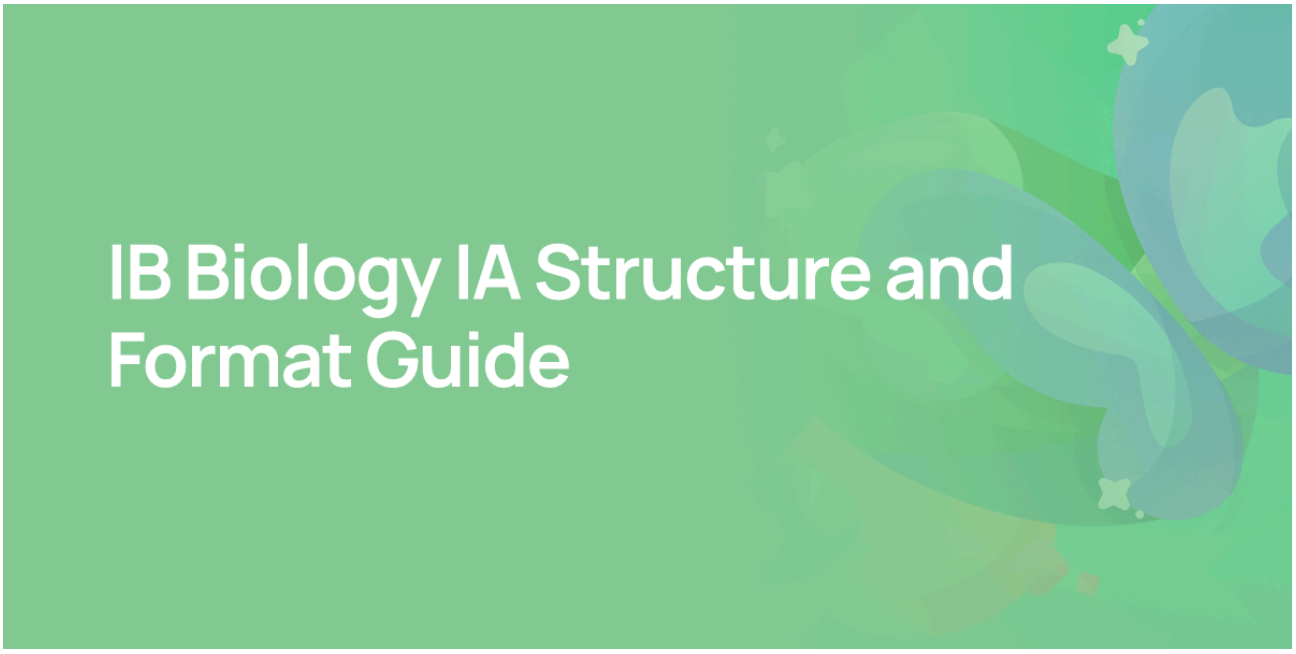
IB Biology IA Structure and Format Guide

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The **IB Biology IA structure** should present your scientific investigation as a concise, logical report moving from research design to data analysis, conclusion, and evaluation. Under the Biology course first assessed in 2025, the official maximum is **3,000 words**, not 2,200 words. However, approximately **2,200 words** is often a sensible working target because it leaves room for necessary explanation without encouraging repetition.

The IB does not prescribe one compulsory set of section headings. Your report is assessed through four equally weighted criteria: **Research design, Data analysis, Conclusion, and Evaluation**. The clearest structure therefore follows those stages while using descriptive subheadings that help the reader locate evidence.

Current IB Biology scientific investigation requirements

The IA is officially called the **scientific investigation**. It is an open-ended task in which you gather and analyse data to answer your own research question, then communicate the investigation through an individual written report.

For both SL and HL students, it:

- contributes **20%** of the final Biology grade
- is allocated approximately **10 hours** of course time
- has a maximum report length of **3,000 words**
- is marked out of **24**, with six marks available for each criterion
- is marked by the teacher and subject to external IB moderation

The current criteria are:

Criterion	Maximum marks	Weighting within the IA	Main focus
Research design	6	25%	Research question, scientific context and methodology
Data analysis	6	25%	Recording, processing, presenting and interpreting data
Conclusion	6	25%	Answering the question using results and accepted science
Evaluation	6	25%	Methodological weaknesses, impacts and improvements

Unlike the previous assessment model, there are no separate **Personal engagement**, **Exploration**, or **Communication** criteria. The revised course places **50% of the IA marks in Conclusion and Evaluation**, so these sections cannot be treated as brief additions after the experiment.

Students may collaborate in small groups where appropriate and can use similar methodologies. However, each student must have a different independent or dependent variable, collect unique data and submit an individual report. The official IB Biology curriculum update explains this distinction.

Recommended IB Biology IA structure

A clear report can use the following order. These headings are recommended rather than officially mandatory, so adapt them when your database, simulation or field investigation requires a different arrangement.

Title and identifying information

Begin with an informative title reflecting the purpose of the investigation. Include the word count and any candidate information required by your school, but avoid placing your name in work submitted anonymously.

A separate decorative cover page and table of contents are normally unnecessary. They do not demonstrate scientific understanding and can make a short report harder to navigate.

Research question and scientific context

State a focused research question early. It should identify the relationship being investigated, the biological system and how the outcome is measured.

For example: **How does sucrose concentration from 0.00 to 0.50 mol dm^{-3} affect the percentage change in mass of potato cylinders after 24 hours?** This is stronger than “How does sugar affect potatoes?” because the variables, range, organism and measurable outcome are apparent.

Then explain only the biological theory needed to understand the design and predicted relationship. Define relevant mechanisms, justify the variable range and support factual claims with credible sources. A hypothesis can help communicate your prediction and reasoning, but it is not a separate assessment criterion and should not become an unsupported guess.

Variables and methodology

Identify the **independent variable**, **dependent variable** and important **controlled variables**. Explain how each is manipulated, measured or controlled rather than merely listing names.

Your methodology should provide enough detail for another student to reproduce the investigation. Include:

- apparatus, materials and measurement uncertainties where relevant
- values or levels of the independent variable
- number of repeats or sampling strategy
- preparation and standardisation of biological material
- control of relevant environmental variables
- collection of quantitative and useful qualitative data
- safety, ethical and environmental considerations
- justified methodological choices that affect data quality

Do not write a vague instruction such as “keep temperature constant.” State how it was controlled, such as using a thermostatically controlled water bath at **25.0 ± 0.5 °C**. For database investigations, explain selection criteria, data sources, filtering decisions and how confounding variables were addressed.

Raw data and qualitative observations

Present raw measurements in clearly numbered tables. Put units in column headings, use consistent precision and include instrument uncertainties when they are meaningful.

Qualitative observations belong here when they assist interpretation. Colour changes, unexpected tissue damage or signs of contamination may explain patterns that numerical results alone cannot show. Do not hide essential raw data in an appendix because assessors are not expected to search outside the report for evidence.

Data processing and analysis

Show how raw measurements became quantities that answer the research question. Depending on the investigation, processing might include means, rates, percentage change, standard deviation, uncertainty propagation, correlation or an inferential statistical test.

Include at least one sample calculation when the processing is not self-explanatory. Number and caption graphs, label both axes with units, select an appropriate graph type and use error bars only when you can explain what they represent.

Analysis must go beyond saying that one value increased. Discuss:

- the direction and shape of the pattern
- relevant numerical differences or rates of change
- variability, overlap and uncertainty
- anomalies and their possible significance
- the outcome and assumptions of any statistical test
- whether the data are sufficient to answer the question

A statistical test is not automatically required. Use one when it suits the variables, distribution and research question, and explain what its result means biologically.

Conclusion

Answer the research question directly using processed results. A strong conclusion cites numerical evidence, acknowledges uncertainty and explains the observed relationship using relevant biological mechanisms.

The current criterion also expects comparison with **accepted scientific context**. This could involve a published trend, theoretical model or credible literature value. Agreement does not prove that the method was flawless, while disagreement does not automatically invalidate the investigation. Explain the comparison and avoid claiming more than the data support.

Evaluation

Evaluate limitations in the **methodology**, not simply the appearance of the final graph. For each important weakness, explain its likely effect on the data or conclusion and propose a realistic improvement that directly addresses it.

Weak evaluation	Stronger evaluation
Human error affected the results.	Manual identification of the colour endpoint introduced observer judgement, increasing variation between trials. A colorimeter would provide an objective absorbance measurement.
More repeats are needed.	Three repeats produced wide variation at 40 °C, making the mean sensitive to one result. Increasing to at least five independent repeats would produce a more stable estimate of variability.
Use better equipment.	The ruler uncertainty was large relative to the short root growth measured. Calibrated digital image analysis would improve measurement resolution without disturbing the roots.

Prioritise weaknesses that materially affect reliability, precision, validity or the scope of the conclusion. Generic comments and a list of hypothetical mistakes do not demonstrate critical evaluation.

References

Cite biological theory, methods, databases, diagrams and literature values that are not your own. The IB does not require one universal citation style for Biology, but the chosen system should be complete and consistent.

Every in-text citation must correspond to an entry in the reference list. References support your scientific reasoning but do not replace it.

Outline template for a 2,200-word report

The following allocation is practical, not an IB rule. Tables, graphs and calculations still need to be concise even where they are excluded from the official word count.

Section	Suggested words	Evidence to include
Title and research question	30	Focused question and precise scope
Scientific context and hypothesis	300	Relevant theory, rationale, cited prediction
Variables and methodology	550	Controls, replicable procedure, safety and ethics

Section	Suggested words	Evidence to include
Data processing and analysis	550	Processing, graphs, uncertainty, statistics and patterns
Conclusion	350	Direct answer, numerical evidence, scientific comparison
Evaluation	420	Significant limitations, effects and justified improvements
Approximate total	**2,200**	Excludes material officially omitted from the count

A usable heading template is:

1. **Title and word count**
2. **Research question**
3. **Scientific context and hypothesis**
4. **Variables**
5. **Materials and methodology**
6. **Safety, ethical and environmental considerations**
7. **Raw data and qualitative observations**
8. **Data processing**
9. **Analysis**
10. **Conclusion**
11. **Evaluation**
12. **References**

Word count and formatting conventions

The official maximum is **3,000 words**. The IB subject brief confirms this cap but does not impose a 2,200-word target, fixed page limit or compulsory font.

According to current guidance, the word count excludes:

- charts and diagrams
- data tables
- equations, formulas and calculations
- citations and references
- the bibliography
- headers

Do not exploit exclusions by placing analytical paragraphs inside oversized tables. Essential reasoning should remain in the main prose so that the report is readable and its word count is transparent.

Use a conventional, legible font such as Arial 11 or Times New Roman 12, consistent spacing, normal margins and numbered pages. These are sound presentation choices rather than universal IB regulations. Label tables and figures consecutively, place them near the relevant discussion, use SI units where appropriate and export a clean PDF according to your school's submission instructions.

Common structural mistakes

The most frequent problems arise when headings exist but the required reasoning is missing:

- writing an unfocused question with no measurable dependent variable
- including several pages of general biology unrelated to the method
- listing controls without explaining how or why they were controlled
- presenting graphs without interpreting variability or uncertainty
- reporting a p-value without naming the test or explaining its meaning
- giving a conclusion that repeats the trend but does not answer the question
- comparing results with no published scientific context
- listing "human error" without evidence, impact or a targeted improvement
- moving essential data or reasoning into appendices
- treating 2,200 words as a requirement rather than a planning target

Before submission, check the report against all four criteria rather than relying only on a generic laboratory-report model. RevisionDojo's Biology IA Grader can provide a criterion-based review through Jojo AI, but your teacher's guidance and the official criteria remain decisive.

Final checklist and next steps

A successful IB Biology IA has a focused question, justified design, sufficient relevant data, transparent processing, a scientifically grounded conclusion and an evaluation linked to actual methodological limitations. Its structure should make that chain of reasoning easy to follow rather than adding sections for their own sake.