



National
Qualifications

Biology

Assignment

General assessment information

This pack contains general assessment information for centres preparing candidates for the assignment Component of National 5 Biology Course assessment.

It must be read in conjunction with the specific assessment task for this Component of Course assessment, which may only be downloaded from SQA's designated secure website by authorised personnel.

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Contents

Introduction	1
What this assessment covers	2
Assessment	3
Marking Instructions	7

Introduction

This is the general assessment information for National 5 Biology assignment.

This assignment is worth 20 marks out of the total of 100 marks available for this Course. The marks contribute 20% of the overall marks for the Course assessment.

This is one of two Components of Course assessment. The other Component is a question paper.

Marks for all Course Components are added up to give a total Course assessment mark which is then used as the basis for grading decisions. The Course will be graded A-D.

The assessment task will be set and externally marked by SQA and conducted in centres under the conditions specified by SQA.

This document describes the general requirements for the assessment of the assignment Component for this Course. It gives general information and instructions for assessors.

It must be read in conjunction with the assessment task for this Component of Course assessment.

Equality and inclusion

This Course assessment has been designed to ensure that there are no unnecessary barriers to assessment. Assessments have been designed to promote equal opportunities while maintaining the integrity of the qualification.

For guidance on assessment arrangements for disabled candidates and/or those with additional support needs, please follow the link to the Assessment Arrangements web page: www.sqa.org.uk/sqa/14977.html

Guidance on inclusive approaches to delivery and assessment in this Course is provided in the *Course Support Notes*.

What this assessment covers

This assessment contributes 20% of the total marks for the Course.

The assessment will assess the skills, knowledge and understanding specified for the assignment in the *Course Assessment Specification*. These are:

- ◆ applying knowledge of biology to new situations and interpreting information
- ◆ selecting and presenting information appropriately in a variety of forms
- ◆ processing the information/data collected (using calculations and units, where appropriate)
- ◆ drawing valid conclusions and giving explanations supported by evidence/justification
- ◆ communicating findings/information

Assessment

Purpose

The purpose of this assessment is to generate evidence for the added value of this Course by means of an assignment.

Assessment overview

Assessment should take place when the candidates are ready to be assessed.

This assignment requires candidates to apply skills, knowledge and understanding to investigate a relevant topic in biology and its effect on the environment and/or society. The effect may be positive and/or negative. The topic should draw on one or more of the key areas of the Course, and should be chosen with guidance from the assessor.

The assignment offers challenge by requiring skills, knowledge and understanding to be applied in a context that is one or more of the following:

- ◆ unfamiliar
- ◆ familiar but investigated in greater depth
- ◆ integrates a number of familiar contexts

This assignment has two stages:

- ◆ a research stage
- ◆ a communication stage

The **research** stage involves gathering information/data from the internet, books, newspapers, journals, experiment/practical activity or any other appropriate source. Candidates must select, use and record at least two referenced sources. An appropriate experiment/practical activity may be used as one of the data sources. Any practical work undertaken will not be assessed.

Groupwork approaches are acceptable as part of the **research** stage when gathering information/data or undertaking an experiment/practical activity, but assessors must ensure that candidates are able individually to meet the evidence requirements of this assessment.

In the course of their assignment, candidates are required to:

- ◆ choose, with support, a relevant topic in biology that has an effect on the environment and/or society
- ◆ devise an appropriate aim
- ◆ describe the relevant application(s) of biology and explain the effect on the environment/society

- ◆ research the topic by selecting, processing and presenting relevant data/information
- ◆ draw a conclusion
- ◆ describe underpinning biology knowledge and understanding and explain its relevance to the topic researched
- ◆ communicate the findings of the research in a report

Further information on suggested investigations can be found in the National 5 Biology *Course and Unit Support Notes*. None of these suggested investigations are mandatory. A resource pack for one possible context for this assignment is also included in the *Course and Unit Support Notes*. Assessors and candidates should choose relevant topical contexts appropriate to the learning and teaching.

Assessment conditions

Assessors must exercise their professional responsibility in ensuring that evidence submitted by a candidate is the candidate's own work.

Candidates should start the assignment at an appropriate point in the Course. This will normally be when they have started work on the Units in the Course and have sufficient knowledge and skills to undertake the assignment. It is recommended that no more than eight hours is spent on the whole assignment.

This assignment has two stages:

- ◆ a research stage
- ◆ a communication stage

Candidates may produce their report over a period of time. If the report is done over a number of sessions, then the assessor must retain the candidate's work between sessions. Following completion of the report there should be no re-drafting.

As a guide, evidence which meets the requirements of this Component of Course assessment should be 500-800 words, excluding tables, charts and diagrams. There is no penalty for being outwith this range.

Candidates may access any appropriate resources during the **research** stage of this assignment.

When the assignment includes an experiment/practical activity, the assessor should supply instructions for the experimental procedures.

During the **communication** stage of this assignment, candidates should have access to the following resources:

- ◆ Material collected by the candidate during the **research** stage. This may include, for example, statistical, graphical, numerical or experimental

data; data/information from the internet; published articles or extracts; notes taken from a visit or talk; notes taken from a written or audio-visual source.

The assessor should check that the material used by the candidate in this communication stage conforms to the criteria above. It must not include a prepared report.

The requirements of the assignment should be made clear to candidates at the outset.

Reasonable assistance may be provided prior to the formal assessment process taking place. Reasonable assistance may be given on a generic basis to a class or group of candidates. The term 'reasonable assistance' is used to try to balance the need for support with the need to avoid giving too much assistance. If any candidates require more than what is deemed to be 'reasonable assistance', they may not be ready for assessment or it may be that they have been entered for the wrong level of qualification.

In the **research** stage, reasonable assistance may include:

- ◆ directing candidates to the Instructions for Candidates
- ◆ clarifying instructions/requirements of the task
- ◆ advising candidates on the choice of the topic or issue

In the **communication** stage, reasonable assistance may include:

- ◆ directing candidates to the Instructions for Candidates
- ◆ clarifying instructions/requirements of the task

At any stage, reasonable assistance does **not** include:

- ◆ providing model answers
- ◆ providing feedback on drafts

The **research** stage will be conducted under some supervision and control. This means that although candidates may carry out some research outwith the learning and teaching setting, assessors should put in place processes for monitoring progress and ensuring that the work is the candidate's own and that plagiarism has not taken place.

Assessors should put in place mechanisms to authenticate that the research is the candidate's own work. For example:

- ◆ regular checkpoint/progress meetings with candidates
- ◆ short spot-check personal interviews
- ◆ checklists which record activity/progress
- ◆ photographs, film or audio evidence
- ◆ checking candidate lab books/blogs

Groupwork approaches are acceptable as part of the **research** stage. However, there must be clear evidence for each candidate to show that the candidate has met the evidence requirements.

The **communication** stage will be conducted under a high degree of supervision. This means that:

- ◆ candidates must be in direct sight of the assessor (or other responsible person) during the period of the assessment
- ◆ candidates must not discuss their work with each other

Evidence to be gathered

The following candidate evidence is required for this assessment:

- ◆ a report

The report will be submitted to SQA, within a given timeframe, for marking. The same report cannot be submitted for more than one subject.

Marking Instructions

General marking principles for National 5 Biology assignment

This information is provided to help you understand the general principles you must apply when marking candidate responses in this assignment. These principles must be read in conjunction with the detailed Marking Instructions, which identify the key features required in candidate responses.

- ◆ Marks for each candidate response must always be assigned in line with these general marking principles and the detailed Marking Instructions for this assessment.
- ◆ Marking should always be positive. This means that, for each candidate response, marks are accumulated for the demonstration of relevant skills, knowledge and understanding: they are not deducted from a maximum on the basis of errors or omissions.
- ◆ Principal Assessors will provide guidance on marking specific candidate responses which are not covered by either the principles or detailed Marking Instructions.

Total marks available	20
Skills	14
Knowledge and understanding	6

Detailed Marking Instructions

Read the whole report before assigning any marks. Credit should be given for appropriate information **wherever** it is given in the report.

	Skills, knowledge and understanding	Expected response	Max mark	Additional guidance	Notes to Markers
1	Devise an appropriate aim for an investigation	States an appropriate aim	1	The aim must describe clearly what is to be investigated.	<p>The word 'aim' does not need to be stated. An appropriate title could encompass the aim.</p> <p>Acceptable versions of an aim could be: 'the effect of using pesticides on honey bees' or 'to investigate the use of pesticides'.</p> <p>NOT: 'pesticides' alone or 'pesticides and honey bees' or 'to investigate honey bees'.</p>
2	Describe an application of biology and explain its effect on the environment/society	<p>Describes the application</p> <p>Explains the effect on the environment/society</p>	2	<p>1 mark for providing a statement of characteristics and/or features of the application.</p> <p>1 mark for making clear the relationship between the application and its effect on the environment/society.</p>	<p>Independent marks</p> <p>Must have an appropriate application to access first mark.</p> <p>Not enough just to state the application, eg 'pesticides are used by farmers' – must describe the application, eg 'pesticides are used to protect crops from insects'. (It's the 'why' or 'how it does it').</p> <p>There may not be a valid application but candidates can still access the mark for the effect on society/environment. 'Pesticide use means crops are not</p>

	Skills, knowledge and understanding	Expected response	Max mark	Additional guidance	Notes to Markers
					<p>damaged’ or ‘Pesticide use means more food is grown’ would gain the second mark only.</p> <p>Effect on environment/society can be positive or negative.</p>
3	Select relevant sources	Explains reasons for selection of sources	2	<p>2 marks for an explanation of the choice of sources on the basis of at least one of:</p> <ul style="list-style-type: none"> ◆ relevance ◆ reliability of sources ◆ similar/different perspectives 	<p>Two sources must be provided in the report to access these marks. One source only, even with explanation – 0 marks.</p> <p>The candidate must explain why they chose the source – for example, not just ‘source 1 is relevant’ or ‘source 2 is reliable’, must be ‘source 1 is relevant because...’</p> <p>If these words are used then they must be used appropriately. The terms relevant, reliable or perspective do not need to be stated, eg ‘I chose source 1 because it is from a scientific journal’ would be acceptable.</p> <p>Both explanations can be associated with the same source, eg ‘I chose source 1 because it is from a scientific journal and (it is relevant) because it was on the effect of pesticides on honey bees’.</p> <p>Allow the same explanation for both sources, eg both sources are reliable</p>

	Skills, knowledge and understanding	Expected response	Max mark	Additional guidance	Notes to Markers
					<p>because they are from a scientific journal. For sources identified at this stage, eg websites, books, journals, etc, to access these marks the candidate does not have to give details to allow retrieval of the source – eg source 1 is the NHS website with suitable explanation would be acceptable.</p> <p>Answers such as ‘the resource pack is reliable as it was given to me by my teacher’ are not acceptable. Answers such as ‘it is reliable as it was written by my biology teacher/biology teachers/published book’ are acceptable.</p> <p>If a candidate explains why the sources have similar/different perspectives it must be clear what aspect of the content of the sources is similar/different.</p> <p>Not acceptable – ‘I chose these two sources because they provide similar information about crayfish.’</p> <p>Acceptable – ‘I chose these two sources because they provide similar information about the impact of crayfish on biodiversity.’</p>

	Skills, knowledge and understanding	Expected response	Max mark	Additional guidance	Notes to Markers																		
					<table border="1"> <thead> <tr> <th>Number of sources</th> <th>Number of valid explanations</th> <th>Number of marks</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>2 (different for each source)</td> <td>2</td> </tr> <tr> <td>2</td> <td>2 (same for each source)</td> <td>2</td> </tr> <tr> <td>2</td> <td>2 (different for 1 source)</td> <td>2</td> </tr> <tr> <td>2</td> <td>1</td> <td>1</td> </tr> <tr> <td>1</td> <td>0/1/2</td> <td>0</td> </tr> </tbody> </table>	Number of sources	Number of valid explanations	Number of marks	2	2 (different for each source)	2	2	2 (same for each source)	2	2	2 (different for 1 source)	2	2	1	1	1	0/1/2	0
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1	0/1/2	0																					
4	Select relevant information from sources	Selects relevant data/information for inclusion in the report	2	<p>2 marks for inclusion in the report of relevant data/information selected from two or more sources.</p> <p>This could include raw data from an experiment/practical activity, extracted tables, graphs, diagrams and text from two or more sources.</p>	<p>Data/information must be relevant.</p> <p>If no sources are identified <u>anywhere</u> in the report then these marks cannot be accessed.</p> <p>Candidates may include graphs without gridlines in the report but they will be unable to process these accurately.</p> <p>If raw data/information not included then 0 marks.</p> <p>Two pieces of relevant data/information from two sources (the sources can be identified anywhere in the report) – 2 marks.</p>																		

	Skills, knowledge and understanding	Expected response	Max mark	Additional guidance	Notes to Markers																		
				<p>1 mark for relevant data/information selected from only one source.</p>	<p>Two pieces of relevant data/information from only one source (only one source is identified throughout the whole report or candidate states both pieces of data come from one source) – 1 mark.</p> <p>One piece of data/information from one identified source – 1 mark.</p> <p>Two pieces of data/information but no sources identified (anywhere in the report) – 0 marks.</p> <table border="1"> <thead> <tr> <th>Data/info</th> <th>No of sources</th> <th>No of marks</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>2</td> <td>1</td> <td>1</td> </tr> <tr> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>2</td> <td>0</td> <td>0</td> </tr> <tr> <td>1</td> <td>0</td> <td>0</td> </tr> </tbody> </table>	Data/info	No of sources	No of marks	2	2	2	2	1	1	1	1	1	2	0	0	1	0	0
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2	2	2																					
2	1	1																					
1	1	1																					
2	0	0																					
1	0	0																					
5	Process and present data/information	Processes information from at least two sources by summarising, performing calculations or re-arranging in appropriate format	6	<p>2 marks for presenting processed data/information in appropriate formats from: summary, graph, table, chart or diagram (one must be graph, table, chart or diagram). In each case, sufficient detail should be</p>	<p>Source 1 1 mark for choosing an appropriate presentation format for the processed data/information.</p> <p>Source 2 1 mark for choosing an appropriate presentation format for the processed data/information.</p>																		

	Skills, knowledge and understanding	Expected response	Max mark	Additional guidance	Notes to Markers
		<p>The presentation of this processed data/information must include at least one from graph, table, chart or diagram, and be presented correctly with all appropriate labelling</p> <p>Compares data/information from at least two sources</p>		<p>included to convey the data/information.</p> <p>1 mark for presenting only one piece of processed data/information in an appropriate format (must be graph, table, chart or diagram).</p> <p>-----</p> <p>2 marks for processing raw data/information or extracted data/information from at least two sources.</p> <p>Processing can include, for example: performing calculations, plotting graphs from tables, populating tables from other sources, summarising referenced text (although the marks are awarded for processing, it must be clear where the raw or extracted data/information came from).</p>	<p>This does not need to be different from the format chosen for the other source.</p> <p>If the presentation format is a summary which contains numerical values extracted from a source, then these values must have correct units included where appropriate.</p> <p>For calculations: a suitable presentation format would be a clearly set-out example, showing the working.</p> <p>-----</p> <p>Source 1 and Source 2 1 mark for the accuracy of processing the raw data. Almost all (90%) of processing is correct, ie calculations, points plotted on line graphs, bar tops on bar graphs, segments in pie charts, values entered in tables etc.</p> <p>If no raw data was included from the sources then the marks for processing cannot be accessed.</p>

	Skills, knowledge and understanding	Expected response	Max mark	Additional guidance	Notes to Markers
				<p>1 mark for processing from only one source.</p> <p>-----</p>	<p>If the candidate has not used graph paper to draw a graph or chart the marker must be confident of the accuracy to award the processing marks.</p> <p>Graphs must have appropriate scale(s).</p> <p>Computer generated graphs should be marked in the same way as hand drawn graphs.</p> <p>If more than one format has been presented/processed for one of the sources then mark all and award the best mark for that source.</p> <p>If the candidate has presented/processed data/information from more than two sources, mark all and award marks for the best two.</p> <p>Graphs</p> <ul style="list-style-type: none"> ◆ The scale on any axis must have a number at the origin, a number equal to or above the highest plot and at least one other number in between. ◆ Each axis needs its own number at the origin. However if that number is zero

	Skills, knowledge and understanding	Expected response	Max mark	Additional guidance	Notes to Markers
					<p>for both scales a common zero is acceptable.</p> <ul style="list-style-type: none"> ◆ Scale breaks are not acceptable. ◆ Any graph must use at least 50% of the axis. ◆ The plot for a line graph must have no 'extensions' above or below the first and last points and a straight line should go through the centre of each plotted point. ◆ The bars of a bar graph must have clear tops, with straight lines (not just shading to give an approximation of the top). ◆ The bars of a bar graph can be of any/variable width, except for single lines which are not considered to be bars. ◆ Lines from a pie chart must originate from the centre. ◆ Segment lines from a pie chart should match up with the 'tick' marks given, ie no 'daylight' should be seen between them. <p>Tables</p> <ul style="list-style-type: none"> ◆ Every column in a table must have a clear heading. ◆ Units should be indicated in brackets below the column heading but accept units in the column as long as they are given after every entry.

	Skills, knowledge and understanding	Expected response	Max mark	Additional guidance	Notes to Markers
				<p>1 mark for complete labelling of the graphs, tables, charts or diagrams.</p> <p>1 mark for a comparison of data/information from at least two sources.</p>	<p>Labelling All appropriate units, headings, labels etc, for the two pieces of presented/processed data/information being assessed must be included.</p> <p>Minor spelling errors should not be penalised, eg 'feild' rather than 'field'.</p> <p>Abbreviations and change in context are not acceptable.</p> <p>An axis label/table heading that has been improved is acceptable eg units added or appropriate label/heading created where none was provided in raw data.</p> <p>The labelling mark would be applied for the two formats chosen to give the candidate the best mark.</p> <p>The comparison mark is independent of processing, presenting and labelling.</p> <p>The comparison must be between at least two pieces of raw/processed data from different sources stating that they agree/disagree and giving a description/explanation of this.</p>

	Skills, knowledge and understanding	Expected response	Max mark	Additional guidance	Notes to Markers
					<p>If the two sources cannot be compared then a statement must be given to that effect and the reason for this given.</p> <p>If no raw data included, then the mark for the comparison of data can still be awarded.</p>
6	Draw a valid conclusion	States a valid conclusion	1	1 mark for drawing a conclusion that relates to the aim and is supported by evidence from the candidate's research.	<p>Conclusion must relate to the aim. If no aim has been stated, the mark cannot be awarded.</p> <p>If the candidate states multiple aims then conclusion must relate to all aims given (unless the candidate stated that the aim was modified to narrow the focus).</p> <p>Although the conclusion may relate to the aim it must be supported by information in their report otherwise the conclusion mark cannot be accessed.</p> <p>If it is appropriate for the data this mark can be awarded if the candidate explains why the data does not allow a conclusion to be drawn.</p>
7	Apply knowledge and understanding of biology	Explains the underlying biology as it relates to the topic	3	Maximum of 3 marks for an explanation of the underlying biology.	Marks will be awarded for descriptions and explanations at National 5 level.

	Skills, knowledge and understanding	Expected response	Max mark	Additional guidance	Notes to Markers
				<p>The candidate must use biology terms/ideas at a depth appropriate to National 5 Biology.</p> <p>Marks should be awarded to candidates who demonstrate an understanding of the biology involved (this does not mean the answer has to be ‘excellent’ or ‘complete’).</p> <p>This means that the candidate provides a description or explanation of the biology involved:</p> <p>Three relevant points – 3 marks. Two relevant points – 2 marks. One relevant point – 1 mark.</p>	<p>If the underlying biology has been copied verbatim from a reference or website then the candidate is not demonstrating understanding and should be awarded 0 marks.</p> <p>Information which is quoted from references in this section and then explained or expanded upon by the candidate is acceptable.</p> <p>If any of the candidate’s explanation of the underlying biology has been given credit in any other section then that piece of information should not be considered when awarding marks for the underlying biology.</p> <p>Do not penalise if some of the biology given is incomplete or incorrect.</p>
8	Structure of the report	<ul style="list-style-type: none"> ◆ Report has an appropriate structure. ◆ At least two relevant sources of information/ data are recorded 	3	<p>Maximum of 3 marks for the structure of the report.</p> <p>1 mark for each of:</p> <ul style="list-style-type: none"> ◆ appropriate and informative title, and use of headings where necessary 	<p>The structure of the report does not need to follow the structure listed in the Marking Instructions or Candidates’ Guide.</p> <p>An appropriate title could encompass the aim.</p> <p>If one of the sources is an</p>

	Skills, knowledge and understanding	Expected response	Max mark	Additional guidance	Notes to Markers
		<p>appropriately.</p> <ul style="list-style-type: none"> ◆ Report is clear and concise. 		<ul style="list-style-type: none"> ◆ at least two references to the sources used in the report should be given in sufficient detail to allow them to be retrieved by a third party. There is no need to follow a formal referencing system. If one of the sources is an experiment/practical activity, then the title, aim and (raw data) should be recorded ◆ Report is clear and concise. 	<p>experiment/practical activity, then only the title and aim are required as raw data has been dealt with elsewhere.</p> <p>The candidate may have more than two sources, but only two of these sources must have sufficient detail to allow them to be retrieved by a third party.</p> <p>Sources may be identified anywhere in the report (ie any two, anywhere).</p> <p>References of websites must be a complete URL address. Wikipedia/www.bbc.co.uk etc is not acceptable.</p> <p>References of text books must include title, author, page number and either ISBN for version/edition number.</p> <p>References of journals must include title, author, volume and page number.</p> <p>At least two references must be given correctly to access this mark.</p>

Administrative information

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History of changes

Version	Description of change	Authorised by	Date
1.1	Marking Instructions revised with additional guidance to provide clarity.	Qualifications Manager	September 2014
1.2	Minor amendments to detailed Marking Instructions for clarification.	Qualifications Manager	September 2015
1.3	Minor amendments to detailed Marking Instructions for clarification.	Qualifications Manager	September 2016

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