



Course Report 2015

Subject	Biology
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 and assessors 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.

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 with 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' type questions, resulted in some candidates losing marks.

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

There was evidence that some candidates had been taught knowledge above the level of National 5, but had not been able to apply this knowledge correctly — some of it was clearly beyond their comprehension.

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 that followed the candidate guidelines systematically performed 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

Section 1

Question

- 1 Most candidates could identify the process of diffusion.
- 2 Most candidates showed an understanding of the purposes of mitosis.
- 7 Most candidates showed an understanding of the term 'diploid'.
- 8 Most candidates could apply their understanding of the terms 'homozygous' and 'heterozygous' to the given situation.
- 10 Most candidates were able to identify the pathway of blood in the sequence given.
- 11 Most candidates could select the relationship shown in the graph.
- 12 Most candidates were able to interpret the information from the chart and identify the correct statement.
- 13 Most candidates showed an understanding of the term 'biome'.
- 14 Most candidates were able to process the information using the given formula.
- 15 Most candidates showed an understanding of interspecific competition.

Section 2

- 2(b) Most candidates could describe the difference between passive and active transport.
- 3(a) Most candidates could complete the complementary strand of DNA.
- 7(a)(ii) Most candidates were able to demonstrate their understanding of genotype and phenotype.
- 10(a) Most candidates could select the correct stages of the nitrogen cycle.
- 11(a)(ii); 11(b)(i) Most candidates could make accurate predictions from the data given.

- 12(a) Most candidates could calculate an average.
- 12(c) Most candidates were able to suggest an abiotic factor appropriate to this investigation.

Component 2: Assignment

Section

- 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.
- 8 Most candidates could write a clear and concise report with an appropriate structure and give at least two relevant sources of information/data which were recorded in an appropriate manner.

Section 4: Areas in which candidates found demanding

Component 1: Question paper

Section 1

Question

- 3 Some candidates found difficulty in selecting information from a compound graph.
- 9 Some candidates found difficulty in applying their knowledge of concentration and diffusion to the given situation.
- 17 Some candidates found difficulty in sequencing the stages in the process of evolution.
- 19 Some candidates found difficulty in calculating percentage increase.

Section 2

- 2(a)(i) Some candidates found difficulty in calculating and recording the percentage change in mass.
- 3(b)(ii) Some candidates found difficulty in giving a description of how the sequence of amino acids is determined. They did not refer to the sequence of the bases.
- 4(b) Some candidates found difficulty in describing the second stage of photosynthesis, with a number of them trying, incorrectly, to use information taught to them which is above the level required for National 5.

- 5(c) Some candidates found difficulty in *explaining* the reason behind different cells having different numbers of mitochondria.
- 6(a) Some candidates found difficulty in *describing* the way in which information is passed along a neuron.
- 7(a)(i) Some candidates found difficulty in giving an explanation appropriate to the given genetic situation, and many did not follow the instruction to use Jon as an example.
- 7(a)(iii) Some candidates found difficulty in expressing the outcome of the genetic cross in the way that the question asked. Often the answer was given as a ratio rather than a chance.
- 8(a)(ii) Some candidates found difficulty in selecting the correct information from the table with which to calculate the required prediction.
- 8(b) Some candidates found difficulty in expressing their ideas clearly and in describing the correct pathway of water through each of the structures involved.
- 11(a)(i) Some candidates found difficulty in describing the relationship, with many candidates getting cause and effect the wrong way around.
- 11(b)(ii) Some candidates found difficulty in coming to the correct conclusion, partly due to them not reading the question carefully enough.
- 11(c) Some candidates found difficulty in explaining what an indicator species is. Often the detail of their presence/absence was missing.
- 12(c) Some candidates found difficulty in expressing the reason for the results not being reliable. This was sometimes due to them giving a very generic answer and not relating their answer to the particular situation given.
- 12(d) Many candidates found difficulty in expressing a full enough explanation about the controlling of variables in the given investigation.
- 13(a)(ii) Many candidates found difficulty in explaining the need for the control group in this investigation. Many of them did not pick up on the idea of needing to explain why they were necessary and simply stated it was for comparison.
- 13(c) Many candidates found difficulty in explaining the importance of new alleles arising in a species.

Component 2: Assignment

Section

- 5(a) Some candidates found difficulty in processing their raw data accurately. This was sometimes due to the selection over-complex data.
- 5(d) Some candidates found difficulty in making a suitable comparison between their chosen pieces of data/information, or failing 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 which was related to their stated aim and supported by evidence.

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.

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 a 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, depending on the style of the question, this may lead to candidates missing out parts, as was the case in some instances with responses to Question 3(a).

Candidates must understand the difference between 'describe' (state what is happening) and 'explain' (give a reason for what happens) to gain marks at 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 practise 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 which are new to them.

Candidates should be encouraged to review answers to their calculations to see if their answer is feasible or not. Many candidates gave answers to Question 6(c) that were unrealistic.

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, and the full axes label(s) must be copied exactly as given.

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.

The choice of topic for the Assignment needs careful consideration. It must relate to the National 5 Biology course and allow the candidate to be able to demonstrate a good

knowledge of Biology relevant to the course and 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.

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, eg 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 in the report ie 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 then 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 write up 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	16146
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Number of resulted entries in 2015	21635
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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	24.0%	24.0%	5189	66
B	22.3%	46.3%	4831	55
C	24.4%	70.7%	5278	44
D	11.6%	82.3%	2511	38
No award	17.7%	-	3826	-

For this Course, the intention was to set an assessment with grade boundaries at the notional values of 50% for a Grade C and 70% for a Grade A. Overall the course assessment proved to be more difficult than intended. This affected all candidates; the impact was not as large on Grade A candidates therefore the grade boundaries were decreased by 4 marks for Upper A and Grade A (1 mark for the Assignment; 3 marks for the Question Paper) and decreased by 6 marks for Grade C (1 mark for the Assignment; 5 marks for the Question Paper) to reflect this.