Course report 2025

National 5 Biology

This report provides information on candidates' performance. Teachers, lecturers and assessors may find it useful when preparing candidates for future assessment. The report is intended to be constructive and informative, and to promote better understanding. You should read the report with the published assessment documents and marking instructions.

We compiled the statistics in this report before we completed the 2025 appeals process.

Grade boundary and statistical information

Statistical information: update on courses

Number of resulted entries in 2024: 22,346

Number of resulted entries in 2025: 22,092

Statistical information: performance of candidates

Distribution of course awards including minimum mark to achieve each grade

Course award	Number of candidates	Percentage	Cumulative percentage	Minimum mark required
A	6,352	28.8	28.8	86
B	4,010	18.2	46.9	74
C	4,143	18.8	65.7	62
D	3,914	17.7	83.4	50
No award	3,673	16.6	100%	Not applicable

We have not applied rounding to these statistics.

You can read the general commentary on grade boundaries in the appendix.

In this report:

- ‘most’ means greater than or equal to 70%
- ‘many’ means 50% to 69%
- ‘some’ means 25% to 49%
- ‘a few’ means less than 25%

You can find statistical reports on the statistics and information page of our website.

Section 1: comments on the assessment

Question paper

Overall, the question paper performed as intended. We took this into account when setting grade boundaries.

Markers commented that the question paper was fair and balanced. It provided a spread of marks across the course and gave candidates the opportunity to display a range of skills and demonstrate and apply their knowledge and understanding.

Assignment

The assignment performed as expected.

Section 2: comments on candidate performance

Areas that candidates performed well in

Most candidates made a good attempt at answering most of the questions; however, the number of unanswered questions was similar to previous years.

Markers noted an improvement in basic numerical skills this year.

Question paper

Section 1 (objective test)

Question 1 Most candidates correctly identified that typical plant cells do not contain a plasmid.

Question 3 Most candidates used the data to identify the correct percentages of bases in a section of DNA.

Question 5 Most candidates calculated the mass of leucine in a sample of haemoglobin.

Question 6 Most candidates used the data to calculate the percentage success rate.

Question 7 Most candidates demonstrated knowledge of the product of fermentation in animal cells.

Question 10 Most candidates identified the function of an inter neuron.

Question 13 Most candidates used the data to correctly identify the number of eggs produced by a common frog.

Question 17 Most candidates correctly identified how to improve the reliability of the results of an investigation.

Question 20 Most candidates identified conditions required in an investigation into photosynthesis.

Question 22 Most candidates identified the correct pyramid of numbers using the food chain.

Question 23 Most candidates used the data to identify the correct conclusion.

Question 24 Most candidates identified biological control when given an example.

Question 25 Most candidates calculated the percentage of moths using the data provided.

Section 2

Question 1(a)(ii) Most candidates named the carbohydrate that makes up a plant cell wall.

Question 1(b) Most candidates calculated a simple whole number ratio involving three parts.

Question 2(b) Many candidates named the structure that contains cell sap.

Question 3(a)(i) Most candidates identified the temperature where an enzyme was most active using data in the graph.

Question 3(a)(ii) Nearly all candidates used the graph to identify the optimum pH.

Question 4(b)(i) Most candidates calculated how many litres of blood were required to produce 1g of interferon.

Question 6(a) Most candidates demonstrated knowledge of the CNS.

Question 6(b)(i) Most candidates used the diagram to name the cerebrum.

Question 7(a) Most candidates named the site of sperm production.

Question 8(a)(i)	Many candidates stated the genotype of a child when given the parental genotypes.
Question 8(a)(iii)	Most candidates predicted the percentage chance of a child having a particular phenotype.
Question 8(b)	Many candidates demonstrated knowledge by stating the correct type of variation.
Question 9(b)	Most candidates identified which plant was used as a control in an investigation into transpiration.
Question 10(a)(i)	Nearly all candidates selected the correct patient using data from the table.
Question 11(a)	Most candidates used information from the passage to explain why a conclusion was unexpected.
Question 11(b)	Most candidates calculated the percentage correctly.
Question 11(d)	Most candidates produced a pie chart and labelled it correctly.
Question 12(a)	Nearly all candidates gave an example of a producer and a predator from the food web.
Question 12(c)	Most candidates demonstrated knowledge by correctly stating the term ‘niche’.
Question 12(d)	Most candidates used information from the table to complete the paired statement key.
Question 13(a)	Most candidates calculated the average time taken correctly.
Question 13(b)	Many candidates named the gas produced in the first stage of photosynthesis that diffuses out of leaf cells.
Question 14(a)(i)	Most candidates named a pitfall trap.

Assignment

Candidate performance in the assignment continues to improve.

It was evident from the structure of the assignments that candidates continue to benefit from Understanding Standards materials and the resources available on the National 5 Biology subject page, including the 'Instructions for candidates' section of the coursework assessment task.

Section 1 Most candidates stated an appropriate aim.

Section 3(a) Many candidates gave a brief description of the approach used to collect their data.

Section 3(b) Nearly all candidates included sufficient raw data (number and range of values) appropriate to their aim.

Section 3(e) Most candidates included data/information that was relevant to their aim.

Section 3(f) Nearly all candidates referenced their internet/literature source.

Section 4(a) Nearly all candidates selected the correct format for their graphical presentation.

Section 4(b) Most candidates provided suitable scales for their graph.

Section 4(c) Most candidates provided suitable labels and units for the axes of their graph.

Section 8(a) Most candidates provided an informative title for their assignment.

Section 8(b) Nearly all candidates wrote a clear and concise report.

Areas that candidates found demanding

Question paper

Some candidates could improve their knowledge of basic biology and definitions as detailed in the National 5 Biology Course Specification, which is available on the subject page of our website.

Markers highlighted literacy skills and knowledge of experimental set-up as areas for improvement. From their responses, it was evident that some candidates' exposure to practical work is limited.

Section 1 (objective test)

Question 2	Most candidates did not identify which potato cylinder would gain the most mass when placed in different concentrations of sucrose solution.
Question 9	Many candidates did not identify the stage of mitosis that occurs before the cytoplasm divides.
Question 12	Many candidates did not correctly predict the number of people if the average yearly increase continued.
Question 14	Many candidates did not calculate the average monthly increase using data from the graph.
Question 15	Many candidates did not identify the number of offspring with short coats in a genetic cross.
Question 18	Many candidates did not calculate the percentage increase using data from the graph.

Section 2

Question 1(a)(i)	Most candidates did not demonstrate knowledge of the ultrastructure of typical bacterial cells.
Question 1(c)	Most candidates did not explain why a muscle cell contains a large number of mitochondria.
Question 2(a)(i)	Many candidates did not give the reason for potassium moving from the seaweed and gave a generic definition of diffusion instead.
Question 2(a)(ii)	Many candidates did not name active transport.
Question 3(a)(iii)	Many candidates did not predict what would happen to the enzyme activity and referred to denaturing instead.
Question 3(a)(iv)	Nearly all candidates did not describe how the investigation would be changed. Many candidates mentioned repeating the experiment.
Question 3(b)	Most candidates did not explain why invertase would not speed up the reaction.
Question 4(a)(i)	Most candidates did not demonstrate knowledge of a gene.
Question 4(a)(ii)	Many candidates did not describe a use of enzymes in genetic engineering.
Question 4(c)	Many candidates did not demonstrate knowledge of proteins produced by the immune system.
Question 5	Many candidates stated that glucose was broken down into pyruvate but did not describe the events that followed.
Question 6(b)(ii)	Many candidates did not give the function of the medulla and gave the name instead.

Question 6(c)	Most candidates did not demonstrate knowledge of receptors in the nervous system.
Question 7(c)	Many candidates did not name mitosis as the process following fertilisation.
Question 8(a)(ii)	Many candidates stated the genotype as homozygous but did not explain the reason correctly by using the term ‘gene’ instead of ‘allele’.
Question 9(c)	Most candidates did not suggest why it was necessary to cover the plant pots with a polythene bag in an investigation into transpiration.
Question 9(d)(i)	Most candidates did not explain why the results were calculated as a percentage change.
Question 9(d)(ii)	Most candidates did not give a conclusion for the investigation. Most candidates simply restated the results.
Question 10(b)	Many candidates gave a description of a specialisation of a red blood cell; however, they did not explain the advantage of this.
Question 10(c)	Many candidates did not compare the structure of arteries and veins and often described the functions instead.
Question 11(c)	Nearly all candidates did not suggest a reason why the study was not valid. Many candidates described reliability instead.
Question 14(a)(ii)	Many candidates did not identify variables that should be kept constant when setting up an investigation using pitfall traps.
Question 15(b)	Nearly all candidates did not calculate the energy the plant plankton received.
Question 16(a)	Many candidates did not suggest what scientists could do to prove the two wrens were not different species.

Question 16(b) Many candidates did not rearrange the statements in the sequence of events of speciation.

Question 16(c) Most candidates did not explain how natural selection occurs.

Assignment

Section 3: data collection and handling

Some candidates did not present data in a correctly produced table. Some candidates did not give correct headings and units, particularly in the average column.

Section 5: analysis

Many candidates did not give a valid comparison in their analysis of the data they had gathered with data/information from the internet/literature. They did not fully comment on similarities between the two sets of data, and often ignored differences, especially when the researched data did not completely support their experimental data. Often, their statements just restated the results and did not compare the data.

Section 6: conclusion

Many candidates did not draw a valid conclusion that related to the aim **and** was supported by all the data/information in the report. Often, their statement restated the results of their own experiment and was not supported by other data in the report.

Section 7: evaluation

Many candidates did not produce an appropriate evaluation. Some candidates correctly identified a factor that would affect the results but did not go on to describe what was done or what could have been done to minimise that effect.

Some candidates did not gain marks due to the incorrect use of terms ‘valid’, ‘reliable’ and ‘accurate’. It is not essential to use these terms in the evaluation.

Section 3: preparing candidates for future assessment

The National 5 Biology Course Specification explains the overall structure of the course, including its purpose and aims, as well as information on the skills, knowledge and understanding candidates require. Course support notes are an appendix to the document.

The question paper can assess key areas and depth of knowledge. Teachers and lecturers must ensure that they are using the most up-to-date versions of the documents available on the National 5 Biology subject page.

Question paper

Candidates should have a strong grasp of the course's mandatory knowledge and understanding. Teachers and lecturers should integrate revision activities throughout the course to help candidates reinforce terminology and key definitions.

Candidates must be able to apply what they know to demonstrate deeper comprehension. This skill can prove challenging, and many candidates struggle with questions that require application in unfamiliar contexts. Therefore, teachers and lecturers should ensure candidates have regular opportunities to practise answering these questions.

Teachers and lecturers should encourage candidates to take time to read all parts of each question, not just the introduction, with care and attention so they do not miss important information. Candidates often incorrectly interpret what they must do and give responses that are not appropriate to the question asked.

Practising with SQA past papers is a valuable revision exercise. However, candidates frequently provide responses that lack specificity when faced with unfamiliar question settings, for example, reliability and validity. Teachers and lecturers should remind candidates that definitions of these terms are included in the course specification and are assessable.

Teachers and lecturers should practise ‘describe’ and ‘explain’ questions with candidates. The general marking principles in the marking instructions contain information on valid responses to command words.

Candidates should review their answers to calculations to make sure they are feasible.

Teachers and lecturers should incorporate practical work into the course, where possible, to reinforce learning and provide opportunities for data analysis and evaluation.

Teachers and lecturers should remind candidates that the table of apparatus and techniques included in the course specification is an assessable part of the course.

Teachers and lecturers should advise candidates not to write in pencil, as markers can find responses in pencil more difficult to read.

Candidates must complete the answer grid for their responses to the multiple-choice questions. Teachers and lecturers should prepare candidates by providing assessment opportunities that mirror the final exam.

Assignment

Assignment topics should give candidates the best chance of accessing full marks. While many candidates conduct successful experiments, they often do not demonstrate their understanding of key biological concepts or a grasp of the fundamentals of their investigation. This is especially clear where candidates use indirect methods to measure dependent variables.

Teachers and lecturers should offer candidates a range of suitable experimental topics. This enhances practical experience and allows candidates to choose a topic they understand.

Teachers and lecturers should make sure that candidates understand that they should give their report an appropriate title that reflects its content and does not simply repeat the aim. Before candidates begin, teachers and lecturers must discuss

and approve the feasibility of each candidate's aim. Teachers and lecturers cannot help candidates with wording but can confirm that the investigation is practical. Teachers and lecturers should discourage candidates from having multiple aims, as this makes conclusions more challenging.

Active participation in experimental work or fieldwork is mandatory and must allow candidates to gather usable data for their report. Teachers, lecturers, and candidates must strictly follow the assessment conditions in the coursework assessment task.

Candidates should be able to average their results. Some candidates miss out on marks due to incorrect rounding. When rounding is necessary for graphing, candidates must round accurately and consistently.

Teachers and lecturers should explain the proper use of a common zero, which candidates frequently misapply in bar graphs. Candidates should be able to produce a scale that is linear. Teachers and lecturers should remind candidates to use a ruler when drawing graphs.

Section 5 (analysis) and section 6 (conclusion) can be challenging for candidates. Course-based practical work supports the development of evaluation skills. Candidates must ensure their analysis includes discussing patterns, trends, and differences rather than simply restating results. They should know that they must link their conclusions to their aim and support their conclusions with the evidence in their report.

Teachers and lecturers should make sure that candidates understand that, although there is no word count, they only have 1 hour and 30 minutes to complete the report under strict supervision. They can do this in a single session or across several sessions, with their work stored securely between sessions. Teachers and lecturers cannot mark the report or give candidates feedback. Candidates must not redraft their reports.

Candidates are not allowed to use pre-prepared tables or altered candidate instructions. Each candidate must independently create their own data tables, without using templates.

We remain committed to ensuring fairness and consistency in all qualifications and we investigate any reports of non-compliance with assessment conditions.

Appendix: general commentary on grade boundaries

Our main aim when setting grade boundaries is to be fair to candidates across all subjects and levels and to maintain comparable standards across the years, even as arrangements evolve and change.

For most National Courses, we aim to set examinations and other external assessments and create marking instructions that allow:

- a competent candidate to score a minimum of 50% of the available marks (the notional grade C boundary)
- a well-prepared, very competent candidate to score at least 70% of the available marks (the notional grade A boundary)

It is very challenging to get the standard on target every year, in every subject, at every level. Therefore, we hold a grade boundary meeting for each course to bring together all the information available (statistical and qualitative) and to make final decisions on grade boundaries based on this information. Members of our Executive Management Team normally chair these meetings.

Principal assessors utilise their subject expertise to evaluate the performance of the assessment and propose suitable grade boundaries based on the full range of evidence. We can adjust the grade boundaries as a result of the discussion at these meetings. This allows the pass rate to be unaffected in circumstances where there is evidence that the question paper or other assessment has been more, or less, difficult than usual.

- The grade boundaries can be adjusted downwards if there is evidence that the question paper or other assessment has been more difficult than usual.
- The grade boundaries can be adjusted upwards if there is evidence that the question paper or other assessment has been less difficult than usual.
- Where levels of difficulty are comparable to previous years, similar grade boundaries are maintained.

Every year, we evaluate the performance of our assessments in a fair way, while ensuring standards are maintained so that our qualifications remain credible. To do this, we measure evidence of candidates' knowledge and skills against the national standard.

For full details of the approach, please refer to the Awarding and Grading for National Courses Policy.