



Course Report 2015

Subject	Environmental Science
Level	National 5

The statistics used in this report have been compiled before the completion of any Post Results Services.

This report provides information on the performance of candidates which it is hoped will be useful to teachers/lecturers in their preparation of candidates for future examinations. It is intended to be constructive and informative and to promote better understanding. It would be helpful to read this report in conjunction with the published assessment and marking instructions for the examination.

Section 1: Comments on the Assessment

Component 1: Question paper

Markers commented that the paper had a balance of questions that were challenging for the most able candidates as well as providing enough opportunity for less able candidates to gain marks.

Some questions proved to be more challenging than expected, and this was taken into account when setting the grade boundaries.

Component 2: Assignment

There was evidence that centres had prepared their candidates more thoroughly this year for this component.

The topics chosen were, on the whole, more appropriate than last year, allowing candidates to give an appropriate application.

Some areas of the assignment still prove to be difficult for candidates.

Section 2: Comments on candidate performance

Component 1: Question paper

There was evidence that most candidates had studied the Course content and therefore were in a position to attempt all of the questions.

As last year, however, markers commented that, while most candidates made an attempt at answering the questions, lack of detail in their responses meant they did not gain full marks. This was especially evident in the extended-response questions.

Poor literacy skills, and the inability to distinguish between 'describe' and 'explain' questions, resulted in some candidates losing marks.

Some candidates did not read questions carefully enough and therefore did not give an appropriate response.

Similarly to last year's cohort, candidates found the marks available from the essay type questions difficult to access.

Component 2: Assignment

Overall, performance in this component was improved compared to last year. Markers commented that there seemed to be a better understanding of what was required in the Assignment.

Candidates who followed the candidate guidelines systematically tended to perform well.

More candidates included their raw data than last year, and this allowed them to gain more marks in Section 5. However, some candidates chose data that was too complex and beyond their capabilities to process.

Section 3: Areas in which candidates performed well

Component 1: Question paper

Question

- 1 (a) (i): Most candidates knew how to identify a sampling technique.
- 1 (b) (i): Most candidates knew how to select an appropriate sampling technique for a named organism.
- 1 (b) (ii): Most candidates knew how to process a simple percentage calculation.
- 3 (a) (ii): Most candidates knew how to identify the decay process in the Nitrogen cycle.
- 3 (b): Most candidates knew how to identify a substance that can be added to soil to increase crop yield.
- 4 (a) (i): Most candidates knew how to identify an omnivore.
- 4 (a) (iii): Most candidates knew ways in which energy is lost from a food chain.
- 5 (a) Most candidates knew how to identify the three main rock types.
- 7 (c): Most candidates knew how to identify a variable that should be kept constant when doing an experiment.
- 11 (a) (i): Most candidates knew how to select information from a table and provide reasons for their selection.

Component 2: Assignment

- 1 Most candidates could state an appropriate aim.
- 2 Most candidates could give a suitable application and state its effect on society/environment.
- 4 Most candidates could select relevant information from their sources.
- 5(b) Most candidates could present their processed data/information in appropriate formats.

Section 4: Areas which candidates found demanding

Component 1: Question Paper

Question

- 2 (c): Some candidates had difficulty naming one piece of environmental legislation.
- 3 (a) (i): Some candidates had difficulty identifying the process of Nitrogen fixation within the Nitrogen cycle.
- 4 (a) (ii): Some candidates had difficulty stating two ways in which competition can be reduced.
- 5 (b): Some candidates had difficulty describing the main processes of rock formation.
- 5 (c): Some candidates had difficulty providing economic reasons for extracting metals from their ores.
- 8 (a): Some candidates had difficulty stating a human activity which may contribute to the release of CO₂.
- 8 (a): Some candidates had difficulty calculating a mean decrease.
- 8 (a): Some candidates had difficulty identifying the link between photosynthesis and CO₂ uptake.
- 9 (a) (i): Some candidates had difficulty selecting information from two sources.
- 9 (a) (ii): Some candidates had difficulty calculating a percentage increase.
- 10 (c): Some candidates had difficulty describing a user group conflict
- 11 (c): Some candidates had difficulty suggesting advantages and disadvantages of locating industry in a particular area.
- 11 (d): Some candidates had difficulty explaining the term 'sustainability' in a particular context.
- 13 (a) and (b): Some candidates had difficulty accessing the seven marks available in the extended answers.
- 14 (a) and (b): Some candidates had difficulty accessing the seven marks available in the extended answers.

Component 2: Assignment

- 5(a) Some candidates found difficulty in processing their raw data accurately. This was sometimes due to the selection of over-complex data.
- 5(d) Some candidates found difficulty in making a suitable comparison between their chosen pieces of data/information, or failed to state that no comparison was possible as they referred to different aspects of the topic.
- 6 Some candidates found difficulty in drawing a valid conclusion that was related to their stated aim and supported by evidence in the report.

Section 5: Advice to centres for preparation of future candidates

Component 1: Question paper

Candidates need to spend time consolidating the mandatory knowledge of the Course. They cannot adequately demonstrate their knowledge and understanding in the question paper otherwise. They must also be able to reach the level of understanding where they can apply that knowledge to given situations. This is particularly true in Environmental Science as the range of applications within different contexts is extensive.

Centres are encouraged to make sure that they are using the most recent version of SQA materials and that they are teaching to the appropriate level for National 5.

Candidates should be encouraged to take their time and read all parts of the question thoroughly. Too many candidates are not reading the stem of the question and are going straight to the part at the answer support line. Vital information is missed, and often candidates offer an inappropriate answer as a result. Furthermore, candidates should be given more experience in answering the extended answer seven mark questions.

Candidates must understand the difference between ‘describe’ (state what is happening) and ‘explain’ (give a reason for what happens) to gain marks in these types of questions. Too often these command words are mixed up and the candidate fails to give the required detail.

Candidates should be given opportunities to practice the full range of skills — this can be found in the Course Assessment Specification on the SQA website. They should be able to apply these skills to experimental and investigative situations that are new to them.

Centres should provide extensive opportunities to practice answering questions on Earth’s Resources and Sustainability.

Candidates should be encouraged to review their calculations to see if their answer is feasible or not.

The use of a ruler in the completion of graphs should be encouraged, and it is stressed that the scale on each axis must have a number at each origin, although a common zero is acceptable. Graphs must use at least 50% of the axes.

Candidates should be encouraged to continually make links within their learning between all the three Units.

Component 2: Assignment

Centres are advised to make sure that they are using the most up-to-date version of the guidelines issued for the Assignment, and are encouraged to make the Candidate’s Guide available for all candidates. It is useful to follow the format and structure given, although not essential.

Centres should also share the Marking Instructions with candidates, so that they know what will gain them marks; however it is important that candidates do not have access to these during the reporting phase, since they contain model answers.

The choice of topic for the Assignment needs careful consideration. It must relate to the National 5 Environmental Science Course and allow the candidate to demonstrate a good knowledge of Environmental Science relevant to the Course and to their investigation. A title should be given to the report.

The topic must allow the candidate to state an aim and an application, and to explain the effect of that application. Where a candidate chooses to give multiple aims, these must all be addressed in the later parts of the report (eg data/information, conclusion).

In Section 3, the candidate must include a suitable reason for the relevance, reliability and/or perspectives of the chosen sources — it is not sufficient simply to say the source was relevant or the source was reliable. It is important that candidates understand the difference between relevance and reliability; some candidates confused the two with statements such as ‘my first source was reliable because it contained information about my chosen topic’.

Raw data/information must be included in the report and should be labelled as such. This should then be processed into a different format, following the guidelines given for the Assignment. For instance, a table can be processed into a graph, but a graph should not be processed into another graph. Data should be chosen carefully to ensure that accuracy can be achieved in the processed form. Over-complicated data often leads to inaccuracy.

Centres are reminded that data from a candidate’s experiment can be used as one of the sources in the report eg from Outcome 1.

A comparison is required between the two pieces of data. If they cannot be compared, a statement to that effect should be given along with an explanation of why that is the case.

Conclusions must be backed up by evidence in the report and must relate to the aim as stated. If multiple aims are given, the conclusion(s) must address all of them.

Centres are encouraged to have candidates spend time gathering information through research and then use the materials to produce the report in their own words. Candidates will not gain marks for information copied from research materials.

References given for data/information included in the report should be given in sufficient detail to allow them to be retrieved.

Statistical information: update on Courses

Number of resulted entries in 2014	67
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Number of resulted entries in 2015	122
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Statistical information: Performance of candidates

Distribution of Course awards including grade boundaries

Distribution of Course awards	%	Cum. %	Number of candidates	Lowest mark
Maximum Mark 100				
A	8.2%	8.2%	10	69
B	18.0%	26.2%	22	58
C	24.6%	50.8%	30	48
D	13.9%	64.8%	17	43
No award	35.2%	-	43	-

The intention for 2015 was to aim for notional grade boundaries. Q6(c)(i) and Q6(c)(ii) were intended to be straightforward marks but functioned as 'A' marks therefore a 2mark adjustment was made for these questions, owing to the lack of specificity in the mandatory course content. Q5(c) was intended to be accessible to A and upper A candidates, however a 1 mark adjustment was made to the A and upper A boundaries to account for lack of clarity in the wording of the question.