

Examiners' Report

Summer 2010

Principal Learning

Environmental and Land-based Studies Level 3 Controlled Assessments

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Publications Code DP023870

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Level 3 Principal Learning in Environmental and Land-based Studies

Unit 2: The Management of Natural Resources and Resources for Production

Learners are required to complete assessment activities set up by the centre and present their responses in a form of report of their choice. These activities need to ensure that they generate evidence of learners meeting the diploma's specified learning outcomes and assessment criteria. The activities designed by the one centre submitting learners for this first assessment did not sufficiently or carefully fit the desired outcomes and criteria. Consequently, learner evidence meeting the outcomes/criteria was not always easy to identify by the moderator.

The moderator recommends that centres give more attention in the future to designing assessment activities fully fit-for-purpose. This gives learners access to the full range of marks. This would prevent learners offering descriptive responses when the outcomes/criteria call for analytical evidence. The moderators will continue to interpret and apply the precise wording of the outcomes/criteria.

Learning outcome 1 (LO.1) tended to be met better than the other two Learning Outcomes, LO.2 and LO.3. Learners generally described soundly how plant and animal health and welfare were managed. LO.2 with its requirement for explanation of benefit, importance, effectiveness and intervention was less well addressed. Equally, LO.3, with its focus on management planning, tended to be addressed rather superficially with too little attention to the overall rationale or the precise mechanics of design and implementation. Future learner briefs need to focus sharply on the demands of the LO.2 and LO.3 assessment criteria.

Level 3 Unit 4: Applied Plant and Animal Science

Introduction

As this is a new qualification there is no historical data to compare and contrast learner performance to.

This unit has 5 learning outcomes and encompasses a diverse range of information across plants and animals.

General comments

Performance on this unit seemed accessible to most learners but there was a broad spectrum of abilities demonstrated.

When devising assessments for this unit it is essential to ensure that tasks and experiments show the applied purpose of this unit. If learners are to conduct scientific investigations to support the development of animal and plant management strategies they need to show ownership of their own learning.

Learners need to understand relationships between plants and animals and develop independent research skills, reading and understanding texts to gather information and apply it.

Planning and reviewing are critical to experiential learning and should be developed within this unit. Laboratory skills are necessary and it is essential that a practical approach is taken to measuring and recording variables. A range of skills need to be developed, learners should collect data, plan how it can be collected reliably, knowledge and use of relevant equipment, draw valid conclusions etc. Learners have to be engaged in the formative process of planning and doing and most importantly doing it again to develop knowledge and skills to show how improvements can be made.

Learners were able to copy information to show for example the structure of plants and animals. Some excellent diagrams were provided to illustrate the structures. However, learners did not fully differentiate structures to explore their functions. Little evidence was provided to show an understanding of how plants and animals function and how different structures in the body facilitate the functions. For example, learners could draw the structure of a cell but could not show an understanding of why it may have semi-permeable membranes to facilitate osmosis and why this structure is important in that process. There seemed to be little or no evidence of understanding of links between anatomy and physiology.

Some assessment tasks did not fully meet the Learning Outcome criteria, so if a learner was asked to 'evaluate the threats posed by plant disease-causing organisms and pest infestations' (LO.4.1) the evidence generated did not include 'threats posed by animal disease-causing organisms'. As the assessment did not ask for animal disease-causing organisms, the learner did not provide this information and so the LO.4.1 was not fully met by learners. All assessments need to ensure they are fit for purpose before being issued to learners.

Learning outcome 1

Most learners were able to demonstrate the structure of plants and animals using diagrams/illustrations. There was a range of abilities and the use of experiments, for example rat dissections, enabled the learners to show a clearer understating of anatomical structures. There were missed opportunities to 'explain how plants and animals are organised into tissues, organs and organ systems' and learners relied on just using a diagram with little or no explanation.

Physiology and how plants and animals function was generally either not completed or done in a very basic way. The majority of learners had a basic knowledge of the requirements of the structures but rarely were able to access the higher ranges in the mark bands as they failed to apply it and/or explain it. Analysis such as this should be focussed on how the structures relate to the function, but most learners got little further than restating the main structures. Little or no explanation of structure and role in the body, for example - dense bone tissue and its role to protect softer internal organs or provide a solid framework for locomotion or serve for attachment of muscles etc.

Overall the level of understanding demonstrated was poor for a level 3 unit with most learners only achieving mark band 1 with some mark band 2 work. Learners did not examine the interdependency of structures within plants and animals and the ability to explain was very basic and sometimes non existent.

Learning outcome 2

Learners did mostly offer a basic explanation of how plants and animals obtain energy and nutrients. Range of answers were offered but some learners did not include basics such as nutrients which are essential to plants and animals. Tasks included an explanation of how food is digested but at level 3 there was little or no evidence of absorption or assimilation etc.

'Explains the nutrient interdependency of animals and plants and the energy efficiency of each' (LO.2.2). This was addressed in some assessments by asking the learners to explain a complex food web with no mention of nutrient interdependency, therefore learners did not produce evidence to fully meet the LO criteria. Learners did comply with assessment instructions and provide illustrations of food webs but without an explanation there was no application of knowledge.

For application to take place correctly, three elements must be addressed. The information about the nutrient interdependency must be known (and used), the specific information from the plants and animals must be used (the application) and the two must be combined to fit the requirements of the specific LO this would incorporate the energy efficiency of each. In this case it was explaining the energy efficiency, so a simplistic breakdown of these elements could include nutritional requirements of plants and animals and the energy efficiency of each.

Learning Outcome 3

Learners mostly relied on diagrams illustrations to show life cycles. This does not demonstrate and understanding, only the ability to copy the images used. In order to fully meet the criteria an examination of the life cycles is also required.

An example of good practice was observed for LO.3.3. Assessment tasks were linked to reputable published research and learners were asked to analyse the information. This allowed learners to view on-line research and carry out further analysis where necessary. A missed opportunity to fully meet the criteria occurred as the research only related to plants and missed out animals so again did not fully meet the LO.

Learning Outcome 4

Most learners could identify or describe at least one threat posed by plant disease-causing organism and pest infestation, although often they did one or the other, rather than both as the question required. Assessments need to offer learners the opportunity to evaluate threats (more than one) and should cover plants and animals to fully meet the LO.

Intervention strategies were not always included and reasons were often a little vague - these should have been applied to the specific issues identified. If learners had identified a range of threats they could have evaluated each in detail to help create a strategy to control or prevent the threats. Many learners' answers were limited and some did not answer this aspect at all.

Learning Outcome 5

Learners were able to observe 'class experiments' were they given specific tasks to carry out, for example grow sunflowers in varying conditions. In order to fully meet this LO and allow learners to develop their own knowledge and skills they have to take ownership of their own learning. Formative development needs the learners to plan their own investigations and produce data.

When experiments were observed as a tutor led activity the learners did not plan the investigations and merely wrote up what was observed as a class activity. The ethos of the unit is for learners to plan and investigate and draw conclusions facilitating learners to develop their own skills. The focus of the unit has to be 'applied' and for the work submitted this was not the case.

Future improvements

For this unit centres need to promote the application of science and allow learners to develop their own investigatory skills. Where possible each learner should plan their own experiments starting from equipment they will use through to recording and analysing data.

The unit is diverse and covers both plants and animals so assessment activities need to ensure that both animals and plants (where applicable) are covered when designing tasks in order to fully meet the LO.

Learners are encouraged to use diagrams and illustrations within the unit but it is important to also 'explain and evaluate' taking into account the LO criteria, a diagram does not infer understanding only the ability to copy.

Level 3 Unit 8: Global Impacts and the Environmental and Land-based Sector

This was the first series for this paper and there was a very small entry. Hence, most of my comments will be directed at the performance and future direction of the paper rather than concentrating too much on how learners performed in this series.

In all internally assessed units a key consideration will always be the quality of the assignment presented to learners. A well directed assignment can make production of the relevant assessment evidence a more straightforward task for the learners, as well as making assessment itself a more transparent process.

Evidence should consist of direct responses to given tasks that accurately reflect the requirements of the assessment criteria outlined in the 'assessment focus' heading of the relevant mark grid.

Whilst the demands of controlled assessment - in particular the time limit - mean that work is not going to be as extensive as perhaps a piece of coursework may have been in the past, learners have access to a wide range of source materials for their work and the level of detail that can be achieved should be considered when assessing work.

LO.1

Centres should note that this learning outcome has as its key focus 'resource demand' and not just environmental problems in general. Also, the key focus of LO1.1 is responses to increased demand rather than the problem created by the demand and resource extraction. Learner work in this series tended to talk about general environmental problems, with responses largely left implicit in the form of 'we should not destroy the environment in this way'. Responses to LO1.2, often not being focussed on resource demand, tended to deal with large scale environmental problems such as global warming. This actually provided some evidence for LO.2, but had limited value for this learning outcome.

LO.2

Evidence tended to be more focussed here, although at times it was rather narrow. Some industrial causes were identified, although these were rather brief and at a superficial level. Learners have access, in a controlled assessment, to a wide range of sources of evidence and the evidence should reflect this. Simple, broad generalisations will not be enough to achieve good results at level 3 if some detail, together with relevant specific examples perhaps, is not produced. Natural change also needs to be dealt with, and evidence for LO.2.1 should include an assessment of effects at both global and local levels - it is not either/or.

LO.3

This learning outcome presents two major challenges to learners and centres based on this series. The first of these is the discrepancy in the specification, which lists, in the unit summary, LO3.2 as being a Mark Grid B type, whereas in the mark grids themselves it is included under Mark Grid A. Our policy will be to accept whichever methods centres feel is appropriate for their learners to produce evidence. If the Grid B route is chosen, then centres are reminded of the necessity to include completed learner observation records for this Assessment Focus. The second challenge is to ensure that evaluation of material takes place. A considerable

proportion of the evidence produced this time tended to be merely a description of what two businesses had done to help the environment. There was very limited evaluation of this material. This was made more difficult by the lack of focus on responses 'to a global environmental issue..'. Without that focus it is difficult to evaluate as there is nothing to evaluate it against.

Grade Boundaries

Level 3 Unit 2: The Management of Natural Resources and Resources for Production

	Max. Mark	A*	A	B	C	D	E
Raw boundary mark	75	67	59	51	43	35	28
Points Score	14	12	10	8	6	4	2

Level 3 Unit 4: Applied Plant and Animal Science

	Max. Mark	A*	A	B	C	D	E
Raw boundary mark	120	105	93	81	70	59	48
Points Score	14	12	10	8	6	4	2

Level 3 Unit 8: Global Impacts and the Environmental and Land-based Sector

	Max. Mark	A*	A	B	C	D	E
Raw boundary mark	60	54	47	40	34	28	22
Points Score	7	6	5	4	3	2	1

Notes

Maximum Mark (raw): the mark corresponding to the sum total of the marks shown on the mark scheme or mark grids.

Raw boundary mark: the minimum mark required by a learner to qualify for a given grade.

Please note: Principal Learning qualifications are new qualifications, and grade boundaries for Controlled Assessment units should not be considered as stable. These grade boundaries may differ from series to series.

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