

Model Assignment Assessment Material

OCR Level 1/2 Cambridge National Certificate in Science in the Workplace
Unit R076: Environmental science

Please note:

This OCR model assignment is to be used to provide evidence for the unit identified above. Alternatively, centres may 'tailor' or modify the assignment within permitted parameters (see Information for Teachers). It is the centre's responsibility to ensure that any modifications made to this assignment allow learners to show that they can meet all of the learning outcomes and provide sufficient opportunity for learners to demonstrate achievement across the full range of marks.

INSTRUCTIONS TO TEACHERS

The OCR administrative codes associated with this unit are:

- Unit entry code R076
- Certification code J816

The accreditation numbers associated with this unit are:

- Unit reference number M/504/3042
- Qualification reference 600/7042/0

Duration: Approximately 20 hours

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Model Assignment: Information for Learners

OCR Level 1/2 Cambridge National Certificate in Science in the Workplace

Unit R076: Environmental science

Your Tasks

Read through all of the tasks carefully, so that you know what you will need to do to complete this assignment.

Task 1 - Analytical task: A report on the impact of human and natural events on the environment

There is an international conference taking place in France titled 'The preservation of the Global Environment'. The focus of the conference is on what individual countries can do to improve the global environment.



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The people attending the conference are representatives of governments from all over the world. This group of people know very little about ecosystems and environments, and the impact on these of human and natural events.

You should produce a report for the international conference on 'The preservation of the Global Environment'.

Task 2 - Analytical task: A report on monitoring the global environment

Produce a briefing paper for the people attending the conference explaining how the global environment can be monitored for change.



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Task 3 - Practical task: Monitoring the local environment

There is an increase in the number of people suffering from allergies which can be linked to the level of pollutants in the air.



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You work in the Environmental Health Department.

Your local council has asked you to monitor targeted local environments to identify the levels of any possible pollutants.

You should select the appropriate equipment to measure pollution in your local area.

You should then produce a short summary of your findings for the council.

Task 4 - Research task: Awareness campaign on environmental organisation

Your local council wishes to promote support and understanding for a Healthy Environment. The council feel that if people understood how environmental organisations work then public awareness would be increased.

You should produce material for a public awareness campaign about an environmental organisation.

You need to discuss how the chosen organisation can affect your environment.

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Information for Teachers

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Guidance on using this assignment

1 General

- 1.1 OCR assignments are available to download free of charge from our website:
www.ocr.org.uk
- 1.2 OCR assignments are intended to be used for summative assessment of learners. The OCR specification for this qualification gives more information on the arrangements for assessing internally assessed units.
- 1.3 This assignment has been designed to meet the full assessment requirements of the unit. Learners will need to take part in a planned learning programme that covers the underpinning knowledge, understanding and skills of the unit.
- 1.4 There are 4 assessment tasks:

Task 1 – Analytical task: A report on the impact of human and natural events on the environment

Task 2 – Analytical task: A report on monitoring the global environment

Task 3 – Practical task: Monitoring the local environment

Task 4 – Research task: Awareness campaign on environmental organisation

2 Before carrying out the assignment

- 2.1 When the skills, knowledge and understanding identified in the specification have been taught, learners should be provided with a copy of the *Information for learners* section of this assignment. Tasks may be presented to learners when they are judged to be ready to undertake them; they do not all need to be left until the end of the unit.
- 2.2 Learners will not need to carry out any preparations prior to undertaking the assessment tasks, such as collating resources to use in the assessment.
- 2.3 We have estimated that it will take approximately 20 hours to complete this assignment. This is the recommended time but centres can decide how the time can be allocated between each part or individual task in the assessment. Centres are also permitted to spread the overall assessment time across several sessions and therefore it is permissible for evidence to be produced over several sessions.
- 2.4 It is expected that before learners attempt the assignment tasks, they will have received general preparation in their lessons. The details of practical techniques, the development of skills associated with these techniques, and the methods and choice of equipment for the task should be covered when teaching the particular part(s) of the specification which the assignment relates to, and should be completed prior to undertaking the task.

From their learning for LO1, learners will understand that ecosystems are in a balance and that the characteristics within them are dependent upon one another. They should realise external events, such as, natural disasters and Man's exploitation of the environment, can alter the balance of these ecosystems.

From their learning for LO2, learners will understand the consequences of human and natural events on the environment. They will be aware of major industrial activities that have an effect on the environment. Learners will be able to appreciate that these activities are clearly of benefit, but they come at a cost to the environment.

From their learning for LO3, learners will know how the effects of human and natural events, can be monitored both at the global and local level.

From their learning in LO4 and LO5, learners will know how to monitor physical factors and pollution.

From their learning in LO6, learners will realise the need to manage the environment so that the activities we undertake for our benefit do not damage or destroy ecosystems.

From their learning in LO7 and LO8, learners may be able to see a career pathway within the environmental sector.

- 2.5 Learners should be made aware of the health and safety issues associated with the practical tasks.
- 2.6 Learners should also be made aware of the marking criteria for each task.

3 When completing the assignment and producing evidence

- 3.1 Each learner must produce individual and authentic evidence for each task within the assignment, though when undertaking practical work, learners may work in groups, as specified for the tasks concerned.
- 3.2 Centre staff may give support and guidance to learners. This support and guidance should focus on checking that learners understand what is expected of them and giving general feedback that enables the learner to take the initiative in making improvements, rather than detailing what amendments should be made. However, where more specific support is provided so that learners are able to make progress with the task or to ensure safety, this must be reflected in the marks awarded. It is not acceptable for teachers/deliverers to provide answers or to work through answers in detail.
- 3.3 For the practical procedures, teachers are responsible for ensuring appropriate health and safety procedures and all appropriate steps taken to reduce risks are carried out, including a risk assessment for the task, prior to learners attempting the practical work. It is the centre's responsibility to ensure the safety of all learners involved in any investigation.

The work of individual learners may be informed by working with others but each must provide an individual response. Learners should be made aware of the time allowed for carrying out this part of the task. Learners' access to resources is determined by those available to the centre.

- 3.4 Task 1 covers the LO1, LO2 and LO6. There are many opportunities in the task to make creative use of ICT, in research and producing documents, videos etc., including the visualisation of ecosystems, but teachers and learners should be aware of the marking criteria so that the detail of the learners' work can be assessed against the criteria and that marks are not limited by the media used.

Task 1 is expected to take 4 hours.

- 3.5 Task 2 covers part of LO3 (global monitoring). Within this task there are opportunities for learners to use ICT in producing visual imagery to illustrate their work, but teachers and learners should be aware of the marking criteria so that learners' work can be assessed against the criteria and that marks are not limited by the media used. Research, using the internet to obtain global images would be helpful, if a learners' access to the internet is limited then teachers could supply the images but it will be the learner who interprets them. If shared information is used then it is how the individual learner uses it that is important and should be assessed.

Task 2 is expected to take 2 hours.

- 3.6 Task 3 covers part of LO3 (local monitoring of the environment), LO4 and LO5. Learners will need to select appropriate equipment and techniques to obtain data from the local area which can then be analysed to reach conclusions. Learners may need to work in groups to undertake these tasks, but the contribution of each learner must be clear, either in their work or by using witness statements.

Task 3 is expected to take 7 hours.

- 3.7 Task 4 covers LO7 and LO8, If the task is limited to the local environment learners will see the relevance to themselves on maintaining the environment. Also access to organisations may be easier if dealing with local organisations, allowing for guest speakers or shadowing professionals. This task could be combined with work experience but it is not an essential part of the requirements for this unit.

Task 4 is expected to take 7 hours.

- 3.8 We have specified what evidence the learner is expected to produce, but it is important to note that if it is possible to generate the evidence in a variety of formats, then the learner is free to use the format that is most appropriate for them. Centres must advise learners as to the most appropriate format of evidence. Format must not be confused with the content or the type of datafile to be produced. Guidance on suitable formats of the evidence is provided in the section *Evidence Summary*.

4 Presentation of work for marking and moderation

- 4.1 Centres wishing to produce digital evidence in the form of an e-portfolio should refer to the appendix in the specification on guidance for the production of electronic assessment.
- 4.2 Centres may wish to discourage learners from excessive use of plastic wallets for presentation of their evidence as this may hinder the assessment process. Instead centres may wish to encourage learners to present their work so that it is easily accessible, e.g. spiral bound, stapled booklet, treasury tag.

5 Scope of permitted model assignment modification

The model assignment is very self-contained in its present form. The set of tasks form a coherent whole addressing all the learning outcomes and allowing access to the full range of marks.

You **must not** change the following:

- the learning outcomes
- the marking criteria
- the requirements for supervision and authentication as described in the specification (section 'The internally assessed units').

Permitted changes:

The model assignment can be modified in terms of the areas described below at the permission of OCR but centres must be sure that learners still have the opportunity to cover all of the learning outcomes and to access the full range of marks:

- The learner's assignment, which can be contextualised or amended to suit local needs.
- To allow for differences in the materials, equipment and facilities at different centres.

OCR has ensured that in the language used and the tasks and scenario provided we have avoided discrimination, bias and stereotyping and support equality and diversity. In the development of qualifications and assessments we use the guidance given in the Ofqual publication *Fair access by design*, notably this includes:

- using language and layout in assessment materials that does not present barriers to learners
- using stimulus and source materials in assessment materials (where appropriate) that do not present barriers to learners.

If centres wish to adapt the model assignment we strongly advise that staff responsible for modifying the model assignment and quality assuring it refer to the publication *Fair access by design*.

If modifications are made to the model assignment, whether to just the scenario or to both the scenario and individual tasks, it is up to the centre to ensure that all learning outcomes can be met and that learners can access the full range of marks.

Evidence summary

When completing this assignment it may be possible to generate evidence for completing a task in a variety of formats. This list is not exhaustive.

Task	What do learners need to produce (evidence)
Task 1	Evidence is likely to be in a variety of forms to meet the requirements of presenting a range of different types of evidence, including graphical presentations of quantitative information, pictures etc. and could include the use of ICT, posters, videos, etc.
Task 2	Evidence is likely to be in a variety of forms to meet the requirements of presenting a range of different types of evidence, including graphical presentations of quantitative information, pictures etc. and could include the use of ICT, posters, videos, as well as answers to a possible survey.
Task 3	A variety of forms of evidence including witness statements of the learner's ability to collect samples and carrying out tests. Written record of the measurements taken and calculations necessary to derive the outcomes necessary.
Task 4	Evidence could be in a number of forms, such as a PowerPoint presentation, a short video, an article or a leaflet.

Apparatus and materials

Monitoring local environmental conditions

The apparatus needed will depend upon the environments available to learners but learners may require:

- Means of undertaking measurements of conditions (such as temperature, humidity, rainfall, wind speed pH, light levels) on site.
- Data-loggers with appropriate sensors.

Collecting and testing samples

The apparatus needed will depend upon the environments available to learners but learners may require:

- Means of collecting samples (such as “sticky strips”, gas vacuum pumps, sealable containers, soil augers).
- Resources for testing samples in the laboratory (such as for pH, carbon dioxide concentration, carbon monoxide concentration, NO_x concentration, nitrates, phosphates, oxygen concentration/ Biochemical Oxygen Demand (BOD)).
- Resources for counting samples in the laboratory (such as particulates and microbiological counts).