Switching Guide International GCSE **Biology** (9201)

OXFORD AQA

Switching from Pearson Edexcel or Cambridge International to OxfordAQA International Qualifications

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Biology

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International GCSE

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Switching to OxfordAQA International GCSE Biology (9201)

OxfordAQA International GCSE Biology blends

the best of the AQA specification, which is the most popular specification in England, with concepts and approaches to learning which make it appropriate for international schools.

Teachers will find the specification an ideal vehicle to make International GCSE Biology enjoyable and provide the right level of challenge. It allows a freedom to teach biology in a variety of ways and incorporates key themes and concepts throughout. It is the perfect platform to study at A-level.

Key features:

- Papers are carefully designed to avoid cultural or linguistic bias.
- Practical components take into consideration local access to equipment and materials.
- Practical knowledge is assessed through the main exam papers and clearly sign posted throughout.
- Includes carefully balanced depth of content featuring topics with contemporary relevance such as Behaviourism.

The international exam board that puts fairness first



Topic by topic comparison

OxfordAQA specification (9201) v4.2	Pearson Edexcel specification (4BI1)	Cambridge International specification (0610)
Overall structure		
 Overall structure Split into six topics: Organisation Bioenergetics Ecology Organisms' interaction with the environment Inheritance Variation and evolution. There are five required practical activities, which are contained within the body of the specification, but also given in an appendix. Practical is assessed throughout both exams. There is no separate practical exam. There are two exams, each 90 minutes in length, which are equally weighted. Paper 1 has more of a focus on recall, with Paper 2 being more focused on application and evolution. 	 Split into five topics: The nature and variety of living organisms Structures and functions in living organisms Reproduction and inheritance Ecology and the environment Use of biological resources. Students have to be able to describe eight experiments – knowledge of the practicals and the ability to interpret data resulting from these is required for the exams. There are two exams, one of 120 minutes/ 110 marks which is common to the Pearson Edexcel GCSE in Double Science (worth 61.1% of the marks for the qualification) and one of 75 minutes/70 marks, which is unique to the GCSE in Biology (worth 38.9% of the marks for the qualification. 	Split into 21 topics: • Characteristics and classification of living organisms • Organisation of the organism • Movement in and out of cells • Biological molecules • Enzymes • Plant nutrition • Human nutrition • Transport in plants • Transport in animals • Diseases and immunity • Gas exchanges in humans • Respiration • Excretion in humans • Coordination and response
The exams are not tiered and cover grades 9–1, with 9 being the highest.	The question papers are not tiered. Grades 9–1 are available, with 9 being the highest.	 Reproduction Inheritance Variation and selection Organisms and their environment Biotechnology and genetic engineering Human influence on ecosystems

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		 There are three exams: 45 minutes/40 marks multiple choice, available at either core or extension level (30% of total mark) 75 minutes/80 marks short answer and structured questions, available at either core or extension level (50% of total mark)
		 and either: A practical test (75 minutes/40 marks), based on the experimental skills given in Section 4 of the specification, untiered (20% of total mark)
		 or Alternative to practical paper, (60 minutes/40 marks), based on the experimental skills given in Section 4 of the specification, untiered (20% of total marks)
Content	Coverage	Coverage
3.1 Organisation		
3.1.1 Cell structure	This is covered in Section 2b of the Edexcel specification. Coverage is similar.	This is covered in the Cambridge International specification in Sections 1.3 and 2.1.
		There is detail about rough endoplasmic reticulum and vesicles that is not in the OxfordAQA specification.
3.1.2 Principles of organisation	This section is covered in Edexcel Section 2a. Content is similar although covered in more detail in OxfordAQA.	This is covered in the Cambridge International specification in Section 2.2.
	 Knowledge of large multicellular organisms is covered in more detail in Edexcel Section 1b. 	
	 The OxfordAQA specification does not include organelles. 	

OxfordAQA specification (9201) v4.2	Pearson Edexcel specification (4BI1)	Cambridge International specification (0610)	
3.1.3 Animal tissues, organs and systems (This is expanded upon in later sections, particularly in Section 3.2.4 Digestion)	 This is partially covered in Edexcel Section 2a and 2e. There is no explicit reference to animal tissues in the Edexcel specification, although tissues in organisms are referred to generally. There is specific reference to peristalsis and to villi in relation to the digestive system. 	There are no specific examples of types of animal tissues given in Section 2, though students are expected to be able to give examples of types of tissues, organs and systems from Sections 6–16 of the specification. Organs in the digestive system are specifically included in Section 7.2.	
3.1.4 Plant tissues, organs and systems	There are no specific examples of plant tissues listed in the Edexcel specification although tissues in organisms are referred to generally in 2a.	Leaf structure is included in Section 6.2; root and stem structure in Section 8.1.	
3.1.5 Transport in cells	This is covered in Section 2d of the Edexcel specification. There is more detail offered in the OxfordAQA specification, including the need to understand terms such as isotonic and plasmolysis. OxfordAQA includes a required practical on investigating the effect of different concentrations of solutions separated by a partially permeable membrane.	This is covered in the Cambridge International specification in Sections 3.1, 3.2 and 3.3.	
3.2 Bioenergetics			
3.2.1 Photosynthesis	This is covered within the nutrition Section 2e of the Edexcel specification.	This is covered in the Cambridge International specification in Sections 6.1 and 6.3.	
	OxfordAQA does not require knowledge of magnesium ions being necessary for chlorophyll production.	OxfordAQA does not require knowledge of magnesium ions being necessary for chlorophyll production.	
3.2.2 Exchange and transport in plants	Exchange is covered in Section 2g and transport covered in Section 2h of the Edexcel specification.	This is covered in the Cambridge International specification in Sections 8.1 to 8.4.	
	Edexcel suggests investigating the effect of light on net gas exchange in a leaf using hydrogen-carbonate indicator and this is not required in OxfordAQA.		

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3.2.3 Circulation in humans	 This is partially covered in Section 2h of the Edexcel specification. The coverage differs in the following ways: Issues with the heart including pacemakers, coronary heart disease, faulty valves and the use of artificial hearts are additionally covered in the OxfordAQA specification. Organ transplants and blood groups are additionally covered in the OxfordAQA specification. OxfordAQA does not require knowledge of the blood vessels leading to and from the liver and kidneys or the effects of adrenaline on the heart. 	 This is covered in the Cambridge International specification in Section 9. The Cambridge International specification additionally includes –double and single circulation; treatment of CHD using drugs, angioplasty and bypass operations; arterioles, venules and shunt vessels; lymph. The OxfordAQA specification additionally includes – pacemakers; replacement heart valves; the use of artificial hearts; organ donation and blood groups.
3.2.4 Digestion	 The content is covered in Sections 2c and 2e of the Edexcel specification. The content is largely similar with the following exceptions: Edexcel additionally requires knowledge of a balanced diet and the role of maltase in the digestion of carbohydrates. Edexcel suggested practicals include food tests and investigating the energy content in a food sample. 	This is covered in the Cambridge International specification in Sections 5.1, 7.3, 7.4 and 7.5. The Cambridge International specification additionally includes detail on mechanical digestion and teeth; reference to maltase, pepsin and trypsin; the structure of villi; cholera.
3.2.5 Breathing	 This content is covered in Section 2g of the Edexcel specification. The OxfordAQA specification additionally includes the use of mechanical ventilators in some cases of disease or injury. Edexcel also requires knowledge of the biological consequences of smoking in relation to the lungs and circulatory system. 	 This is covered in the Cambridge International specification in Section 11. The OxfordAQA specification additionally includes the use of mechanical ventilators in some cases of disease or injury. The Cambridge International specification also includes the effects of carbon dioxide concentration on the brain in relation to breathing and on the roles of goblet cells, mucus and ciliated cells within the breathing system.

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3.2.6 Respiration	Respiration is covered in Section 2f of the Edexcel specification. The content is very similar, however more detail is provided within the OxfordAQA specification. OxfordAQA includes a required practical investigating the effects of exercise on the human body.	This is covered in the Cambridge International specification in Section 12.
3.3 Ecology		
3.3.1 Energy transferred in ecosystems	This content is covered in Section 4b of the Edexcel specification. This specification requires knowledge of pyramids of numbers which is not required in the OxfordAQA specification.	This is covered in the Cambridge International specification in Section 19.1 and 19.2. The specifications are broadly similar although students will not be required to construct food webs and chains or pyramids of numbers in OxfordAQA.
3.3.2 Adaptations, interdependence and competition	This content is not explicitly covered in the Edexcel specification. Variation is covered in Section 3b but any references to adaptations are specific to the context mentioned eg 2e, how the leaf is adapted for photosynthesis.	This is partially covered in the Cambridge International specification in Section 19.4 but is limited to the factors that affect population growth, and the specification does not explicitly cover adaptations and interdependence as included in the OxfordAQA specification. Adaptations are covered in Section 18.2.
3.3.3 Decay and the carbon cycle	This content is covered within Section 4c of the Edexcel specification. The Edexcel specification additionally includes the nitrogen cycle, which is not included in the OxfordAQA specification.	This is covered in the Cambridge International specification in Section 19.3, although the nitrogen and water cycles are not covered in the OxfordAQA specification.
3.3.4 Humans and their effects on the	This is covered in Section 4d of the Edexcel specification. The content is very similar with more detailed explanations provided in the OxfordAQA specification, particularly in reference to eutrophication.	This is covered in the Cambridge International specification in Sections 21.2 and 21.3. The OxfordAQA specification does not refer to food supply or conservation as included in the Cambridge International specification.

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3.4 Organisms' interaction with the e	nvironment	
3.4.1 The human nervous system	 This content is mostly covered within Section 2j. The content is similar with the following exceptions: The OxfordAQA specification covers more detail around reflex actions. The OxfordAQA specification does not require any detailed knowledge of the structure and functioning of the eye. The OxfordAQA specification does not refer to the responses of flowering plants as included in the Edexcel specification. 	This is covered in the Cambridge International specification in Section 14.1. The OxfordAQA specification does not require any detailed knowledge of the structure and functioning of the eye (Section 14.2).
3.4.2 Homeostasis	This content is covered within Section 2j of the Edexcel specification. The OxfordAQA specification contains more detail on receptors.	This is covered in the Cambridge International specification in Section 14.4.
3.4.3 Control of water and ion content of the body	 This content is partially covered within Sections 2i and 2j of the Edexcel specification. The OxfordAQA specification does not make reference to the structure of a nephron or ultrafiltration in the Bowman's capsule as included in the Edexcel specification. The OxfordAQA specification includes more on the control of ion content of the body and on the roles of the liver. 	 This is covered in the Cambridge International specification in Section 13.1. The OxfordAQA specification requires less detailed knowledge about the structure of the excretory system and kidney tubules. The Cambridge International specification includes dialysis and the use of kidney machines. The OxfordAQA specification includes more on the control of ion content of the body.
3.4.4 Temperature control	This content is mostly covered within Section 2j of the Edexcel specification. The Edexcel specification does not include detail on the thermoregulatory centre.	This is covered in the Cambridge International specification in Section 14.4, although in less detail.

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3.4.5 Control of blood glucose	There is little reference to control of blood glucose levels or diabetes in the Edexcel specification as compared with the OxfordAQA specification. The structure of the pancreas is referenced in Section 2e although this is in terms of nutrition and insulin, but not glucagon, is referred to in Section 2j.	This is covered in the Cambridge International specification in Section 14.4, although in less detail.
3.4.6 Behaviour	This content is not covered in the Edexcel specification.	This is not covered in the Cambridge International specification
3.4.7 Infection and response	 This is partially covered within Sections 1b, 2h and 3b in the Edexcel specification. The content that is covered is similar but in limited detail compared to that in the OxfordAQA specification. The structure of a virus is not required in the OxfordAQA specification but is included in Section 1b of the Edexcel specification. OxfordAQA includes more specific detail on antibiotic resistance and a required practical on the effects of antibiotics and disinfectants on cultures of microorganisms. 	 This is covered in the Cambridge International specification in Sections 9.4, 10, 15.2 and 18.3. OxfordAQA includes a required practical on the effects of antibiotics and disinfectants on cultures of microorganisms. The Cambridge International specification includes some additional details on preventing pathogens entering the body and on passive immunity.
3.5 Inheritance		
3.5.1 Reproduction	This is covered within Section 3a of the Edexcel specification. The OxfordAQA specification does not include any details on plant reproduction, the roles of hormones in human reproduction or the development of the embryo.	This is covered in the Cambridge International specification in Sections 16.1 to 16.4. The OxfordAQA specification does not include any details on plant reproduction, the roles of hormones in human reproduction, the development of the embryo or pregnancy, antenatal care, childbirth and infant feeding.
3.5.2 Cell division	 This is mostly covered in Sections 3a and 3b of the Edexcel specification but stem cells are mentioned in 2b. The OxfordAQA specification additionally includes references to benign and malignant tumours. 	This is covered in the Cambridge International specification in Sections 17.2, 17.3 and 17.4. The OxfordAQA specification additionally includes references to benign and malignant tumours.

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3.5.3 Genetic variation	 This content is covered within Section 3b of the Edexcel specification. The content is very similar with following exceptions: The names of the four DNA bases are not required in the OxfordAQA but are required in the Edexcel specification. There is no specific reference in the Edexcel specification to the work of Mendel and monohybrid inheritance in peas. 	 This is covered in the Cambridge International specification in Sections 17.1, 17.2, 17.5 and 18.1. There is no specific reference in the Edexcel specification to the work of Mendel and monohybrid inheritance in peas. The OxfordAQA specification does not include the detail of protein synthesis, co-dominance or sex linkage.
3.5.4 Genetic disorders	There is no reference to genetic disorders in the Edexcel specification.	This is covered in the Cambridge International specification in Section 18.1 although OxfordAQA gives examples of polydactyly and cystic fibrosis as well as sickle cell anaemia.
3.5.5 Genetic manipulation	 This content is partially covered in Sections 5c and 5d in the Edexcel specification. Embryo transplants are not covered in the Edexcel specification. Adult cell cloning is described in more detail in the OxfordAQA specification and the Edexcel specification refers to mammal cloning looking at Dolly the sheep. GM crops are covered in more detail in the OxfordAQA specification. Knowledge of the term transgenic and the evaluation of its uses are not covered in the OxfordAQA specification. 	 This is covered in the Cambridge International specification in Sections 20.1 and 20.3. Uses of biotechnology such as production of biofuels are not covered in the OxfordAQA specification. The Cambridge International specification does not include cloning techniques.

Oxfor (9201	rdAQA specification) v4.2	Pearson Edexcel specification (4BI1)	Cambridge International specification (0610)
3.6 V	ariation and Evolution		
3.6.1	Continuous and discontinuous variation	This is covered in Section 3b of the Edexcel specification.	This is covered in the Cambridge International specification in Section 18.1.
3.6.2	Natural selection	There is a small reference to describing the process of evolution by means of natural selection in Section 3b of the Edexcel specification. The OxfordAQA specification covers the theory in more detail and looks at other theories such as that of Lamarck.	 This is covered in the Cambridge International specification in Section 18.3. The Cambridge International specification does not include theories of evolution other than that of natural selection. The Cambridge International specification includes artificial selection and the selective breeding of crop plants and domesticated animals.



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You can contact us at *oxfordaqa.com/contact-us* or email *info@oxfordaqa.com*

OxfordAQA International Qualifications Great Clarendon Street Oxford OX2 6DP United Kingdom