

Internal Assessment Checklist for IB Biology: Evaluation and Communication

Overall

- ___ Conclusion and Evaluation are written in PARAGRAPH FORM
- ___ All references used in conclusion are properly cited (using footnotes in APA Format)
- ___ Bibliography is included (in APA format – includes ALL sources used in entire lab write up) at END of entire write up
- ___ Entire lab report is 6-12 pages
- ___ Lab report is IN ORDER (and includes all required components with labels etc.)
- ___ Subject-specific terminology is used correctly and appropriately throughout entire report
- ___ Uncertainties, units, and consistent decimal places are always used
- ___ Proper grammar, spelling etc. is used and report is not overly repetitive

Conclusion

- ___ **FIRST sentence** states the PURPOSE of the investigation (“The purpose of this investigation was...”)
- ___ **SECOND sentence** states an overall conclusion, related to the purpose of the lab and BASED ON THE DATA COLLECTED during the lab (“Based on the data collected in this investigation, it can be concluded that...”) – conclusion is relevant, detailed, correct, clear, and valid
- ___ **FOLLOWING SENTENCES use DATA** (relevant and specific – use your numbers, statistical analysis and qualitative data here) collected during the lab to EXPLAIN and *back up* the stated conclusion (this can be raw data, calculated data, statistical data, and/ or graphical trends)
- ___ Data is REASONABLY interpreted and explained (and includes explanation of any unusual results)
- ___ **FOLLOWING SENTENCES use PUBLISHED SCIENTIFIC INFORMATION** to further explain results (using footnotes in APA format)
 - Published scientific information includes (but is not limited to):**
 - a. Known textbook values of physical quantities (such as water’s boiling temperature)
 - b. Scientific principles, theories etc.
 - c. External experimental data obtained in a similar experiment performed by a CREDIBLE source – such as a university, scientists in a peer-reviewed journal etc.

Evaluation

___ **RELEVANT weaknesses** (sources of error caused by a weak design) that DID OCCUR when performing the experimental design (the PROCEDURE) are clearly stated

(Examples of weaknesses: # of trials, sample size, data intervals, measurements (precision of measurements/ measuring devices, consistency of measurements), consistency of procedures performed/ way in which data is collected, efficiency of materials used (did they allow for complete control/ manipulation of the variable being tested or were other variables still introduced?)

___ The SIGNIFICANCE of each identified weakness is clearly stated AND is thoroughly discussed – is it a MAJOR weakness (data should not be considered valid) or a MINOR weakness (data is still valid) and how so?

___ **RELEVANT limitations** (something that a researcher did not have access to or could not control) are clearly stated and discussed (with relevance to the quality of the data)

(Examples of limitations: random genetic variation within a species, access to chemicals/ measuring devices/ sample sizes and/ or # of trials/ equipment/ labware or safety items/ constraints of time, electricity, technology, budget etc.)

___ The precision and accuracy of measurements taken are discussed (with relevance to the quality of the data)

___ Time management and use of equipment are discussed (with relevance to the quality of the data)

Notes:

1. Weaknesses stated should NEVER include “human errors” (ie: “I measured wrong.” You should have remeasured when you were collecting data then!)
2. Weaknesses stated are those that DID occur (not those that “could have” occurred)
 - a. For example, never say something like, “When the solutions were measured into the test tubes the pipettes MAY HAVE been switched, contaminating the solutions.” - Either a weakness happened or it didn’t. Do NOT speculate!

___ Improvements to the investigation are clearly stated and their usefulness (to the quality of the data collected) is SPECIFICALLY explained

___ Modifications to the experimental technique AND the data range (# of trials, scope of data collected etc.) are addressed

___ Improvements are REALISTIC and VERY SPECIFIC (*Example*: do NOT just state that more precise equipment should be used – include which equipment (manufacturer/ model number etc.), how much more precise, and WHY)

___ Each improvement specifically addresses, each and EVERY weakness/ limitation stated in aspect 2

Note: ONLY the weaknesses/ limitations identified/ discussed should be addressed and have valid/ specific improvements discussed for them. If each weakness/ limitation does NOT have a SPECIFIC/ relevant/ valid improvement listed **and** discussed, you will not receive full marks.

___ An appropriate, relevant, and thoughtful extension of the investigation (further study) is included and discussed