Level 3 - Sample scheme of work
(7363)

ENVIRONMENTAL AND LAND-BASED STUDIES

Unit 1: The ecology of the natural environment and the importance of biodiversity

Environmental and Land-based Studies
Level 3 Unit 1: The ecology of the natural environment and the importance of biodiversity
Sample scheme of work

This is an example of a scheme of work. You can adjust it or extract content to create a scheme of work to suit your delivery needs. It can also be adjusted by adding theory workshops to support learners who have/need additional learning time.

This unit is assessed through a centre set and marked assignment.

Total GLH	30
Delivery model	Based on teaching three-hour sessions.
Aim	Learners will be able to: • explore how the association of living and non-living components of an environment affect its development • analyse how particular resources critical to maintaining life are affected by the activities of humans, plants and animals.
Notes	This unit should be taught in conjunction with Unit 9. A useful website that has links to activities and case studies is www.spolem.co.uk The three functional skills units for ICT (use ICT appropriately, find and select information, and develop, present and communicate information) are abbreviated as follows: Use ICT, F&S ICT and DPC ICT.

Topic	Activities, assignments, assessments	LO and AC	PLTS	FS	GLH	Resources and other comments
1 Introduction to the unit	The aim of this session is to introduce learners to the principles of ecology and ecosystems. Invite an ecologist to be a guest speaker. Ask them to introduce the subject of ecology and describe the work they do. If possible, they should bring examples of research projects and the equipment used. Learners must comprehensively define ecology and a list of given subject-specific terms that will be used during this topic. Follow with a tutor-led discussion on the importance to humanity, and specifically the ELB sector, of having an understanding of ecology. Learners should recap their notes from the previous discussion about abiotic and biotic factors. Using a map of the UK, learners should consider how abiotic factors differ due to the location of ecosystems. A group discussion will allow learners to expand this thinking to cover ecosystems in the rest of the world. With the use of a scenario, ask learners to describe the effect of a specific change, eg less rainfall, on a given ecosystem.	AC1a, c	CT2 TW1	SL1 R2 Use ICT	3	

Topic	Activities, assignments, assessments	LO and AC	PLTS	FS	GLH	Resources and other comments
2 Ecosystems	Conduct a group discussion on biotic factors. Learners should take notes for their files. Learners should attempt the recap game: www.biology.ualberta.ca/facilities/multimedia/uploads/alberta/Ecosystem.html Learners must carry out research into the major biomes. The research is to be presented in an annotated poster format, which should also compare terrestrial ecosystems to aquatic ones. Using a map of the local area, learners should identify the biomes/ecosystems present. In groups of three, ask learners to describe the characteristics and prevailing conditions within a given habitat in the UK. They should produce a list of organisms found within the habitats.	AC1b, c	CT1, 2 TW1	SL1 W2, 3 USE ICT F&S ICT	3	
3 Biodiversity	Provide case studies for given ecosystems. As a group, learners should work through activities and consider the relationship between plants and animals, including symbiosis. Predict the future development of these communities in response to a range of given changes to either the biotic or abiotic factors within their environment. Learners should consider the significance of areas of both high and low biodiversity.	AC2a AC3b	SM2 CT1, 2 TW1, 2	W2, 4, 5, 6 R1, 2	3	

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4 Impacts on the environment	For a given local habitat learners must describe the importance of form and function for the animals and plants in the area. Learners are then to be given two scenarios in which the factors that influence the ecosystem are altered. One scenario should include a natural change and one a man-made change. Discuss both the positive and negative impacts that these changes could have on the abiotic standings and the biodiversity of the area.	AC2b, c	TW1, 2 IE3	SL1 W2	3	
5 Methods used to monitor habitats	The tutor should lead a discussion on the methods used to monitor habitats. Discuss the difference in monitoring structure and function of the habitat. Carry out a practical session in small groups. Learners should rotate round three stations: quadrats, transects and animal traps.	AC3a AC4a	TW1, 5 CT3 SM3	SL1 W1	3	
6 Soil test and water tests	The tutor should lead a discussion on the methods used to monitor habitats. Discuss the difference in monitoring structure and function of the habitat. This will be a recap exercise and links to Unit 5. Carry out a practical session in small groups. Learners should complete water tests and soil tests on a given area.	AC3a, b AC4a	TW1, 5 CT3 SM3	SL1 W1	3	

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7 Evaluating results and identifying common errors	The tutor should lead a discussion on how to analyse results. Look at the result for each method of environmental monitoring used over the previous two weeks and analyse data to form a conclusion on the ecology of the habitat. Follow with a group discussion to determine common causes of error when compiling data from scientific research techniques.	AC4b	IE4 CT1, 4	SL1 R1 W2, 4, 5, 6	3	
8 Factors that influence land use	In small groups, learners should create a thought shower on how data gathered from both scientific research and factors other than scientific results may influence land use. Follow with a group discussion. Learners must refer to the two sets of results from weeks 5 and 6 habitat monitoring and soil testing. Using reasoned arguments, they should suggest alternative uses for this habitat by an ELB enterprise.	AC3b AC4c,d	IE5, 6 CT1	SL1 R1 W2, 4, 5, 6 Use ICT DPC ICT	3	
9 Assessment – Practical	The practical should be carried out in small groups (see assignment briefs).		TW1, 5 CT3 SM3	SL1	3	

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10 Assessment – Report	Analysis of results should be completed individually.		IE5, 6 CT1	W2, 4, 5, 6 Use ICT DPC ICT	3	