Course Report 2014

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 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 was fair and the course coverage was well spread throughout the three Units. There was a good balance of questions designed to boost confidence as well as those which were more challenging.

There was evidence that most candidates had made a good attempt at all questions; the number of unanswered questions was fairly low.

Component 2: Assignment

It was evident that some centres had prepared their candidates for this component more thoroughly than others.

Some areas of the assignment proved very challenging, and this was taken into account when setting the grade boundaries.

Some candidates chose topics that did not allow them to describe an application of biology related to their topic and therefore forfeited the mark in that area.

Section 2: Comments on candidate performance

Component 1: Question paper

Many candidates had clearly spent time revising and learning the course content.

Markers commented that while overall performance of candidates was reasonably good, many candidates failed to gain the marks when extended answers were required.

Performance in questions that required descriptions or explanations was lower than those requiring recall.

Some candidates did not read the question carefully enough and as a result, did not express a relevant answer.

Some candidates were poorly prepared to answer questions in some areas of the course eg Question 9(b) – polygenic inheritance.

Component 2: Assignment

Candidates who followed the candidate guidance and worked through it systematically performed well in this component.

There were many submissions that were ‘essay style’ in nature. These did not score well because essential components of the assignment were missing.

Many candidates failed to gain marks in section 5 due to the omission of raw data.

Section 3: Areas in which candidates performed well

Component 1: Question paper

Section 1

Question 1:	Most candidates knew the differences between plant and animal cells.
Question 3:	Most candidates were able to identify a plasmid.
Question 4:	Most candidates could identify how light energy is captured for photosynthesis.
Question 7:	Most candidates could identify types of neurons and the direction of impulses.
Question 10:	Most candidates could sequence the stages of mitosis.
Question 11:	Most candidates were able to identify the process of fertilisation.
Question 16:	Most candidates could give the reason for energy loss in a pyramid of numbers.
Question 19:	Most candidates were able to recognise how to increase reliability of results when sampling with quadrats.

Section 2

Question 2a:	Most candidates could identify the process of osmosis.
Question 6(a):	Most candidates could sequence cell size.
Question 6(b):	Most candidates could describe the function and related specialisation of a chosen cell.
Question 7(c)(ii):	Most candidates could perform a simple calculation and relate it to a table of data.
Question 9(a):	Most candidates could carry out a genetic cross, identifying genotypes and phenotype.
Question 10(a)(ii):	Most candidates could calculate a factor.
Question 11(b) (ii):	Most candidates could construct a pie chart.

Component 2: Assignment

Section 1:	Most candidates were able to devise an appropriate aim.
Section 2:	Many candidates could explain the effect on the environment/society.
Section 4:	Most candidates could select information from sources.
Section 8:	Most candidates could structure their report.

Section 4: Areas which candidates found demanding

Component 1: Question paper

Section 1

Question 6: Some candidates found difficulty in identifying a protein and its function.

Question 9: Some candidates found difficulty in calculating data from a table.

Question 17: Some candidates found difficulty in identifying the incidence of competition.

Section 2

Question 2(b): Some candidates found difficulty in explaining the process of osmosis in relation to the given investigation. They often just gave a definition of osmosis.

Question 2(c): Some candidates found difficulty in calculating the average rate of movement.

Question 2(d): Some candidates found difficulty in identifying a specific change to the investigation as opposed to a general comment on it.

Question 3(a)(iii): Some candidates found difficulty in relating their response to the specific investigation given.

Question 4: Some candidates found difficulty in explaining how both the structure and number of villi make absorption efficient in the small intestine, with some candidates giving information about other parts of the body.

Question 5(b): Some candidates found difficulty in explaining why high temperature prevents photosynthesis reactions taking place. Many candidates did not relate enzymes to the reactions.

Question 7(b)(ii): Some candidates found difficulty in completing the equation for the high energy compound ATP. Some candidates attempted to balance the equation (which was not required) incorrectly.

Question 7(c)(i): Some candidates found difficulty in interpreting the data from the table; some candidates did not read the question / data correctly.

Question 8(b): Some candidates found difficulty in describing features of hormones.

Question 9(b)(i): Some candidates found difficulty in explaining what is meant by polygenic inheritance.

Question 9(b)(ii): Some candidates found difficulty in stating which type of inheritance is shown by polygenic inheritance.

Question 10(a)(i): Some candidates found difficulty in describing the relationship between two factors, with many candidates failing to identify the point at which a change occurs.

Question 12(a): Some candidates found difficulty in describing how a new species is formed.

Question 12(c): Some candidates found difficulty in explaining why variation is important for the survival of a population.

Component 2: Assignment

Section 2: Many candidates had difficulty in describing an application of biology related to their chosen topic.

Section 5: Many candidates had difficulty in processing and presenting data / information, with many of them omitting their raw data.

Section 6: Many candidates had difficulty in drawing a valid conclusion that related to their aim and was supported by their evidence.

Section 5: Advice to centres for preparation of future candidates

Component 1: Question paper

Candidates need to read questions more carefully to ensure that their responses relate to what is being asked. It may help candidates to focus if they underline important words in the question.

Candidates need to understand the difference between ‘describe’ (state what happens) and ‘explain’ (give a reason for what happens) to gain marks in these types of questions.

When questions refer to a particular investigation given in the question paper, candidates should make sure that their response relates to these circumstances.

Candidates should be given opportunities to practise all of the skills that are externally assessed in the question paper and the Assignment. These can be found in the Course Assessment Specification on SQA’s website: http://www.sqa.org.uk/files_ccc/CfE_CourseAssessSpec_N5_Sciences_Biology.pdf

The use of a ruler should be encouraged when completing all types of graphs and charts to ensure accuracy. The scale on each axis must have a number in the origin, although a

common zero is acceptable where appropriate. The scale should have a number equal to or above the highest plot, and at least one other number in between. Scale breaks are not acceptable. Graphs must use at least 50% of the axes, and the full axes label(s) must be copied exactly from the table.

In the case of bar charts, bar tops should be clearly shown, and candidates are encouraged to keep the bars of similar width, although there is no penalty for variance as long as they are not single lines.

Lines for pie charts must all originate from a central point and connect with the 'tick' marks on the perimeter.

When line graphs are required, the plot for each point should be clearly indicated, and there should be no 'extensions' above or below the first and last points. A straight line should go through the centre of each plotted point.

Centres are encouraged to make sure that they are delivering from the most up-to-date SQA materials for the subject by regularly checking the SQA website for National 5 Biology.

Component 2: Assignment

Centres are advised to ensure that they are following the guidelines issued for the Assignment and to make available the Candidate's Guide for their candidates. These documents are available on SQA's secure website. Teachers/lecturers can access these confidential documents through their SQA Co-ordinator.

Topics for investigation should be chosen carefully to ensure that they relate to the National 5 Biology course, and that there is an application of biology involved. An application of biology must be a deliberate act of humans in which biology is used to effect change in the world or the environment. Suitable data needs to be retrievable also, from available sources.

When referring to relevance, reliability and/or perspectives of sources, candidates must give the reason for these — ie it is insufficient to state that data from a particular source is relevant without giving the reason why.

Relevant raw data/information (and its source) must be included as well as the processed data produced by the candidate.

Candidates must choose appropriate formats in which to present their data. Care should be taken over the accuracy of scales and labels for graphs, and units must be given where appropriate. Different formats should be used for each of the two pieces of processed data.

A comparison should be made between the pieces of data, or a statement should be made explaining why they cannot be compared.

Conclusions must relate to the aim and be supported by relevant data/information given in the report.

Centres should encourage candidates to carry out their research and then use the materials they have gathered to write the assignment report *in their own words.* Information should not be copied from research materials.

References given for the data/information included should be in sufficient detail to allow them to be retrieved by a third party. References of websites must be a complete URL address.

Statistical information: update on Courses

Number of resulted entries in 2013	0

Number of resulted entries in 2014	16146

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	23.4%	23.4%	3777	67
B	19.8%	43.2%	3196	57
C	22.4%	65.6%	3611	47
D	10.8%	76.4%	1748	42
No award	23.6%	-	3814	-