

IB Extended Essay Advisor Comment and Assessment Rubric - BIOLOGY

Supervisor's Name: _____ Candidate's Name: _____

A. Research Question

This criterion assesses the extent to which the purpose of the essay is specified. In many subjects, the aim of the essay will normally be expressed as a question and, therefore, this criterion is called the “research question.” However, certain disciplines may permit or encourage different ways of formulating the research task.

In a biology extended essay, the research question is best stated in the form of a question. The research question should not be understood as a statement of the topic but rather as a precisely formulated question that the research will attempt to answer. The research question can then be used to formulate a hypothesis, or hypotheses, which can be tested. The research question should be identified clearly and set out prominently in the introduction.

Below Standard 0	Adequate 1	Excellent 2
<input type="checkbox"/> Not stated in the introduction <input type="checkbox"/> Does not lend itself to a systematic investigation in an extended essay in the subject in which it is registered	<input type="checkbox"/> Stated in the introduction <input type="checkbox"/> Not clearly expressed <input type="checkbox"/> Too broad in scope to be treated effectively within the word limit	<input type="checkbox"/> Clearly stated in the introduction <input type="checkbox"/> Sharply focused <input type="checkbox"/> Makes effective treatment possible within word limit

First Draft Comments:

B. Introduction

This criterion assesses the extent to which the introduction makes clear how the research question relates to existing knowledge on the topic and explains how the topic chosen is significant and worthy of investigation.

The purpose of the introduction is to set the research question into context. It is usually appropriate to include the general background biological theory required to understand how the research question has arisen. Students are not expected to explain basic biology forming part of the Diploma Programme biology course, but they are expected to be able to show that they fully understand it and can apply it correctly.

Below Standard 0	Adequate 1	Excellent 2
<ul style="list-style-type: none"><input type="checkbox"/> Little or no attempt is made to set the research question into context<input type="checkbox"/> Little or no attempt to explain the significance of the topic	<ul style="list-style-type: none"><input type="checkbox"/> Some attempt is made to establish the research question in context<input type="checkbox"/> Some attempt to explain the significance of the topic and why it is worthy of investigation	<ul style="list-style-type: none"><input type="checkbox"/> Context of the research question is clearly demonstrated<input type="checkbox"/> Introduction clearly explains the significance of the topic and why it is worthy of investigation

First Draft Comments:

C. Investigation

This criterion assesses the extent to which the investigation is planned and an appropriate range of sources has been consulted, or data has been gathered, that is relevant to the research question.

The way in which the investigation is written will depend very much on whether or not the essay is based on experimental work performed by the student. For essays that are based on data taken from written sources, the student should explain clearly how the data has been selected and should comment on its reliability. For experimental work, sufficient information on the methodology should be provided to allow the work to be repeated. Students should demonstrate that they understand the theory behind any techniques or apparatus used. They are also expected to show an awareness of any limitations or uncertainties inherent in their techniques and apparatus.

*Where the research question does not lend itself to a systematic investigation in the subject in which the essay is registered, the maximum level that can be awarded for this criterion is 2.	Below Standard 0	Marginal 1	Adequate 2	Good 3	Excellent 4
	<ul style="list-style-type: none"> <input type="checkbox"/> Little to no evidence that sources have been consulted or data gathered <input type="checkbox"/> Little to no evidence of planning in the investigation 	<ul style="list-style-type: none"> <input type="checkbox"/> A range of inappropriate sources has been consulted or inappropriate data has been gathered <input type="checkbox"/> There is little evidence that the investigation has been planned 	<ul style="list-style-type: none"> <input type="checkbox"/> A limited range of appropriate sources has been consulted or data has been gathered <input type="checkbox"/> Some relevant material has been selected <input type="checkbox"/> There is evidence of some planning in the investigation 	<ul style="list-style-type: none"> <input type="checkbox"/> A sufficient range of appropriate sources has been consulted or data has been gathered <input type="checkbox"/> Relevant material has been selected <input type="checkbox"/> The investigation has been satisfactorily planned 	<ul style="list-style-type: none"> <input type="checkbox"/> An imaginative range of appropriate sources has been consulted or data has been gathered <input type="checkbox"/> Relevant material has been carefully chosen <input type="checkbox"/> The investigation has been well planned

First Draft Comments:

D: Knowledge and Understanding of Topic

“Academic context”, as used in this guide, can be defined as the current state of the field of study under investigation. However, this is to be understood in relation to what can reasonably be expected of a pre-university student. For example, to obtain a level 4, it would be sufficient to relate the investigation to the principal lines of inquiry in the relevant field; detailed, comprehensive knowledge is not required.

A biology extended essay should be based on specific, relevant and clearly defined aspects of the biological study of living organisms. The information and ideas should be presented in a way that provides evidence that these have been understood and applied correctly. Material extracted from the sources should be referenced and incorporated into the main body of the essay in a way that demonstrates the student’s understanding.

*Where the research question does not lend itself to a systematic investigation in the subject in which the essay is registered, the maximum level that can be awarded for this criterion is 2.	Below Standard 0	Marginal 1	Adequate 2	Good 3	Excellent 4
	<input type="checkbox"/> Essay demonstrates no real knowledge or understanding of the topic	<input type="checkbox"/> Essay demonstrates some knowledge but little understanding of the topic <input type="checkbox"/> Essay shows little awareness of an academic context for the investigation	<input type="checkbox"/> Essay demonstrates an adequate knowledge and some understanding of the topic <input type="checkbox"/> Essay shows some awareness of an academic context for the investigation	<input type="checkbox"/> Essay demonstrates good knowledge and understanding of the topic <input type="checkbox"/> Where appropriate, the essay successfully outlines an academic context for the investigation	<input type="checkbox"/> Essay demonstrates a very good knowledge and understanding of the topic <input type="checkbox"/> Where appropriate, the essay clearly and precisely locates the investigation in an academic context

Knowledge and Understanding of Topic continued

First Draft Comments:

E. Reasoned Argument

This criterion assesses the extent to which the essay uses the material collected to present ideas in a logical and coherent manner, and develops a reasoned argument in relation to the research question.

Because of the nature of the subject, students writing a biology extended essay must make a special effort to maintain a reasoned, logical argument that focuses on the research question. Essays that attempt to deal with a large number of variables are unlikely to be focused and coherent. A clear and logical argument can be achieved by making repeated reference to the research question and to the hypotheses derived from it. An assessment of the extent to which the hypotheses are supported, or the question is answered, by the data or information accessed should form part of the argument.

	Below Standard 0	Marginal 1	Adequate 2	Good 3	Excellent 4
*Where the research question does not lend itself to a systematic investigation in the subject in which the essay is registered, the maximum level that can be awarded for this criterion is 2.	<input type="checkbox"/> No attempt to develop a reasoned argument in relation to the research question	<input type="checkbox"/> Limited or superficial attempt to present ideas in a logical and coherent manner <input type="checkbox"/> Limited or superficial attempt to develop a reasoned argument in relation to the research question	<input type="checkbox"/> Some attempt to present ideas in a logical and coherent manner <input type="checkbox"/> Some attempt to develop a reasoned argument in relation to the research question, but this is only partially successful	<input type="checkbox"/> Ideas are presented in a logical and coherent manner <input type="checkbox"/> A reasoned argument is developed in relation to the research question, but with some weaknesses	<input type="checkbox"/> Ideas are presented clearly and in a logical and coherent manner <input type="checkbox"/> Essay succeeds in developing a reasoned and convincing argument in relation to the research question

First Draft Comments:

F. Application of Analytical and Evaluative Skills Appropriate to the Subject

The stated conclusion(s) must be based on the data, information and/or evidence presented in the essay. The data must be analysed and presented in such a way that the argument leading to the conclusion is supported and clarified. Tables of raw data will generally not achieve this on their own. Raw data must be analysed, processed and presented in a way that relates clearly and directly to the central argument of the essay. Where appropriate, this analysis should allow for an assessment of the validity of the hypothesis. Errors and uncertainties arising from the methodology, instruments and/or techniques should be analysed and critically evaluated.

Below Standard 0	Marginal 1	Adequate 2	Good 3	Excellent 4
<input type="checkbox"/> Essay shows no application of appropriate analytical and evaluative skills	<input type="checkbox"/> Essays shows little application of appropriate analytical and evaluative skills	<input type="checkbox"/> Essay shows some application of appropriate analytical and evaluative skills	<input type="checkbox"/> Essay shows sound application of appropriate analytical and evaluative skills	<input type="checkbox"/> Essay shows effective and sophisticated application of appropriate analytical and evaluative skills

First Draft Comments:

G: Use of Language Appropriate to the Subject

Students writing in biology need to show a mastery of, and fluency in, the use of appropriate terminology. At the same time, students need to avoid excessive use of jargon. Any technical terms that are used should be explained and the student must demonstrate an understanding of these terms by using them appropriately within the text. The student must try to maintain a consistent linguistic style throughout the essay.

Below Standard 0	Marginal 1	Adequate 2	Good 3	Excellent 4
<input type="checkbox"/> Language used is inaccurate and unclear <input type="checkbox"/> No effective use of terminology appropriate to the subject	<input type="checkbox"/> Language used sometimes communicates clearly but does not do so consistently <input type="checkbox"/> Use of terminology appropriate to the subject is only partially accurate	<input type="checkbox"/> Language used for the most part communicates clearly <input type="checkbox"/> Use of terminology appropriate to the subject is usually accurate	<input type="checkbox"/> Language used communicates clearly <input type="checkbox"/> Use of terminology appropriate to the subject is accurate, although there may be occasional lapses	<input type="checkbox"/> Language used communicates clearly and precisely <input type="checkbox"/> Terminology appropriate to the subject is used accurately, with skill and understanding

First Draft Comments:

H: Conclusion

This criterion assesses the extent to which the essay incorporates a conclusion that is relevant to the research question and is consistent with the evidence presented in the essay.

The conclusion should relate directly to the research question and should point out the main findings of the research. Biological research often reveals unexpected outcomes and these should be pointed out, even if they were not part of the original plan. The original research question may not be fully answered by the investigation. In these cases, the student should point out unresolved issues and make suggestions as to how these might be further investigated.

Below Standard 0	Adequate 1	Excellent 2
<input type="checkbox"/> Little or no attempt is made to provide a conclusion that is relevant to the research question	<input type="checkbox"/> A conclusion is attempted that is relevant to the research question but may not be consistent with the evidence presented in the essay	<input type="checkbox"/> An effective conclusion is clearly stated <input type="checkbox"/> Conclusion is relevant to the research question and consistent with the evidence presented in the essay <input type="checkbox"/> Where appropriate to the subject concerned, the conclusion includes unresolved questions

First Draft Comments:

I: Formal Presentation

This criterion assesses the extent to which the layout, organization, appearance and formal elements of the essay consistently follow a standard format. The formal elements are: title page, table of contents, page numbers, illustrative material, quotations, documentation (including references, citations and bibliography) and appendices (if used).

Biological investigations often require the support of referenced material, not only in the form of text or data, but also as diagrams or drawings. Care must be taken to supply references for illustrations taken from sources. Students must avoid the temptation to supply illustrations for their own sake. Illustrative material should only be included if it enhances the argument or supplies information that cannot be easily provided in another way. Original photographs, photocopies or downloaded images that are not labelled or put into the context of the investigation are unlikely to enhance the essay.

Biological investigations often result in large quantities of raw data. Large tables of raw data are best included in an appendix. Processed data that is central to the argument of the essay should be included in the body of the essay, as close as possible to its first reference.

Below Standard 0	Marginal 1	Adequate 2	Good 3	Excellent 4
<input type="checkbox"/> Formal presentation is unacceptable <input type="checkbox"/> Essay exceeds 4000 words	<input type="checkbox"/> Formal presentation is poor <input type="checkbox"/> Is within the word limit	<input type="checkbox"/> Formal presentation is satisfactory <input type="checkbox"/> Is within the word limit	<input type="checkbox"/> Formal presentation is good <input type="checkbox"/> Is within the word limit	<input type="checkbox"/> Formal presentation is excellent <input type="checkbox"/> Is within the word limit

First Draft Comments:

J: Abstract

The requirements for the abstract are for it to state clearly the research question that was investigated, how the investigation was undertaken and the conclusion(s) of the essay.

For a biological investigation, the abstract must include the research question and a conclusion that directly relates to the research question. In addition, the description of how the research was conducted must include a description of the methodology and the scope of the study.

Below Standard 0	Adequate 1	Excellent 2
<input type="checkbox"/> Does not state the research question <input type="checkbox"/> Does not state how the investigation was undertaken <input type="checkbox"/> Does not state the conclusions of the essay <input type="checkbox"/> Exceeds 300 words	<input type="checkbox"/> States the research question that was investigated <input type="checkbox"/> States how the investigation was undertaken <input type="checkbox"/> States the conclusions of the essay <input type="checkbox"/> Is within the word limit	<input type="checkbox"/> Clearly states the research question that was investigated <input type="checkbox"/> Clearly states how the investigation was undertaken <input type="checkbox"/> Clearly states the conclusions of the essay <input type="checkbox"/> Is within the word limit

First Draft Comments:

K: Holistic Judgment

The purpose of this criterion is to assess the qualities that distinguish an essay from the average, such as intellectual initiative, depth of understanding and insight. While these qualities will be clearly present in the best work, less successful essays may also show some evidence of them and should be rewarded under this criterion.

Qualities that are rewarded under this criterion include the following.

- Intellectual initiative: Ways of demonstrating this in biology essays include the choice of topic and research question, and the use of novel or innovative approaches to address the research question.
- Insight and depth of understanding: These are most likely to be demonstrated as a consequence of detailed research and thorough reflection, and by well-informed and reasoned argument that consistently and effectively addresses the research question.

➤ Originality and creativity: These will be apparent by clear evidence of a personal approach backed up by solid research and reasoning.

Below Standard 0	Marginal 1	Adequate 2	Good 3	Excellent 4
<input type="checkbox"/> Essay shows no evidence of intellectual initiative, depth of understanding and insight	<input type="checkbox"/> Essay shows little evidence of intellectual initiative, depth of understanding and insight	<input type="checkbox"/> Essay shows some evidence of intellectual initiative, depth of understanding and insight	<input type="checkbox"/> Essay shows clear evidence of intellectual initiative, depth of understanding and insight	<input type="checkbox"/> Essay shows considerable intellectual initiative, depth of understanding and insight

First Draft Comments:

Submitted to turnitin.com yes no

Works Cited/Works Consulted Page is free of errors yes no

Disclaimer: The draft score is assigned at the school level by the candidate’s supervisor. It is a formative evaluation intended to help the student revise the essay. The finished essay is rescored by the supervisor and submitted as the student’s predicted grade on the extended essay. **The actual/official extended essay score is determined by the mark received from external IBO examiners.**

- A. Research Question _____
- B. Introduction _____
- C. Investigation _____
- D. Knowledge/Understanding of Subject _____
- E. Reasoned Argument _____
- F. Analytical and Evaluative Skills _____
- G. Use of Language _____
- H. Conclusion _____
- I. Formal Presentation _____
- J. Abstract _____
- K. Holistic Judgment _____

Total: _____/36

ESTIMATED GRADE BOUNDARIES

Excellent	36-29
Good	28-23
Satisfactory	22-16
Mediocre	15-8
Elementary	7-0

OVERALL ASSESSMENT:

- A Work of an excellent standard
- B Work of a good standard
- C Work of a satisfactory standard
- D Work of a mediocre standard