Russell House, 1997) ISBN 9781898924074

Kempe N and Wrightham M (editors) – *Hostile Habitats* (Scottish Mountaineering Trust, 2006)
ISBN 9780907521938

Oakes S – *AS/A-level Geography: Environmental Challenges and Economic Development* (Philip Allan Updates, 2004)
ISBN 9781844892549

Palmer A – *AS/A-level Geography: Plate Tectonics, Rocks, Weathering and Glaciation* (Philip Allan Updates, 2004)
ISBN 9781844892501

Journal

Horizons (The Institute of Outdoor Learning publication)

Websites

British Ecological Society www.britishecologicalsociety.org

Field Studies Council www.field-studies-council.org

Geographical Association www.geography.org.uk

Institute for Outdoor Learning www.outdoor-learning.org

Delivery of personal, learning and thinking skills

The table below identifies the opportunities for personal, learning and thinking skills (PLTS) that have been included within the pass assessment criteria of this unit.

Skill	When learners are ...
Independent enquirers	designing and producing a resource that could be used to identify different organisms within a selected ecosystem
Creative thinkers	designing and producing a resource that could be used to identify different organisms within a selected ecosystem.

Although PLTS are identified within this unit as an inherent part of the assessment criteria, there are further opportunities to develop a range of PLTS through various approaches to teaching and learning.

Skill	When learners are ...
Independent enquirers	researching environmental information.

● Functional Skills – Level 2

Skill	When learners are ...
ICT – Use ICT systems	
Select, interact with and use ICT systems independently for a complex task to meet a variety of needs	preparing reports and presentations
ICT – Develop, present and communicate information	
Enter, develop and format information independently to suit its meaning and purpose including: <ul style="list-style-type: none"> • text and tables • images • numbers • records 	preparing a report and presentation
Bring together information to suit content and purpose	preparing a report and presentation
Present information in ways that are fit for purpose and audience	preparing and giving presentations
English	
Speaking and listening – make a range of contributions to discussions and make effective presentations in a wide range of contexts	giving presentations
Reading – compare, select, read and understand texts and use them to gather information, ideas, arguments and opinions	researching for assignment tasks
Writing – write documents, including extended writing pieces, communicating information, ideas and opinions, effectively and persuasively	giving presentations preparing reports.