AP Biology

Common Mistakes · 常见错误

Almost every point lost on the free response is a claim made without the data, or a process named instead of explained. Everything below is a rule the readers apply. 失分多因只写过程名称而不解释，以及不引用题目数据。× 是常见写法，✓ 是能得分的写法。

Answering the task verb

✗ Explaining at length where the verb was IDENTIFY.

✓ **IDENTIFY wants a name; DESCRIBE wants characteristics; EXPLAIN wants a cause; JUSTIFY wants the claim supported by the data.**

The verbs are defined in the rubric. An explanation for an IDENTIFY earns the point but costs minutes; a description for an EXPLAIN earns nothing.

看清指令词 CED Skill 1

✗ Predicting an outcome with no reason attached.

✓ **Predict AND justify: what will happen, and the mechanism that makes it happen.**

The guidelines score the prediction and its justification as separate points, and a prediction alone is half the answer.

预测要附理由 SG2023 Q1

✗ Repeating the stem's own information as your answer.

✓ **Add something the question did not give you.**

A sentence that only restates the question cannot earn a point, however accurate.

不要重复题干 CED Skill 4

✗ Offering two possible answers where one was asked for.

✓ **Commit to one.**

A wrong alternative alongside a right one can make the whole response wrong.

只写一个答案 MS

✗ Writing 'the treatment worked'.

✓ **Cite the data: 'growth rose from 12 mm to 31 mm, an increase of 158%'.**

The rubric's justification points require the claim to be supported by the numbers the question supplied.

要引用具体数据 CED Skill 5

✗ Calling a difference significant when the error bars overlap.

✓ **Overlapping bars mean the difference is probably not significant – and saying so is often the point.**

Interpreting error bars is an explicitly assessed statistical skill in this course.

误差棒重叠说明差异不显著 CED Skill 5

■ Where an estimate is asked for, the readers accept a range: the guidelines specify the first two digits must fall between stated bounds. An answer far outside it is wrong, not approximate.

估算也有可接受范围 SG2023 Q4

1 · Chemistry of Life 生命的化学

✗ Saying water moves 'from high to low concentration' in osmosis.

✓ **From HIGHER to LOWER water potential – from a dilute solution to a concentrated one.**

Concentration of what is ambiguous; water potential is the quantity the course uses.

渗透看水势 CED 2.8

✗ Describing enzymes as 'used up' or 'killed'.

✓ **They are catalysts, unchanged by the reaction; denaturation changes the active site's shape.**

The wrong verb makes the mechanism wrong, and the mechanism is what the explanation point is for.

酶不被消耗, 只会变性 CED 3.3

2 · Cell Structure and Function 细胞结构与功能

✗ Saying a secreted protein 'goes to the membrane'.

✓ **It is transported to the endoplasmic reticulum first, then through the Golgi, then out.**

The guidelines set out this pathway as the required content – naming the destination skips the process.

分泌蛋白先进内质网 SG2022 Q1

✗ Explaining active transport by saying the pump 'uses energy'.

✓ **Say what the energy is for: moving ions AGAINST their concentration gradients.**

The guidelines print exactly this as the required explanation for the sodium-potassium pump.

主动运输是逆浓度梯度 SG2021 Q3

3 · Cellular Energetics 细胞能量学

✗ Saying the cell 'makes energy'.

✓ **Energy is transferred; respiration releases it from glucose and stores it in ATP.**

The course treats energy transfer precisely, and 'makes' is scored as a misconception.

细胞不产生能量, 只转化 CED 3.5

✗ Predicting an effect on photosynthesis without naming the products.

✓ **Say what runs short: insufficient ATP and NADPH for the Calvin cycle, so less carbohydrate.**

The guidelines give this as the justification that earns the point.

要写出 ATP 和 NADPH 不足 SG2023 Q2

✗ Justifying a higher oxygen demand by saying the organism 'works harder'.

✓ **More electrons are transferred, so more oxygen is needed as the final electron acceptor.**

The guidelines print this as the accepted justification.

更多电子传递需要更多氧 SG2022 Q2

✗ Explaining a signalling pathway by naming the hormone and the effect.

✓ **Give the steps: ligand binds a receptor, a transduction cascade follows, and the cell's response changes.**

The explanation point is for the mechanism between the signal and the outcome.

信号转导要写中间步骤 CED 4.2

4 · Cell Communication and Cell Cycle 细胞通讯与细胞周期

✗ Confusing the outcomes of mitosis and meiosis.

✓ **Mitosis gives two identical diploid nuclei; meiosis gives four genetically distinct haploid cells.**

Mark schemes award points for the features that DIFFER – number of divisions, crossing over, ploidy – so the pair must be kept apart.

有丝分裂与减数分裂结果不同 MS

✗ Drawing a chromosome diagram with duplicated chromosomes after meiosis II.

✓ **Each cell must show ONE unduplicated chromosome of each pair, carrying one allele.**

The guidelines specify exactly this for the diagram point.

减数分裂后是单条染色单体 SG2023 Q5

5 · Heredity 遗传

✗ Saying homologous chromosomes 'pair up' without saying why it matters.

✓ **Crossing over in meiosis I is required for homologues to pair and segregate correctly.**

The guidelines make the consequence the scored part, not the observation.

联会与交叉互换保证正确分离 SG2023 Q1

✗ Applying Hardy-Weinberg without stating its conditions.

✓ **No selection, no mutation, no migration, random mating, large population – then $p^2+2pq+q^2=1$.**

The conditions are what make the calculation meaningful, and are separately assessed.

哈迪-温伯格有五个条件 CED 7.5

✗ Confusing $p+q=1$ with $p^2+2pq+q^2=1$.

✓ **The first is allele frequencies, the second is genotype frequencies.**

Substituting into the wrong one gives a plausible number that is wrong.

等位基因频率 vs 基因型频率 CED 7.5

✗ Reading a pedigree and naming the inheritance pattern with no evidence.

✓ **Point at the generation that rules the alternatives out – two unaffected parents with an affected child means recessive.**

The justification point is for the reasoning from the diagram, not for the conclusion.

系谱结论要指出依据 CED 5.4

6 · Gene Expression and Regulation 基因表达与调控

✗ Saying mRNA 'makes the protein'.

✓ **It carries the code to the ribosome, where translation builds the protein.**

The distinction between the message and the machinery is the content the question tests.

mRNA 是模板, 不是合成者 CED 6.4

✗ Explaining an mRNA vaccine without mentioning stability.

✓ **The mRNA must remain intact long enough for the encoded protein to be produced.**

The guidelines name this as the required idea.

mRNA 必须保持稳定 SG2022 Q3

7 · Natural Selection 自然选择

✗ Saying organisms 'adapt' or 'try' to survive.

✓ **Variation exists first; the environment selects among it.**

The teleological wording is a named misconception and reverses the mechanism.

变异先存在, 环境再选择 CED 7.1

✗ Saying mutations are always harmful.

✓ **Most are neutral, and the beneficial minority is what selection acts on.**

The claim contradicts the mechanism the course teaches.

多数突变是中性的 CED 7.2

✗ Choosing between molecular and morphological data with no reason.

✓ **Say why: molecular data are generally more reliable for inferring relationships.**

The guidelines print this as the accepted justification.

分子数据更可靠 SG2021 Q4

✗ Saying a mutation in a regulatory sequence changes the protein.

✓ **It changes how MUCH protein is made, or when – the coding sequence is unaltered.**

The course separates regulation from coding, and the distinction is what the question tests.

调控序列改变表达量 CED 6.6

8 · Ecology 生态学

✗ Saying an invasive species 'harms the ecosystem'.

✓ **Give the process: it outcompetes native species for a resource, so their populations fall and biodiversity drops.**

The guidelines state the explanation requires a process or relationship, not an outcome.

要写出竞争的过程 SG2023 Q1

✗ Drawing a predicted bar without checking which direction the prediction requires.

✓ **Compare it explicitly with the control bar the figure already shows.**

The guidelines specify the direction each bar must take relative to the original.

预测柱要与对照比较 SG2023 Q5

- When a diagram or graph is asked for, label every axis and every element. Diagram points in these guidelines are itemised, and an unlabelled element earns none of them.

图要标注齐全 SG 3 years