

AQA A-LEVEL BIOLOGY · 7402

The A* Biology Playbook

Not revision notes. A complete system for turning the specification into marks — **understand it, compress it, apply it to questions you have never seen before.**

All 8 topics

12 required practicals

Statistics & maths

Command words

Question bank + mark schemes

Synoptic maps

25-mark essay system

MADE BY

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A* in AQA A-Level Biology | 213/260 (81.9%)
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What is in this book

This is not a revision guide. It does not walk through the specification — you have a textbook and the spec itself for that. It teaches you **how to learn Biology, how to hold it in your head as one connected system, and how to convert what you know into marks**. It does not replace past papers; it exists to make them pay off.

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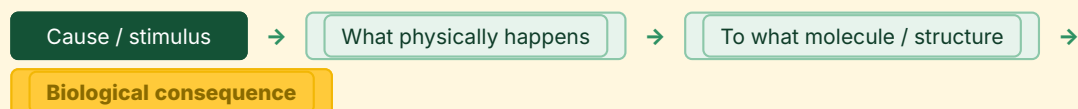
SHORT ON TIME?

The four chapters that move marks fastest are **Exam technique, Reading data, Required practicals** and **The essay system** — because those marks are lost through technique, not ignorance. Content revision has a lower ceiling than students think.

The five rules that convert knowledge into marks

RULE 1 — THE EXPLAIN CHAIN

Cause → mechanism → consequence. An explanation is only complete when someone could not ask “yes, but why?” after any sentence.



Rule of thumb: a 3-mark explain question usually wants three *links in a chain*, not three unrelated facts. Marks are for the joins.

WHAT GETS THE MARK? — “EXPLAIN WHY A HIGH TEMPERATURE REDUCES THE RATE OF AN ENZYME-CONTROLLED REACTION.” (3 MARKS)

× BAD ANSWER

The enzyme gets denatured at high temperatures so it stops working and the rate goes down.

✓ BETTER ANSWER

Increased kinetic energy causes vibration that breaks hydrogen and ionic bonds holding the tertiary structure. The active site changes shape, so the substrate is no longer complementary and fewer enzyme–substrate complexes form, reducing the rate.

WHY

The bad answer names the outcome (“denatured”) but supplies no mechanism — it is one mark at best. The strong answer gives three explicit links: *bonds break* → *active site shape changes* → *fewer E–S complexes*. Notice that “stops working” is also factually wrong: rate falls, it does not necessarily reach zero.

RULE 2 — THE SUGGEST RULE

Information given + Biology you know = the answer.

“Suggest” is AQA telling you outright that this is not a recall question. Underline every piece of information in the stem — the organism, the drug's target, the units on the axis, the temperature — because each one is usually there for a reason.

If your suggested answer would still be true with the stem deleted, you have almost certainly missed the point of the question.

RULE 3 — THE COMPARE RULE

One sentence must contain both things.

Use explicit comparative connectives: *whereas*, *but*, *compared with*, *both*, *however*.

× “Arteries have thick walls. Veins have valves.”

✓ “Arteries have a thicker muscular wall than veins, *whereas* veins contain valves and arteries do not.”

The master thread map

Seven ideas, eight topics. This one page is the argument of the whole book: A-level Biology is not eight subjects, it is seven ideas wearing eight different costumes. If you can rebuild this grid from memory, you can find synoptic material for any essay title in under two minutes.

	1 Biological molecules	2 Cells	3 Exchange & transport	4 Genetic information	5 Energy transfers	6 Responding & homeostasis	7 Genetics & ecosystems	8 Gene expression
ATP	Structure; hydrolysis	Active transport; phagocytosis	Co-transport in ileum	DNA replication; translation	Made by chemi-osmosis; Calvin	Na ⁺ /K ⁺ pump; myosin heads		PCR; protein synthesis
Proteins	4 levels; enzymes	Carriers, channels, antibodies	Haemoglobin; digestive enzymes	DNA & RNA polymerase	Rubisco; ETC carriers	Receptors; actin & myosin		Transcription factors; ligase
DNA	Nucleotides; replication	Chromosomes; mitosis		Transcription; translation			Alleles; selection; speciation	Mutation; PCR; fingerprinting
Membranes	Phospholipids; cholesterol	Fluid mosaic; all transport	Alveoli; villi; capillaries	Nuclear envelope	Thylakoid; cristae	Axon; synapse; collecting duct		Vectors entering cells
Gradients	Water potential concept	Diffusion; osmosis	Fick's law; cohesion-tension		Proton gradients; electron transfer	Electrochemical; ADH & kidney	Nutrient movement	
Control & feedback	End-product inhibition	Cell cycle checkpoints	Ventilation; heart rate		Limiting factors	Negative feedback; glucose; ADH	Carrying capacity	Gene switching; epigenetics
Variation & selection		Antigen variability; HIV mutation		Meiosis; mutation; diversity index			Selection; drift; Hardy-Weinberg	Oncogenes; GM organisms

Read across a row: the same idea, doing the same job, in six or seven different places on the specification.

Read down a column: what a single topic is really made of. A dot means the thread is present but not a major feature of that topic.