A-Level Biology

Common Mistakes · 常见错误

Biology marks are lost to imprecise wording far more often than to missing knowledge. Every entry below comes from Cambridge's own examiner reports. The × line is what candidates write; the ✓ line is what scores. 生物失分多因用词不准, 而非不会。× 是常见写法,✓ 是能得分的写法。*General exam technique is in the Exam Technique guide; this booklet is Biology.*

Across every paper

✗ Writing a description when the command word is EXPLAIN, or an explanation when it says DESCRIBE.

✓ **DESCRIBE says what happens; EXPLAIN says why; SUGGEST applies your biology to something unfamiliar.**

Examiners name describe, explain, suggest and outline in report after report. Answering the wrong verb scores nothing, however good the biology.

看清指令词 ER 4 sessions P4

✗ Listing five differences when the question asked for three.

✓ **Give exactly the number asked for.**

The list rule applies: only the first three are marked, so a right answer written fourth is never read.

问几个就写几个 ER 3 sessions P3

✗ Inventing your own abbreviation and using it through a long answer.

✓ **Use only the abbreviations the syllabus lists – ATP, DNA, mRNA – and write everything else out.**

Examiners discourage candidate abbreviations explicitly; an unrecognised one makes the sentence unmarkable.

只用大纲里的缩写 ER Jun23 P41

✗ Starting to write on question 1 before reading the paper.

✓ **Read the whole question, and the data it refers to, before writing anything.**

Examiners advise this every session: the later parts often tell you what the earlier ones are for.

先通读整题再动笔 ER 5 sessions P4

✗ Repeating information the question already gave you as if it were your answer.

✓ **Add what the question does NOT say.**

Examiners record suggestions being ignored because the information was already in the stem – including 'cheaper' and 'less technical skill' where the passage said so.

不要重复题干信息 EX P4

■ Answer with precision. Examiners describe vague responses as the single commonest reason a knowledgeable candidate is not awarded full marks.

表述要精确 ER 4 sessions P4

1 · Cell structure 细胞结构

✗ Measuring the area of a structure directly from a photomicrograph.

✓ **Measure a diameter or a radius, then calculate the area.**

A named common incorrect response. Area is never measured directly, and the mark is for saying what you would measure.

面积要靠直径算 EX P3

✗ Reading the eyepiece graticule and giving that number as the real size.

✓ **Multiply the graticule divisions by the calibrated length of one division.**

The calibration step is the whole calculation; without it the answer is in arbitrary units.

要乘以标定值 EX P3

2 · Biological molecules 生物分子

✗ Calling glycerol 'a hydrophilic head' or using 'fats' to mean fatty acids.

✓ **Keep the terms apart: triglyceride, glycerol, fatty acid – and reserve head-and-tail language for phospholipids.**

Examiners record candidates importing phospholipid vocabulary into a triglyceride answer, which makes the answer wrong.

甘油三酯 ≠ 磷脂 EX P4

✗ Explaining why lipids store more energy than carbohydrates by saying 'they have more energy'.

✓ **Name the reason: proportionately more C–H bonds per molecule.**

Examiners accepted many routes here, but not a restatement of the question.

因为 C–H 键更多 EX P4

4 · Cell membranes and transport 细胞膜与物质运输

✗ Saying microvilli increase surface area, twice, in two different sentences.

✓ **Make a second, different point – more mitochondria, more carrier proteins.**

Nothing is credited twice. Examiners note candidates offering the surface-area point again as their second mark.

第二点要写不同的内容 EX P4

✗ Answering 'bulk transport' when asked how a substance leaves a cell.

✓ **Name it: exocytosis, with the vesicle fusing with the cell surface membrane.**

Examiners ignored 'bulk transport' as not precise enough to show that movement is out of the cell.

要写具体过程名 EX P4

✗ Repeating that active transport uses ATP when the question asked for OTHER features.

✓ **Give features the stem has not already supplied: carrier proteins, against the gradient, specific.**

Examiners state the ATP point did not need repeating because the question had given it.

题目给过的不要再写 EX P4

6 · Nucleic acids and protein synthesis 核酸与蛋白质合成

✗ Defining an allele as ‘a sequence of nucleotides’.

✓ **A sequence of nucleotides ON DNA – and, since the question said ‘allele’, one version of a gene.**

Examiners record both faults: not specifying DNA rather than RNA, and answering in the plural where the question was singular.

要写明在 DNA 上 EX P4

✗ Writing about substitution, insertion or deletion of a GENE.

✓ **A gene mutation is a change to one or more NUCLEOTIDES within a gene.**

Examiners flag this wording directly; the unit that changes is the base, not the gene.

突变改变的是碱基 EX P4

7 · Transport in plants 植物体内的运输

✗ Completing the phloem sentence with ‘pores’.

✓ **Sieve plates – or sieve pores, but not ‘pores’ alone.**

Examiners state that ‘pores’ was not a full answer, because it does not identify the structure.

要写“ 筛板 ” EX P4

✗ Explaining stomatal opening without naming the cells or the direction of movement.

✓ **Hydrogen ions are actively pumped OUT of the guard cells, so potassium ions enter and water follows by osmosis.**

Examiners note answers that omitted guard cells altogether, and answers that gave no direction for the ion movement.

要写保卫细胞和方向 EX P4

8 · Transport in mammals 哺乳动物体内的运输

✗ Describing the mammalian system as ‘double circulation’ and stopping.

✓ **Double AND closed – the blood stays inside vessels.**

Examiners record almost all candidates giving ‘double’ and only some remembering ‘closed’; both words were needed.

双循环 + 闭锁式 EX P4

✗ Labelling a heart diagram with ‘artery’ or ‘vein’.

✓ **Name the vessel: aorta, vena cava, pulmonary artery, pulmonary vein.**

Examiners note the gaps fell exactly on the aorta and vena cava, where a general term was given instead of the name.

写出血管的具体名称 EX P4

12 · Energy and respiration 能量与呼吸作用

✗ Listing differences between respiration and photosynthesis with no similarity anywhere.

✓ **Make each difference an explicit contrast, and note in passing what both share – ATP, electron flow, chemiosmosis.**

The model answer does exactly this, and examiners hold it up as the structure that scores.

对比要成对写 EX P4

✗ Writing 6.8 cm^3 min^{-1} when 6.8 cm^3 was collected in two minutes.

✓ **Divide by the time: 3.4 cm^3 min^{-1}.**

The unit on the answer line tells you the calculation. Examiners walk through this exact slip.

看单位决定要不要除以时间 EX P3

14 · Homeostasis 稳态

✗ Saying urea is made in the kidney.

✓ **It is made in the LIVER, by deamination of excess amino acids.**

Examiners report the location and method of production as not well known, with 'kidney' a frequent answer.

尿素在肝脏生成 ER Jun24 P41

✗ Describing the biosensor test as a dip-stick, or starting the account at the enzyme.

✓ **Begin where the method begins: the blood sample is placed on the pad of the biosensor.**

Examiners record the first step omitted and the two devices confused – a dip-stick works chromogenically instead.

从第一步写起 EX P4

16 · Inheritance 遗传

✗ Describing the test-cross partner only as 'homozygous recessive'.

✓ **Name the phenotype the question makes unambiguous: a white-eyed fly.**

With three alleles recessive to red, 'homozygous recessive' does not identify one organism, so it cannot earn the mark.

要写出具体表现型 EX P4

✗ Writing a genetic diagram with the genotypes in one row and the ratio underneath, unaligned.

✓ **Line each genotype up with its phenotype and its number in the ratio.**

The model answer is credited specifically for that alignment; an unaligned diagram cannot be followed.

基因型与表现型要对齐 EX P4

17 · Selection and evolution 选择与进化

✗ Explaining a type of selection by mentioning competition and selection pressure in general terms.

✓ **Say which extreme is favoured and why – high competition at the mean, so the extremes survive.**

Examiners record answers that named the right type of selection and then failed to specify 'high competition'.

要写清哪一端被选择 ER Jun23 P42

18 · Classification, biodiversity and conservation 分类、生物多样性与保护

✗ Arguing for conservation entirely on ethical grounds when the question wants reasons.

✓ **Lead with the practical value to humans – medicines, crop wild relatives, ecosystem services – and add the ethical argument after.**

Examiners note the first three sentences of the model answer score full marks on practical value; the stewardship argument may or may not be credited.

先写实用价值 EX P4

19 · Genetic technology 遗传技术

✗ Saying gene editing does not produce a transgenic organism.

✓ **It can: inserting DNA from another species makes the organism transgenic.**

Examiners record candidates awarded four marks who still missed this point.

基因编辑可产生转基因生物 EX P4

✗ Describing recombinant DNA work as a general list of techniques.

✓ **Follow the context the question sets – which gene, into which vector, into which host, to make which product.**

Examiners describe answers as showing an incomplete or confused understanding when the sequence is not tied to the stated product.

按题目的情境写流程 EX P4

The practical and planning papers – Paper 3 and Paper 5

✗ Naming 'different animal species' as the independent variable.

✓ **Name the variable you change: the source of the trypsin.**

A named common error. The independent variable is a quantity or a treatment, not a description of the samples.

自变量是你改变的量 EX P5

✗ Writing 'this investigation is low risk' as the risk assessment.

✓ **Name the hazard, the risk it creates, and the control measure.**

Examiners state that a risk category alone gained no credit; all three parts are needed.

危害、风险、措施三样都要 ER 2 sessions P5

✗ Writing a plan another person could not follow.

✓ **Set it out in order, with volumes, concentrations, times and the number of repeats.**

Named in five separate reports: the test is whether someone else could carry it out from your description.

计划要别人能照做 ER 5 sessions P5

✗ Choosing a graph scale that squeezes the data into a corner.

✓ **Choose a linear scale that lets every point be plotted to within half a 2 mm square, and use most of the grid.**

Examiners give the scales that worked – 0.05 to 2 cm on x, 20 to 2 cm on y – as the standard expected.

刻度要线性且用满网格 ER 2 sessions P5

✗ Drawing a bar chart freehand with bars that miss the gridlines.

✓ **Rule the bars, draw them exactly to the horizontal lines, and leave gaps between them.**

Examiners note the bars must be plotted accurately and drawn along the lines; a bar chart is not a sketch.

柱状图要用尺画准 ER Jun22 P53

✗ Drawing a plan diagram with sketchy overlapping lines, or filling only a corner of the space.

✓ **Use a sharp pencil, single clear lines that join, and most of the space provided.**

The credited responses are described in exactly those terms, and the shape of each tissue layer must be recognisable.

单线、清晰、画满空间 EX P3

✗ Reading a value off the wrong curve or the wrong y-axis on a two-axis graph.

✓ **Trace the curve to its own axis before reading, and check the scale.**

Named as the cause of incorrect responses, together with points read to the wrong precision.

看清是哪条曲线、哪个纵轴 EX P4

■ Where a temperature rise is very small, saying ‘no effect’ or ‘not significant’ is a correct answer. Examiners accept it.

变化太小可答“ 无显著影响 ” EX P3