

INTERNATIONAL GCSE **BIOLOGY**

9201/1

Paper 1

Mark Scheme

June 2025

Version: 1.0 Final



Mark schemes are prepared by the Lead Assessment Writer and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all associates participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every associate understands and applies it in the same correct way. As preparation for standardisation each associate analyses a number of students' scripts. Alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Further copies of this mark scheme are available from www.oxfordaqa.com

Copyright information

OxfordAQA retains the copyright on all its publications. However, registered schools/colleges for OxfordAQA are permitted to copy material from this booklet for their own internal use, with the following important exception: OxfordAQA cannot give permission to schools/colleges to photocopy any material that is acknowledged to a third party even for internal use within the centre.

Copyright © 2025 OxfordAQA International Examinations and its licensors. All rights reserved.

Level of response marking instructions

Level of response mark schemes are broken down into levels, each of which has a descriptor. The descriptor for the level shows the average performance for the level. There are marks in each level.

Before you apply the mark scheme to a student's answer read through the answer and annotate it (as instructed) to show the qualities that are being looked for. You can then apply the mark scheme.

Step 1 Determine a level

Start at the lowest level of the mark scheme and use it as a ladder to see whether the answer meets the descriptor for that level. The descriptor for the level indicates the different qualities that might be seen in the student's answer for that level. If it meets the lowest level then go to the next one and decide if it meets this level, and so on, until you have a match between the level descriptor and the answer. With practice and familiarity you will find that for better answers you will be able to quickly skip through the lower levels of the mark scheme.

When assigning a level you should look at the overall quality of the answer and not look to pick holes in small and specific parts of the answer where the student has not performed quite as well as the rest. If the answer covers different aspects of different levels of the mark scheme you should use a best fit approach for defining the level and then use the variability of the response to help decide the mark within the level, ie if the response is predominantly level 3 with a small amount of level 4 material it would be placed in level 3 but be awarded a mark near the top of the level because of the level 4 content.

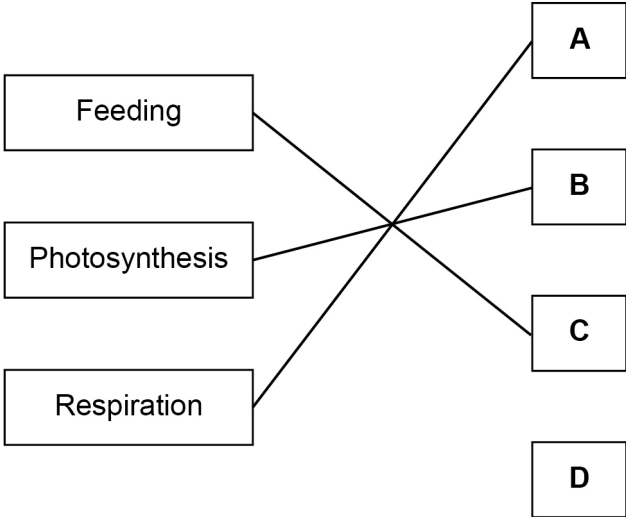
Step 2 Determine a mark

Once you have assigned a level you need to decide on the mark. The descriptors on how to allocate marks can help with this. The exemplar materials used during standardisation will help. There will be an answer in the standardising materials which will correspond with each level of the mark scheme. This answer will have been awarded a mark by the Lead Examiner. You can compare the student's answer with the example to determine if it is the same standard, better or worse than the example. You can then use this to allocate a mark for the answer based on the Lead Examiner's mark on the example.

You may well need to read back through the answer as you apply the mark scheme to clarify points and assure yourself that the level and the mark are appropriate.

Indicative content in the mark scheme is provided as a guide for examiners. It is not intended to be exhaustive and you must credit other valid points. Students do not have to cover all of the points mentioned in the indicative content to reach the highest level of the mark scheme.

An answer which contains nothing of relevance to the question must be awarded no marks.

Question	Answers	Extra information	Mark	AO / Spec. Ref.
01.1	Process Letter in Figure 1  <pre> graph LR Feeding --> A Feeding --> B Photosynthesis --> B Photosynthesis --> C Respiration --> C Respiration --> D </pre> do not accept more than one line from a box on the left		1 1 1	AO1 3.3.3e 3.2.1a 3.2.6c 3.2.6d

Question	Answers	Extra information	Mark	AO / Spec. Ref.
01.2	wood	allow other correctly named substances such as peat / straw / charcoal	1	AO1 3.3.3e

Question	Answers	Extra information	Mark	AO / Spec. Ref.
01.3	global warming	allow an effect of global warming eg rise in sea levels allow (increased) greenhouse effect allow climate change	1	AO1 3.3.4d

Question	Answers	Extra information	Mark	AO / Spec. Ref.
01.4	bacteria		1	AO1 3.3.3b

Question	Answers	Extra information	Mark	AO / Spec. Ref.
01.5	reason for slower decay any one from: - no/little oxygen (for microorganisms) - to prevent entry of microorganisms/spores	ignore no air allow decomposers/bacteria/fungi for microorganisms	1	AO2 3.3.3b
			1	
	how bread is kept cold (temperature)	allow examples, eg keep in fridge		

Question	Answers	Extra information	Mark	AO / Spec. Ref.
01.6	7.5	allow range 7 – 8	1	AO2 3.3.3b 6.3.2

Question	Answers	Extra information	Mark	AO / Spec. Ref.
01.7	$\frac{7.5}{25} \times 100$ 30 (%)	allow answer between 28 – 32 allow ecf from question 01.6	1	AO2 3.3.3b 6.3.3
			1	

Question	Answers	Extra information	Mark	AO / Spec. Ref.
01.8	92%		1	AO4 3.3.3b

Total			12	
--------------	--	--	-----------	--

Question	Answers	Extra information	Mark	AO / Spec. Ref.
02.1	A		1	AO1 3.1.1a, 3.5.2a, 3.5.3h

Question	Answers	Extra information	Mark	AO / Spec. Ref.
02.2	bases	must be in this order	1	AO1 3.5.3j,k
	proteins		1	

Question	Answers	Extra information	Mark	AO / Spec. Ref.
02.3	Mendel	ignore any first name	1	AO1 3.5.3g

Question	Answers	Extra information	Mark	AO / Spec. Ref.
02.4	dominant		1	AO2 3.5.3g

Question	Answers	Extra information	Mark	AO / Spec. Ref.										
02.5	Tall pea plant <table><tr><td></td><td>T</td><td>t</td></tr><tr><td>t</td><td>Tt</td><td>tt</td></tr><tr><td>Short pea plant</td><td>t</td><td>Tt</td><td>tt</td></tr></table> 3 genotypes correct for 2 marks 1 or 2 genotypes correct for 1 mark		T	t	t	Tt	tt	Short pea plant	t	Tt	tt		2	AO2 3.5.3g
	T	t												
t	Tt	tt												
Short pea plant	t	Tt	tt											

Question	Answers	Extra information	Mark	AO / Spec. Ref.
02.6	ring around Tt offspring	do not accept if ring drawn around Tt and tt allow rings around all Tt offspring	1	AO2 3.5.3g

Question	Answers	Extra information	Mark	AO / Spec. Ref.
02.7	any one from: - different light (intensity) - different temperature - different water (levels) - different minerals/ions/(levels) - different carbon dioxide (levels) - different amount of space to grow - may be eaten by animals - may have a disease	allow named mineral e.g. nitrates	1	AO3 3.3.2b 3.5.3a

Question	Answers	Extra information	Mark	AO / Spec. Ref.								
02.8		<table><tr><th>Mitosis</th><th>Meiosis</th></tr><tr><td></td><td>✓</td></tr><tr><td>✓</td><td></td></tr><tr><td></td><td>✓</td></tr></table>	Mitosis	Meiosis		✓	✓			✓	2	AO1 3.5.2e,g,h
	Mitosis	Meiosis										
		✓										
	✓											
		✓										
Produces four cells												
Produces genetically identical cells												
Produces gametes												
3 correct = 2 marks 1 or 2 correct = 1 mark												
Question	Answers	Extra information	Mark	AO / Spec. Ref.								
02.9	Type of tumour	Description	1 1	AO1 3.5.2n								
	Benign tumours	can differentiate to form any type of cell										
		do not invade other tissues										
	Malignant tumours	form secondary tumours										
	do not accept more than one line from a box on the left											
Total			13									

Question	Answers	Extra information	Mark	AO / Spec. Ref.
03.1	toxins		1	AO1 3.4.7b

Question	Answers	Extra information	Mark	AO / Spec. Ref.
03.2	penicillin	allow other named antibiotics eg amoxicillin, erythromycin	1	AO1 3.4.7f

Question	Answers	Extra information	Mark	AO / Spec. Ref.
03.3	to avoid antibiotic-resistant bacteria developing		1	AO1 3.4.7i

Question	Answers	Extra information	Mark	AO / Spec. Ref.
03.4	use of bacteria any one from: - do not eat/drink during the experiment - wear (disposable/plastic) gloves - wear a mask - wash hands (before and after experiment) - minimise time spent with the lid off the Petri dish		1	AO4 3.4.7 6.2.5
	use of glass Petri dish any one from: - use plastic Petri dish - clean up breakages immediately - do not touch broken glass		1	

Question	Answers	Extra information	Mark	AO / Spec. Ref.
03.5	as a control	do not accept control variable	1	AO4 3.4.7j 6.2.5
	to compare (the effects of) plant / extract with no plant / extract	allow to make sure it is the plant (extract) killing the bacteria and not something else.	1	

Question	Answers	Extra information	Mark	AO / Spec. Ref.
03.6	(diameter =) 26 mm	allow in the range 26 to 27 (mm)	1	AO2 3.4.7j 6.2.5 6.3.14
	(radius =) 13		1	
	3.14×13^2	marks can be awarded for further stages using an incorrect determined value for the radius	1	
	531 (mm ²)	allow 530.66 mm ² allow correct rounding	1	

Question	Answers	Extra information	Mark	AO / Spec. Ref.
03.7	the clear zone around A is larger (than around B)	(allow use of comparative figures)	1	AO3 3.4.7j 6.2.5
	clear zone shows where bacteria have been killed	allow clear zone shows where no bacteria are growing	1	

Question	Answers	Extra information	Mark	AO / Spec. Ref.
03.8	any one from: - only tested on one strain/ type of bacteria - concentration / mass / volume of plant extract not controlled - number / mass of leaves not controlled		1	AO3 3.4.7j 6.2.5

Question	Answers	Extra information	Mark	AO / Spec. Ref.
03.9	genetically engineered plants are resistant to insect attacks / infestations	allow genetically engineered plants will not be infected / damaged by pathogens	1	AO2 3.5.5d,e
	(so) genetically engineered plants will grow / photosynthesise more / quicker		1	AO2 3.5.5d,e
	(so) increase yield (from genetically engineered cotton plants)		1	AO2 3.5.5e
		If no other mark awarded allow 1 mark for farmers will not need to buy / spray insecticide / pesticide		
Total			17	

Question	Answers	Extra information	Mark	AO / Spec. Ref.
04.1	any one from: - to find food - to keep warm - to breed (successfully)	allow they cannot survive at low temperatures	1	AO2 3.3.2c 3.3.2f

Question	Answers	Extra information	Mark	AO / Spec. Ref.
04.2	for <u>contraction</u> of (wing) muscles		1	AO2 3.2.6f

Question	Answers	Extra information	Mark	AO / Spec. Ref.
04.3	LHS oxygen	in either order	1	AO1 3.2.6c
	RHS carbon dioxide and water		1	

Question	Answers	Extra information	Mark	AO / Spec. Ref.
04.4	able to release (more than) twice as much energy (per gram)	allow able to release much more energy (per gram) do not accept energy produced/made/created	1	AO2 3.2.6f 3.3.2f
	(therefore) less mass to carry (when migrating/flying)		1	AO3 3.2.6f 3.3.2f

Question	Answers	Extra information	Mark	AO / Spec. Ref.
04.5	y-axis labelled distance travelled (during migration) in km		1	AO2 3.3.2f 6.3.9
	a suitable scale	scale must be at least half the graph grid	1	
	bars plotted	allow a tolerance of + / – half a small square	1	

Question	Answers	Extra information	Mark	AO / Spec. Ref.
04.6	56 000	allow 64 000 – 8000	1	AO2 3.3.2f 6.3.3
	$\left(\frac{56\,000}{8000}\right) \times 100$		1	
	700 (%)		1	

Question	Answers	Extra information	Mark	AO / Spec. Ref.
04.7	individual organisms in a species show genetic variation	allow individual organisms in a species show differences in their genes/alleles /	1	AO1 3.6.2b
	individuals with characteristics most suited to the environment are more likely to survive and breed (successfully)	ignore reference to survival of the fittest	1	
	the genes/ alleles / mutation that have enabled these individuals to survive are then passed on to the next generation		1	

Question	Answers	Extra information	Mark	AO / Spec. Ref.
04.8	breed two birds together and if they are the same species they will produce fertile offspring	ignore DNA analysis unqualified	1	AO1 3.6.2c

Total		16
--------------	--	-----------

Question	Answers	Extra information	Mark	AO / Spec. Ref.
05.1	respiratory (system)		1	AO1 3.2.5a

Question	Answers	Extra information	Mark	AO / Spec. Ref.
05.2	the blood is filtered		1	AO1 3.4.3d
	all the glucose is reabsorbed	allow all glucose absorbed/ passed back into the blood	1	
	some ions are reabsorbed	allow some salts are reabsorbed allow some sodium/potassium ions are reabsorbed ignore minerals unqualified	1	
	some water is reabsorbed		1	
	urea is released / excreted in urine		1	
		If no other mark awarded allow 1 mark for glucose, ions and water are reabsorbed		

Question	Answers	Extra information	Mark	AO / Spec. Ref.
05.3	any one from: • no need to wait f(or a donor) • no need for major surgery • available immediately • no risk of rejection • no need to take immunosuppressant drugs		1	AO2 3.2.3s

Question	Answers	Extra information	Mark	AO / Spec. Ref.
05.4	any one from: • dialysis requires repeated treatments and a kidney transplant does not • fewer hospital visits • more normal lifestyle • greater risk of infection with continued use of dialysis • transplant lasts longer	ignore do not need dialysis every week allow it is a long term solution allow no need to control diet	1	AO2 3.2.3s

Question	Answers	Mark	AO/ Spec. Ref
05.5	Level 3: Relevant points (reasons/causes) are identified, given in detail and logically linked to form a clear account.	5-6	AO3 3.4.3d
	Level 2: Relevant points (reasons/causes) are identified, and there are attempts at logical linking. The resulting account is not fully clear.	3-4	AO3 3.4.3d
	Level 1: Points are identified and stated simply, but their relevance is not clear and there is no attempt at logical linking.	1-2	AO3 3.4.3d
	No relevant content	0	
	Indicative content - all of the components move across a partially permeable membrane by diffusion - movement from high concentration to low concentration glucose - fluid B has a normal range for blood glucose levels (but fluid A is below the normal range) - using fluid B there could be no net movement out of the blood - using fluid A there would be too much glucose lost and would go below the normal range (so) If too much glucose leaves blood plasma then less for respiration or energy release - body would have to release glucose from glycogen stores urea - fluid B has no urea but (fluid A urea is above the normal range) - using fluid B there would be net movement of urea out of the blood (so) the levels of urea would be returned to the normal range - using fluid A urea would not go down to the normal range (so) if fluid A used toxic levels of urea would remain in the blood Sodium - same concentration in fluid B as patients' blood - no net movement of sodium ions if either fluid B used Potassium - fluid B (and fluid A) have potassium ions in normal range - some movement of potassium ions from the blood plasma into fluid B / A - there will be greater movement into fluid B For Level 2 answers must refer to movement of substances between dialysis fluid and the blood		

	For Level 3 must have explanations for movement of two substances		
--	--	--	--

Question	Answers	Extra information	Mark	AO / Spec. Ref.
05.6	more water reabsorbed (from the kidney filtrate)		1	AO2 3.4.3e
	(so) sodium ions become diluted (in the blood)	allow water content / concentration of the blood increases so concentration of sodium ions decreases.	1	

Total		16
--------------	--	-----------

Question	Answers	Extra information	Mark	AO / Spec. Ref.
06.1	A aorta	ignore artery unqualified	1	AO1 3.2.3c, i
	B <u>left</u> ventricle		1	

Question	Answers	Mark	AO/ Spec. Ref
06.2	Level 2: Relevant points (reasons/causes) are identified, given in detail and logically linked to form a clear account.	3-4	AO2 3.2.3, i, j AO1 3.2.3, i, j
	Level 1: Points are identified and stated simply, but their relevance is not clear and there is no attempt at logical linking.	1-2	
	No relevant content	0	
	Indicative content - arteries transport blood away from the heart - under high pressure (so) arteries have a thicker layer of muscle (tissue) (and) arteries have a thicker layer of elastic tissue - arteries have a narrower lumen - veins transport blood to the heart - at a lower pressure (so) veins have thinner muscle walls - a wider lumen (and) valves - to prevent the backflow of blood For Level 2, answers must logically link to structures to the difference in pressure		

Question	Answers	Extra information	Mark	AO / Spec. Ref.
06.3	platelets (at the wound site)		1	AO1 3.2.3p, q
	(start) enzyme (controlled) reactions		1	
	(which results in) a change of fibrinogen to fibrin		1	
	(that form) fibres which trap blood cells (and form a clot)	allow fibrin / strands which form a network that traps blood cells (and form a clot)	1	

Question	Answers	Extra information	Mark	AO / Spec. Ref.
06.4	drug X binds to enzyme and changes the shape of the <u>active site</u>		1	AO2 3.2.4b
	active site no longer a matching shape for protein	active site no longer fits protein allow complementary for matching	1	
	(so) protein will not bind with the enzyme	allow no/fewer enzyme-substrate complexes formed	1	
	(so) no/fewer proteins broken down (so less bleeding)		1	

Question	Answers	Extra information	Mark	AO / Spec. Ref.
06.5	there are no antigens on blood type O donor cells and only A antigens on blood type A donor cells		1	AO3 3.2.3t
	or			
	there are no B antigens on either O or A donor cells			
	so no reaction occurs with anti-B antibodies which are in the patient's blood (plasma)		1	
Total			16	