

Higher Biology Family Learning

Higher Biology Assessments

Final Exam	Assignment
Worth 80% of final grade with a combination of knowledge and understanding and problem-solving questions. This is a single paper with two sections.	Worth 20% final grade. Pupils will complete an experiment in class and write a scientific report under exam conditions. Pupils will complete a practice assignment on a different Biology topic to prepare them for the official assignment. The official assignment is sent to the QS for marking, teachers are not allowed to mark the official assignments or give feedback to pupils during the official write up. Teachers can only give a limited amount of support.

Terminology

- The QS are very particular about the phrasing that is used in answers.
- Pupils should stick as closely as possible to the phrasing that is used in the course support notes.
- Unfortunately, even if the examiner sees that the pupil has an understanding of the topic, marks can only be awarded for particular phrases.

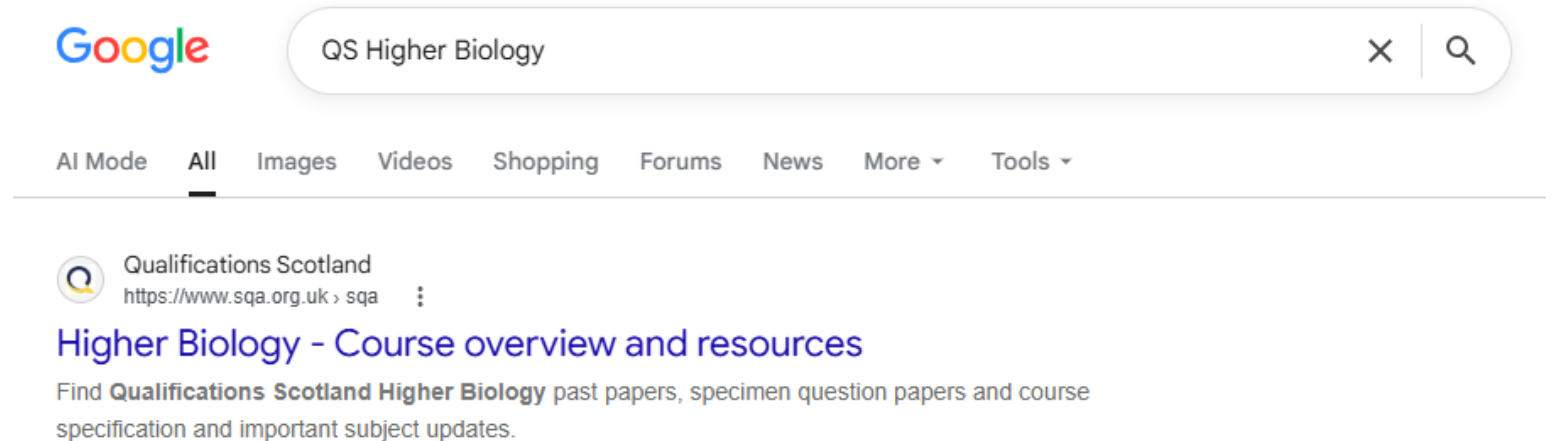
Course Support Notes

- Pupils have all been issued with a copy of the QS Course Support notes.
- The course support notes can be found in the course specification document on the QS website.

Course Support Notes

Google “QS Higher Biology”

You will find the top result should be “Higher Biology – Course Overview and Resources”



Select subject



Higher Biology

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Changes to the course assessment from session 2026-27 (03/06/26) +

Content may reference SQA but remains valid (02/02/26) +

Common Questions (16/01/25) +

Course Specification (03/06/2026) -

Explains the structure of the course, including its purpose and aims and information on the skills, knowledge and understanding that will be developed.

Session 2026-27 onwards

- [Higher Biology course specification](#)  June 2026

Session 2025-26

- [Higher Biology course specification](#)  August 2022

When you open the document, it will look like this.

You need to keep scrolling down until you find a table with three columns as shown on the next slide.

Higher Biology, SCQF Level 6 Course Specification

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Higher course specification



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Higher Biology, SCQF Level 6 Course Specification

Course code:	C807 76
Course assessment code:	X807 76
SCQF:	level 6 (24 SCQF credit points)
Valid from:	session 2026–27

This document provides detailed information about the course and course assessment to ensure consistent and transparent assessment year on year. It describes the structure of the course and the course assessment in terms of the skills, knowledge and understanding that are assessed

34

35

36

37

Note: the key areas **and** the depth of knowledge required **can be assessed in the question papers**.

DNA and the genome		
Key areas	Depth of knowledge required	Suggested learning activities
1 The structure of DNA (a) Structure of DNA — nucleotides (deoxyribose sugar, phosphate and base), sugar–phosphate backbone, base pairing (adenine–thymine and guanine–cytosine) by hydrogen bonds and double stranded antiparallel structure, with deoxyribose and phosphate at 3' and 5' ends of each strand respectively, forming a double helix.	The base sequence of DNA forms the genetic code.	Examine research that led to an understanding of the structure of DNA. Studies could include Chargaff's base ratios, X-ray crystallography of Wilkins and Franklin, and Watson and Crick's development of the double helix model. Compare DNA extraction from peas and kiwi fruit (possible false positive result in latter as DNA is obscured by pectin).
(b) Organisation of DNA — Prokaryotes have a single, circular chromosome and smaller circular plasmids. Eukaryotes all have linear chromosomes, in the nucleus, which are tightly coiled and packaged with associated proteins. They also contain circular chromosomes in their mitochondria and chloroplasts. Yeast is a special example of a eukaryote as it also has plasmids.	The associated proteins are called histones.	

Course Support Notes

- Pupils **must** know all information that is contained in the column on the left and also the middle column.
- The column on the right has suggested activities – ways that teachers can bulk out the course if they have time.
- The QS use this document to make their marking schemes – hence we tell pupils to stick to the phrasing in this document.

Task!

- There are past paper questions and sample answers!
- We would like you to try to identify which answers would be accepted and which would not – you can use the copy of the course support notes to help you!
- There may be more than one accepted answer! For two mark questions, the answer may gain 0, 1 or 2 marks.

Topics for Each Task

Task 1: Replication of DNA

Task 2: Cellular Differentiation

Task 3: Evolution

Task 4: Metabolic Rate

1. State one practical application of PCR

1 Mark	0 marks
Diagnose genetic disorders	Diagnose conditions
Diagnose genetic diseases	Diagnose diseases

Solving crimes/forensics

OR

(Settle) paternity/maternity suits

OR

Diagnose genetic disorder/genetic disease.

1

Not - diagnose disease.

Course Support Notes

Practical applications of PCR.

PCR can amplify DNA to help solve crimes, settle paternity suits, and diagnose genetic disorders.

2. Describe how unspecialised cells in the meristem differentiate into specialised cells

1 Mark	0 marks
Certain genes are expressed	Certain genes can be switched on and off
Certain genes are switched on	

Certain genes are expressed/ switched on. OR Genes characteristic of that cell type are expressed/switched on.	1	Not - certain genes can be switched on and off.
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Course Support Notes

4 Cellular differentiation

(a) Cellular differentiation is the process by which a cell expresses certain genes to produce proteins characteristic for that type of cell. This allows a cell to carry out specialised functions.

All the genes in embryonic stem cells can be switched on so these cells can differentiate into any type of cell.

3. Two sub-populations of squirrel are descendants of an original population that was divided when the Colorado River formed the Grand Canyon. Explain how the presence of the barrier could lead to the evolution of two new species of squirrel. (2 marks)

• It prevents gene flow/breeding between the groups/populations. (1) • Different mutations occur in each population. (1) • Natural selection occurs. (1) (Any 2)	2	Not - Prevents gene flow/interbreeding between the two species. Not - mutations occur in each population.
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Answer 1

- It prevents gene flow between two species. Mutations occur in each population and then natural selection occurs.
- 1 mark for saying natural selection occurs.
- The word species is incorrect – should be groups, populations or sub-populations.

Answer 2

- It prevents gene flow between the groups. Different mutations occur in each population.
- 2 marks awarded – 1 per sentence.

Answer 3.

- Different mutations occur in each population and then natural selection occurs.
- 2 marks awarded – 1 per sentence

Answer 4

- It prevents interbreeding between the two species. Different mutations occur in each population.
- 1 mark awarded for different mutations occur in each population.
- First sentence is wrong due to the word species.

Answer 5

- It prevents interbreeding between the two species and mutations occur in each population.
- 0 marks awarded.
- Use of the word species is wrong. They needed to say different mutations rather than mutations alone.

Higher Course Support Notes

Speciation is the generation of new biological species by evolution as a result of isolation, mutation and selection.

The importance of isolation barriers in preventing gene flow between sub-populations during speciation.

Geographical barriers lead to allopatric speciation and behavioural or ecological barriers lead to sympatric speciation.

National 5 Course Support Notes

Speciation occurs after part of a population becomes isolated by an isolation barrier, which can be geographical, ecological or behavioural. Different mutations occur in each sub-population. Natural selection selects for different mutations in each group, due to different selection pressures. Each sub-population evolves until they become so genetically different that they are two different species.

4. Describe the arrangement of the heart chambers in a bird.

1 Mark	0 marks
It has two atria and two ventricles	It is a complete double circulatory system with four chambers.
	It is an incomplete double circulatory system with two atria and two ventricles.

2 atria and 2 ventricles.

1

Not - 4 chambers alone

Mention of single or incomplete double circulatory system would negate otherwise correct answer.

Course Support Notes

Birds and mammals have a complete double circulatory system consisting of two atria and two ventricles. Amphibians and most reptiles have an incomplete double circulatory system consisting of two atria and one ventricle. Fish have a single circulatory system consisting of one atrium and one ventricle.

Achieve

- Achieve is an app found on the Glow launch pad which contains a wide range of revision materials for Higher Biology
- There are summary notes, questions and links to other revision websites to help your child revise for Biology and other subjects
- Your child can make an account using their Glow email to access the resources