

Biology

Leaving Certificate

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Lesson 1:
AAC and The Exam

Important Definitions

Additional Assessment Component (AAC): the Biology in Practice Investigation, a scientific investigation worth 40% of your total Leaving Certificate Biology mark.

Iterative process: a cycle of steps that is repeated, with each repetition refining and improving the work.

Hypothesis: a testable statement predicting the outcome of an experiment.

Plagiarism: using words, ideas, or images from someone else without giving credit.

The Biology in Practice Investigation (AAC)

The Biology in Practice Investigation is a major coursework component worth 40% of your final grade (200 marks). It is a scientific investigation you conduct over the two years of the course.
The goal is to research a topic, design and carry out your own experiment, analyse your results, and write a formal report. All work submitted must be your own individual, authentic work.

The investigation follows an iterative cycle. You will move back and forth between stages, refining your work as you go. Reflection is a key part of the process. Unexpected results are a valid and important part of science; the key is to analyse and explain them.

The Investigative Log

Before you begin, start a notebook or digital document. This is your personal record of your entire investigation from start to finish. Include:

- Brainstorming and initial ideas
- Notes and summaries from background research
- Full references for every source used
- Drafts of your research question and hypothesis
- Experimental plans, diagrams of setups, and safety notes
- All raw data, observations, and results (even unexpected ones)
- Reflections on problems faced and how you solved them

Important: Your log is NOT submitted to the SEC, but it is essential for writing a high-quality final report and helps your teacher authenticate your work.

The Six Stages of the Investigation

Your project will follow a structured process over approximately 20 hours of work.

Stage	Time	Key Activities
1. Initial Response to the Brief	1–2 hours	Read the SEC brief carefully, brainstorm ideas, make connections to class learning, formulate initial ideas.
2. Background Research	2–3 hours	Gather information from reliable sources, evaluate sources for bias, take notes, reference everything, develop a focused re-search question.
3. Designing & Planning	2–3 hours	Form a testable hypothesis, identify variables (independent, dependent, controlled), list materials, write step-by-step method, consider safety.
4. Conducting the Experiment	1–2+ hours	Follow your plan carefully, record all quantitative and qualitative data. Must be completed under teacher supervision.
5. Data Analysis & Conclusions	1–2 hours	Process data (averages, rates), present data in graphs/tables, analyse trends, draw conclusions, evaluate sources of error.
6. Finalising the Report	Up to 4 hours	Write up all 7 required sections, use scientific language, check formatting, proofread.

The Final Report: Structure and Formatting

The report must use these seven headings, each on a new page:

- Title and Introduction
- Background Research
- Designing and Planning
- Conducting the Experiment
- Data and Data Analysis
- Conclusions
- References

Formatting requirements:

- Font: Arial, size 12
- Spacing: 1.5 line spacing
- Page numbers: bottom-centre
- File format: single PDF
- Maximum 1,500 words (excludes References section, data tables, formulae, and diagram labels)
- Maximum 20 images (excludes graphs, diagrams, formulae, or equations you create)

Referencing and Academic Honesty

You must acknowledge all sources. Plagiarism is a serious breach of exam rules.

Use in-text citations in your main text, e.g. "Pectinase is most effective in acidic conditions (Jones, 2023)."

Provide full details of all sources in the References section.

If you use AI tools, you must state which tool you used, the date, and the prompt you gave it.

The Written Exam (60%)

The written paper is worth 60% of your final grade (300 marks). It lasts 2 hours 30 minutes.
There are 7 questions on the paper, each worth 50 marks. You must answer Question 1 (compulsory) plus any 5 from Questions 2–7.

Question 1: Compulsory Short-Answer

This question is a fast-paced sampler of the whole course. It uses short-answer, multi-part format (a, b, c, d, e, f) and covers a wide range of topics from all strands. It tests core knowledge, diagram interpretation, and basic data skills.

Questions 2–7: In-Depth Choice Questions

These are long-form, themed questions focused on a central topic (e.g., photosynthesis, genetics, ecology). They test in-depth knowledge, data analysis, graph plotting and interpretation, scientific text comprehension, and application and problem-solving.

The exam is skills-based. Pay attention to action verbs:

- Identify – name it
- Describe – say what it is or does
- Explain – say why or how
- Analyse – examine data for patterns
- Evaluate – make a judgement using evidence
- Model – represent a process (e.g. a genetic cross)

What percentage of your Leaving Certificate Biology grade is determined by the