
Teacher Guide: Unit 14 Ecology and Managing the Environment

GUIDANCE FOR TEACHERS

- Guidance on delivery – Page 180-183 – or reference to this from the specifications
- Resources – Page 186-187 – or reference to this from the specifications.

Guidance on Assessment

- Assessment guidance – Page 183-186 – or reference to this from the specifications
- Assessment Evidence grid Unit 14 – attached.

Assignment Work

- The assignment briefs included with this unit are expected to give ideas on how to cover the required assessment criteria
- It is important that the time spent on the topic area links to the mark awarded
- It is hoped that centres will use these ideas as a starting tool
- Outline guidance from the specification included with this unit gives help to support the requirements of the assignment. It is hoped that this should be used to help to support the standard required.

Suggested Time Allocation

- Based on 50-60 hours spent on this unit
- Includes work on assignment + teaching and learning time
- Some time should also be reserved for feedback and return of work after/before moderation.

Assessment Objective to be Covered	Mark Awarded	Possible Time Allocation
AO1	10	12 hours
AO2	14	16 hours
AO3	26	30 hours

Teacher Resource Material

- Assessment Recording Sheet – suggestion of a possible method to collate marks from assignments
- Assignment No 14.1: *Effects on Ecosystems*
- Worksheet : *Investigative Work Learning and Understanding on Ecosystems*
- Assignment No 14.2: *Investigation of an Ecosystem.*

Unit 14: Ecology and managing the environment				
What you need to do:				
You need to produce evidence of your investigation on ecology and managing ecosystems [50 marks]. This evidence needs to include:				
AO1: a knowledge and understanding of the effects of change on ecosystems and biodiversity, describing ecological selection and researching the effects of agricultural practice, human habitation and greenhouse gas production [10];				
AO2: a discussion of the reasons for preserving ecosystems and biodiversity, describing the methods available to do this, and carrying out a study and evaluation of the methods used to manage an ecosystem [14];				
AO3: a planned investigation of an ecosystem [26].				
How you will be assessed:				
Assessment Objective	Mark Band 1	Mark Band 2	Mark Band 3	Mark Awarded
AO1	You will demonstrate a basic knowledge and understanding of the relationship between the organisms, their physical environment and each other in ecological succession; [0 1]	you will demonstrate a sound knowledge and understanding of the relationship between the organisms, their physical environment and each other in ecological succession; you will use appropriate scientific terms and conventions accurately; [2 3]	you will demonstrate a thorough knowledge and understanding of the relationship between the organisms, their physical environment and each other in ecological succession; you will use appropriate scientific terms and conventions accurately. [4 5]	/10
	you will research the effect of agricultural practice, human habitation and greenhouse gas production on ecosystems and biodiversity, selecting information and presenting it clearly; [0 1]	you will research the effect of agricultural practice, human habitation and greenhouse gas production on ecosystems and biodiversity, selecting a wide range of information, giving reasons for your choice of resources, and presenting it clearly and logically; [2 3]	you will research the effect of agricultural practice, human habitation and greenhouse gas production on ecosystems and biodiversity, selecting a wide range of relevant information and presenting it clearly and logically; you will evaluate the information available and justify the choice you included. [4 5]	
AO2	you will identify some of the scientific, moral and ethical reasons for preserving ecosystems and species diversity; [0 1]	you will identify and explain the scientific, moral and ethical reasons for preserving ecosystems and species diversity; [2 3]	you will organise information to evaluate the scientific, moral and ethical reasons for preserving ecosystems and species diversity. [4]	/14
	you will describe some of the methods used to manage ecosystems and preserve species diversity; you will give a limited interpretation of information relating to the success of a project managing one ecosystem; [0 1]	you will describe methods used to manage ecosystems and preserve species diversity; you will describe and interpret data relating to the success of a project managing one ecosystem; [2 3]	you will describe a range of methods used to manage ecosystems and preserve species diversity; you will interpret, explain and evaluate a range of data relating to the success of a project managing one ecosystem. [4 5]	
	you will carry out straightforward calculations on ecological data (e.g. mean, standard deviation) and you will sometimes obtain the correct solutions; [0 1]	you will carry out complex calculations on ecological data, involving some use of statistics (e.g. diversity indices); you will obtain the correct solutions; [2 3]	you will carry out complex calculations on ecological data involving the statistical analysis of the data obtained (e.g. chi-squared or t test); you will obtain the correct solutions to an appropriate degree of accuracy and demonstrate an understanding of the significance of the outcomes. [4 5]	

Unit 14: Ecology and managing the environment (continued)				
Assessment Objective	Mark Band 1	Mark Band 2	Mark Band 3	Mark Awarded
AO3	you will produce risk assessments; you will carry out measurements of some factors affecting the ecosystem you studied; you will use a range of techniques and equipment; [0 1 2 3 4]	you will produce risk assessments, consistent with COSHH guidelines; you will carry out measurements of factors affecting the ecosystem you studied, using a range of techniques and equipment; you will have repeated measurements, working with an appropriate degree of accuracy; [5 6]	you will produce your own detailed risk assessments, consistent with COSHH guidelines; you will carry out measurements of a wide range of factors affecting the ecosystem you studied and explain why you used a range of techniques and equipment; you will explain the need to have repeated measurements, and work with an appropriate degree of accuracy. [7 8]	/26
	you will make and record relevant observations and measurements in the ecosystem; [0 1 2]	you will make and record relevant observations and measurements in the ecosystem, using precision in your measurements; [3 4]	you will make and record a detailed set of relevant observations and measurements in the ecosystem, using the appropriate precision in your measurements. [5 6]	
	you will display the ecological data obtained using tables, with help; [0 1]	you will display the ecological data accurately in a range of ways; [2 3]	you will process and display accurately ecological data in a range of ways chosen to best illustrate the trends in the data. [4]	
	you will give some interpretation of the results and relate these to the occurrence and distribution of species within the ecosystem studied; [0 1 2 3 4]	you will interpret the results, and draw basic conclusions, relating your results to the occurrence and distribution of species within the ecosystem studied; [5 6]	you will interpret the results in detail, and draw conclusions relating your results to the occurrence and distribution of species within the ecosystem studied. [7 8]	
Total mark awarded:				/50