

Subject on a Page: Biology



In a nutshell:

The study of life itself, A level Biology explores the theories and principles involved in living systems, in all their intricate beauty.

In Biology we:

- AO1: Demonstrate knowledge and understanding of scientific ideas, processes, techniques and procedures
- AO2: Apply knowledge and understanding of scientific ideas, processes, techniques and procedures:
 - in a theoretical context
 - in a practical context
 - when handling qualitative data
 - when handling quantitative data
- AO3: Analyse, interpret and evaluate scientific information, ideas and evidence, including in relation to issues, to:
 - make judgements and reach conclusions
 - develop and refine practical design and procedures.

Think like a Biologist:

Be curious: Always ask questions about how living things work and why they behave the way they do.

Observe carefully: Pay close attention to patterns and details in nature and experiments.

Think critically: Evaluate information, identify assumptions, and consider alternative explanations.

Use evidence: Base conclusions on data from experiments, research, or observations.

Make connections: Understand how different biological systems and concepts are linked, from cells to ecosystems.

Form hypotheses: Predict outcomes based on existing knowledge and test them through investigation.

Stay open-minded: Be willing to change your understanding when new evidence is presented.

Communicate clearly: Explain ideas and findings using scientific language and logical reasoning.

Write and talk like a Biologist:

- Accuracy
 - Calibration
 - Data
 - Errors (random error, systematic error, zero error)
 - Anomalies
 - Hypothesis
 - Interval
 - Precision
 - Range
 - Repeatable
 - Reproducible
 - Resolution
 - True Value
 - Uncertainty
 - Validity
- Plus, many, many more key biological terms...**

Read like a Biologist:

- A Short History of Nearly Everything – Bill Bryson
- DNA: The Secret Life of the Double Helix – James Watson
- The Origin of Species – Charles Darwin
- Mutants: On the Form, Varieties and Errors of the Human Body – Armand Marie Leroi
- New Scientist Magazine
- Nature Science
- Biological Science Review

Revise like a Biologist:

- Use your knowledge organisers and snap revise cheat sheets
- Use revision websites such as Save my Exams, Physics and Math Tutor, Study Wise, and Study Rocket
- Complete mind-maps to link topics together
- Make flashcards for key ideas and terminology, and use them to test yourself and your peers
- Practise planning and writing up investigations
- Practise past papers

Experience it like a Biologist:

- Keep up to date with biological advancements in the media
- Watch documentaries about biological concepts
- Visit the coast to carry out ecological field work (educational trip)
- Plan, carry out, and write up investigations
- Take part in extra-curricular activities and clubs that link to Biology
- Volunteer in Biological careers and settings

Progress to a career in Biology:

- Academic researcher
- Biotechnologist
- Higher education lecturer
- Marine biologist
- Microbiologist
- Nanotechnologist
- Nature conservation officer
- Palaeontologist
- Pharmacologist
- Scientific laboratory technician
- Secondary school teacher
- Soil scientist
- Water quality scientist
- Dentist
- Diagnostic radiographer
- Fisheries officer
- Forensic scientist
- Genetic counsellor
- Neuroscientist
- Operating department practitioner
- Physician associate
- Science writer
- Sustainability consultant
- Veterinary nurse
- Zoologist