

Cambridge TECHNICALS LEVEL 3

# APPLIED SCIENCE

Cambridge  
TECHNICALS  
2016

Unit 20

Conservation of biodiversity

K/507/6167

Guided learning hours: 60

Version 3 - September 2016 - black line indicates updated content

## LEVEL 3

### UNIT 20: Conservation of biodiversity

**K/507/6167**

**Guided learning hours:** 60

**Essential resources required for this unit:** Access to local nature reserves, SSSI's etc.

**This unit is internally assessed and externally moderated by OCR.**

#### UNIT AIM

---

This unit will provide you with an understanding of biodiversity on a local and global scale, the threats to biodiversity and the importance of maintaining a sustainable global environment.

You will examine real examples of conservation taking place on a local and global scale and decide whether the measures taken are effective or not.

## TEACHING CONTENT

The teaching content in every unit states what has to be taught to ensure that learners are able to access the highest grades.

Anything which follows an i.e. details what must be taught as part of that area of content. Anything which follows an e.g. is illustrative, it should be noted that where e.g. is used, learners must know and be able to apply relevant examples in their work, although these do not need to be the same ones specified in the unit content.

For internally assessed units you need to ensure that any assignments you create, or any modifications you make to an assignment, do not expect the learner to do more than they have been taught, but must enable them to access the full range of grades as described in the grading criteria.

Learning outcomes	Teaching content
The Learner will:	Learners must be taught:
1. Understand the importance of conserving and monitoring natural resources	1.1 Preservation and conservation of the environment i.e.: <ul style="list-style-type: none"> <li>• maintain the current balance of the natural resource (e.g. human-centric verses nature)</li> <li>• methods used to prevent or reduce damage or loss of the environment through mainly human activity (e.g. extraction, logging, fishing and hunting)</li> <li>• sustainability of air, water, earth deposits, wildlife</li> <li>• the value of renewable resources (e.g. solar energy)</li> <li>• the management of non-renewable resources (e.g. fossil fuels)</li> </ul> 1.2 Protecting biodiversity i.e.: <ul style="list-style-type: none"> <li>• habitats (e.g. tropical rain forests, coral reefs)</li> <li>• ecosystems (e.g. peat bogs storing CO<sub>2</sub>)</li> <li>• continuing checks and balances on species numbers</li> <li>• maintains healthy numbers within a species (e.g. protecting the gene pool)</li> <li>• maintains the species within an ecosystem (e.g. preventing extinction and inbreeding)</li> </ul>
2. Understand the value of global biodiversity	2.1 The practical uses made of a globally biodiverse environment i.e.: <ul style="list-style-type: none"> <li>• agriculture</li> <li>• medicine</li> <li>• industry</li> <li>• tourism</li> </ul> 2.2 The value of ecology to global well-being i.e.: <ul style="list-style-type: none"> <li>• regulation (e.g. climate, ecological cycles)</li> <li>• resources (e.g. plant, animal, mineral, air, water)</li> <li>• economic well being</li> </ul> 2.3 How values are placed on biodiversity i.e.: <ul style="list-style-type: none"> <li>• conservation choices e.g. human-centric</li> <li>• exploitation</li> <li>• economic value</li> </ul>

Learning outcomes	Teaching content
The Learner will:	Learners must be taught:
<p>3. Understand the factors that threaten global biodiversity</p>	<p>3.1 Direct factors threatening global diversity i.e.:</p> <ul style="list-style-type: none"> <li>• pollution (e.g. atmospheric, land, water)</li> <li>• change of land use (e.g. deforestation, mining, agricultural techniques such as monoculture)</li> <li>• effects of change of land use (e.g. desertification, loss of rare habitats, loss of rare species)</li> </ul> <p>3.2 Indirect factors which threaten global diversity i.e.:</p> <ul style="list-style-type: none"> <li>• human population growth</li> <li>• climate change</li> </ul>
<p>4. Be able to investigate the efficacy of practical measures to conserve biodiversity</p>	<p>4.1 Measures to conserve biodiversity i.e.:</p> <ul style="list-style-type: none"> <li>• conservation schemes (e.g. sites of specific scientific interest, national parks, green belt, nature reserves, land reclamation)</li> <li>• captive breeding programmes of rare or endangered species</li> <li>• seed banks</li> <li>• red data books</li> </ul> <p>4.2 Legislation and regulations (e.g. Wildlife and Countryside Act, Environmental Protection Act, Countryside and Right of Way Act, Natural and Rural Communities Act)</p> <p>4.3 International summits on global diversity (e.g. the Rio Summit 1992)</p>

## GRADING CRITERIA

LO	Pass	Merit	Distinction
	The assessment criteria are the Pass requirements for this unit.	To achieve a Merit the evidence must show that, in addition to the Pass criteria, the candidate is able to:	To achieve a Distinction the evidence must show that, in addition to the pass and merit criteria, the candidate is able to:
1. Understand the importance of conserving and monitoring natural resources	*P1: Explain the importance of preservation and conservation of the natural environment in supporting biodiversity		
2. Understand the value of global biodiversity	*P2: Describe the practical uses of a globally biodiverse environment		
3. Understand the factors that threaten global biodiversity	*P3: Describe how some direct factors can threaten biodiversity	M1: Analyse the threats to global diversity from human growth and climate change	
4. Be able to investigate the efficacy of practical measures to conserve biodiversity	*P4: Discuss biodiversity conservation measures in a local practical conservation scheme	M2: Carry out an analysis of the effects of a local conservation scheme	D1: Report on the effects of international conservation summits on global diversity

## ASSESSMENT GUIDANCE

Wherever possible the use of case studies or real work opportunities should be used to provide the opportunity for assessment. Field work is an important part of the environmental science technicians role and any opportunities to carry out some field activities would enhance the learner experience. It is possible to use local examples, if these are available, possibly drawing on the support of the environmental officers in the local council.

P1: The learner must be able to explain the importance of preservation and conservation and how these are linked to maintaining a healthy level biodiversity. Each of the areas must be clearly described and the links clearly established. The evidence could take the form a recorded presentation by the learner to a group, a presentation with detailed speaker notes or a written report. An essay is not appropriate.

P2: The learner must be able to describe, accurately, how the monitoring and testing of the environment can support environmentalists in conserving and preserving the environment using examples which may be collected from the press or from presentations by invited speakers. The evidence could take the form of a recorded presentation to a group, a recording by the learner to camera or a written report.

P3: The learner must be able to investigate real world examples of chemical, biological and physical factors which affect the quality of water. The examples may be obtained from written, oral or audio/visual sources and therefore the evidence could take the form of a video recording, a rolling presentation, as long as there was sufficient depth to meet the requirements of level 3 or a written report.

M1: Learners should use real current examples of potential threats to global diversity from human growth and climate change.

P4: Learners should be aware of local conservation activities and could actively participate in a local conservation scheme

M2: Learners should be able to compare and contrast threats to global diversity using real examples and interpreting a range of data types from a variety of sources.

D1: This should be presented as a report or a formal presentation with speaker notes to an audience. If the presentation is not recorded, a witness statement should be provided by the assessor.

Feedback to learners: you can discuss work-in-progress towards summative assessment with learners to make sure it's being done in a planned and timely manner. It also provides an opportunity for you to check the authenticity of the work. You must intervene if you feel there's a health and safety risk.

Learners should use their own words when producing evidence of their knowledge and understanding. When learners use their own words it reduces the possibility of learners' work being identified as plagiarised. If a learner does use someone else's words and ideas in their work, they must acknowledge it, and this is done through referencing. Just quoting and referencing someone else's work will not show that the learner knows or understands it. It has to be clear in the work how the learner is using the material they have referenced to inform their thoughts, ideas or conclusions.

For more information about internal assessment, including feedback, authentication and plagiarism, see the centre handbook. Information about how to reference is in the OCR Guide to Referencing available on our website: <http://www.ocr.org.uk/i-want-to/skills-guides/>.

## SYNOPTIC LEARNING AND ASSESSMENT

It will be possible for learners to make connections between other units over and above the unit containing the key tasks for synoptic assessment. Please see Section 6 of the Qualification Handbook for more details. We have indicated in the unit where these links are with an asterisk.

Name of other unit and related LO	This unit:
<p><b>Unit 3 Scientific analysis and reporting</b></p> <p>LO1 Be able to use mathematical techniques to analyse data</p> <p>LO2 Be able to use graphical techniques to analyse data</p> <p>LO4 Be able to analyse and evaluate the quality of data</p> <p>LO5 Be able to draw justified conclusions from data</p> <p>LO6 Be able to use modified, extended or combined laboratory techniques in analytical procedures</p> <p>LO7 Be able to record, report on and review scientific analyses</p>	<p>LO4 Be able to investigate the efficacy of practical measures to conserve biodiversity</p>

Name of other unit and related LO	This unit:
<p><b>Unit 13 Environmental surveying</b></p> <p>LO1 Understand environmental impacts of human activity and natural processes</p> <p>LO2 Understand environmental surveying</p> <p>LO3 Be able to use field and laboratory techniques to conduct an environmental investigation</p> <p>LO4 Be able to analyse and present and environmental survey findings</p>	<p>LO1 Understand the importance of conserving and monitoring natural resources</p> <p>LO2 Understand the value of global biodiversity</p> <p>LO3 Understand the factors that threaten global biodiversity</p> <p>LO4 Be able to investigate the efficacy of practical measures to conserve biodiversity</p>
<p><b>Unit 14 Environmental management</b></p> <p>LO1 Understand principal characteristics of environments</p> <p>LO2 Be able to identify pollution in the environment</p> <p>LO3 Understand how legislation, regulation and agreements impact on managing natural and built environments</p> <p>LO4 Understand environmental management assessments</p> <p>LO5 Be able to carry out an environmental management study</p>	<p>LO1 Understand the importance of conserving and monitoring natural resources</p> <p>LO2 Understand the value of global biodiversity</p> <p>LO3 Understand the factors that threaten global biodiversity</p> <p>LO4 Be able to investigate the efficacy of practical measures to conserve biodiversity</p>
<p><b>Unit 15 Sustainable and renewable energy</b></p> <p>LO1 Understand the impacts of energy consumption</p> <p>LO4 Be able to recommend sustainable solutions to meet energy demands</p>	<p>LO1 Understand the importance of conserving and monitoring natural resources</p> <p>LO2 Understand the value of global biodiversity</p> <p>LO3 Understand the factors that threaten global biodiversity</p> <p>LO4 Be able to investigate the efficacy of practical measures to conserve biodiversity</p>

To find out more  
**[ocr.org.uk/science](http://ocr.org.uk/science)**

or call our Customer Contact Centre on **02476 851509**

Alternatively, you can email us on **[vocational.qualifications@ocr.org.uk](mailto:vocational.qualifications@ocr.org.uk)**



OCR is part of Cambridge Assessment, a department of the University of Cambridge.

For staff training purposes and as part of our quality assurance programme your call may be recorded or monitored. ©OCR 2018 Oxford Cambridge and RSA Examinations is a Company Limited by Guarantee. Registered in England. Registered office 1 Hills Road, Cambridge CB1 2EU. Registered company number 3484466. OCR is an exempt charity.