# A Level Biology at Latymer

Ms A Bridle (HOD)





# Why study biology?

"The biggest innovations of the 21st century will be at the intersection of biology and technology"

Steve Jobs

nature

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NEWS | 22 October 2026

## A first for CRISPR: powerful prime editing alters DNA directly in the human body

**Application of the high-precision technique is part of a clinical trial to treat a genetic disease that can cause liver and nerve damage.**

22nd October 2026

BBC Science Focus

News | Future tech | Nature | Space | Health | Everyday science

## 'Discovery of the century': Experts have found secret DNA that could unlock a cancer vaccine

Mysterious sequences buried in our genetic code are being found to have unexpected effects



Image credit: Sam Falconer

By Helen Pilcher

Published: September 27, 2026 at 3:14 pm

27th September 2026

nature

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NEWS | 24 June 2026

## Antibiotic cocktail made by soil bacteria can kill superbugs

**Four antibiotic compounds produced in *Streptomyces* bacteria attack multiple parts of an essential metabolic pathway.**

By Mohana Basu

24th June 2026

# Why study biology?

- **Health & Medicine** - Understanding and treating disease, developing new therapies
- **Environmental Crisis** - Tackling climate change, biodiversity loss, sustainability
- **Food Security** - Feeding the world's growing population
- **Biotechnology Revolution** - Gene editing, synthetic biology, cutting-edge innovation
- **Understanding Ourselves** - How our brains work, why we age, our evolutionary origins

# What does biology offer you?

- **Scientific Method** - Designing experiments, testing hypotheses, analysing data objectively
- **Critical Thinking** - Evaluating evidence, identifying patterns, solving complex problems
- **Practical Laboratory Skills** - Using specialized equipment, conducting investigations safely and accurately
- **Data Analysis** - Interpreting graphs, statistics, and scientific results to draw conclusions
- **Communication** - Explaining complex scientific concepts clearly in writing and discussion
- **Diverse careers opportunities** - Provides a strong foundation for many diverse careers in natural sciences

# Latymer Biology Results

| Cohort | A* % | A* - A % | A* - B % | A* - C % | A* - D % | A* - E % |
|---|---|---|---|---|---|---|
| 21/22 | 37 | 70 | 88 | 96 | 98 | 99 |
| 22/23 | 26 | 58 | 74 | 84 | 91 | 97 |
| 23/24 | 25 | 63 | 90 | 97 | 100 | 100 |
| 24/25 | 37 | 76 | 87 | 97 | 99 | 100 |
| 25/26 | 26 | 53 | 78 | 92 | 97 | 100 |
| **Mean** | **30** | **64** | **83** | **93** | 97 | 99 |

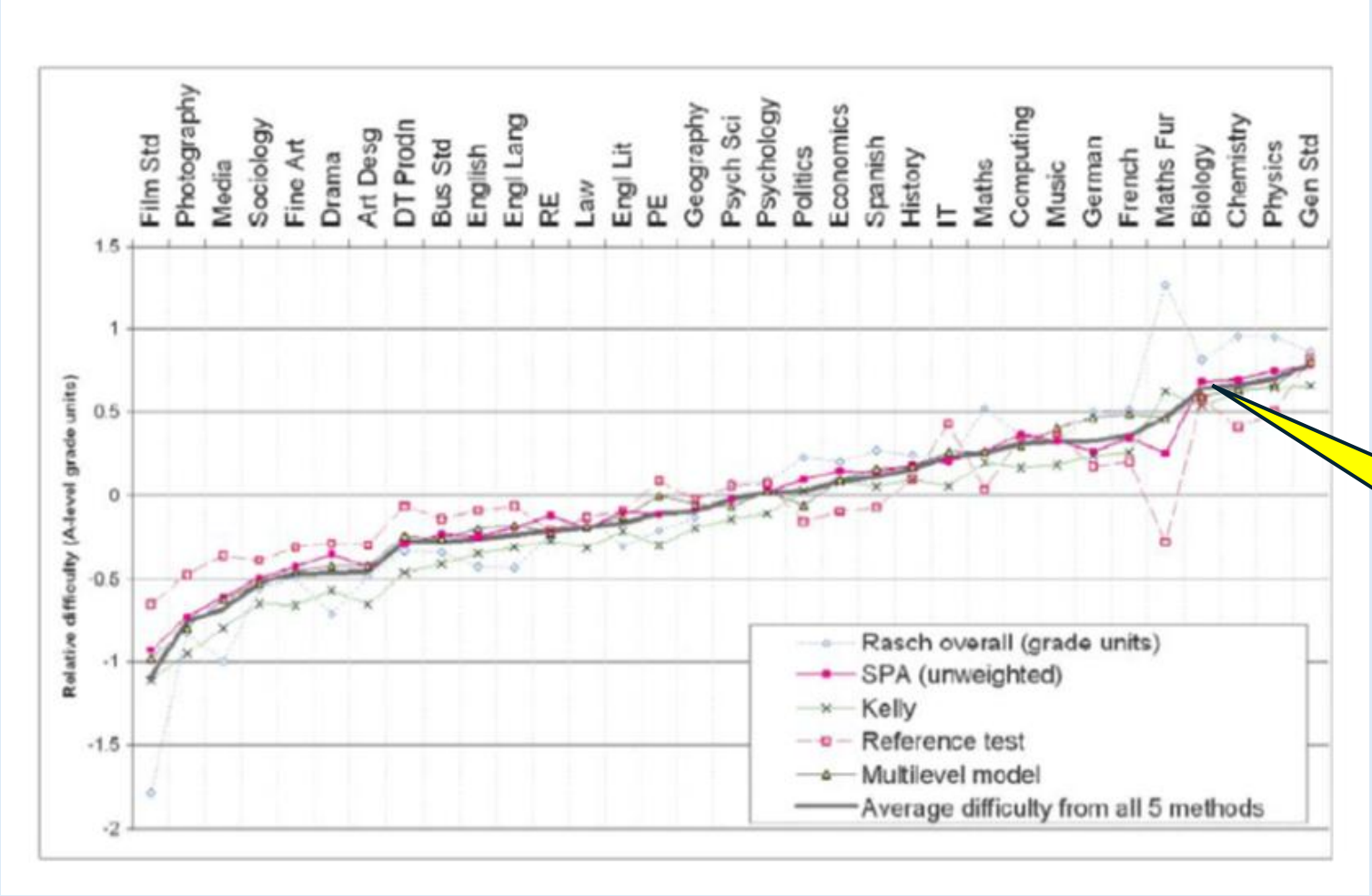
# A selection of Latymer 2026 Leavers destinations

- Biological sciences at Imperial
- Biology at Manchester
- Biomedical Sciences at Oxford
- Cancer sciences at Nottingham
- Dentistry at King’s
- Medicine at Oxford, Imperial, UCL, St Andrews, Newcastle and more
- Pharmacy at UCL
- Veterinary medicine and surgery at Nottingham
- Zoology at Exeter

# Entry requirements

- **GCSE grade 7 or above** in **Biology** *or* **Combined Science**
- Total of **6 GCSEs grade 7 or above**
- OCR 21st Century Science not ideal as we do AQA, but the website has bridging activities to convert over the Summer
- External applicants are **more than welcome**

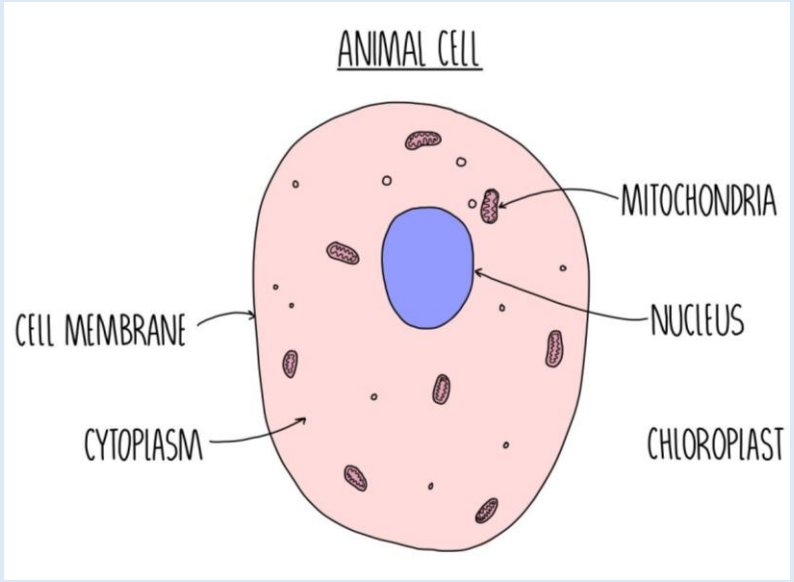
# Drastic jump from GCSE to A Level



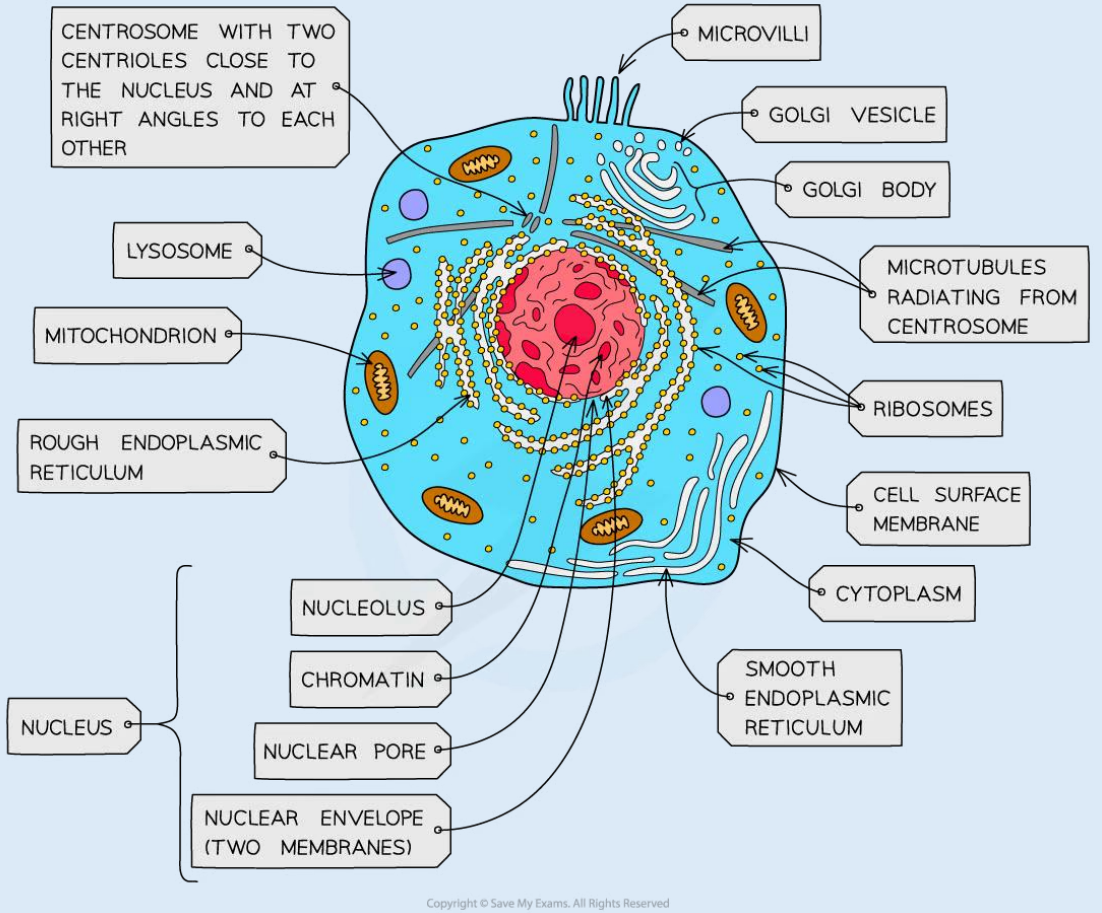

Biology is NOT an easy subject!

# Drastic jump from GCSE to A Level

## GCSE



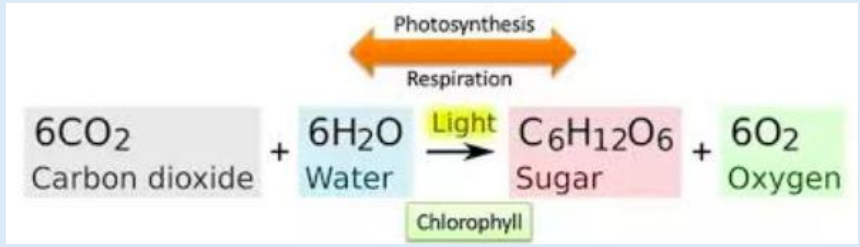

## A Level



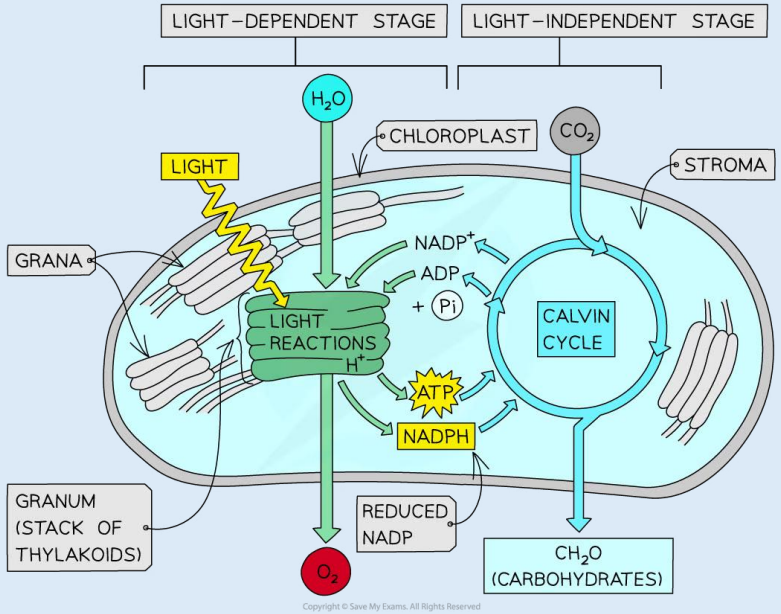

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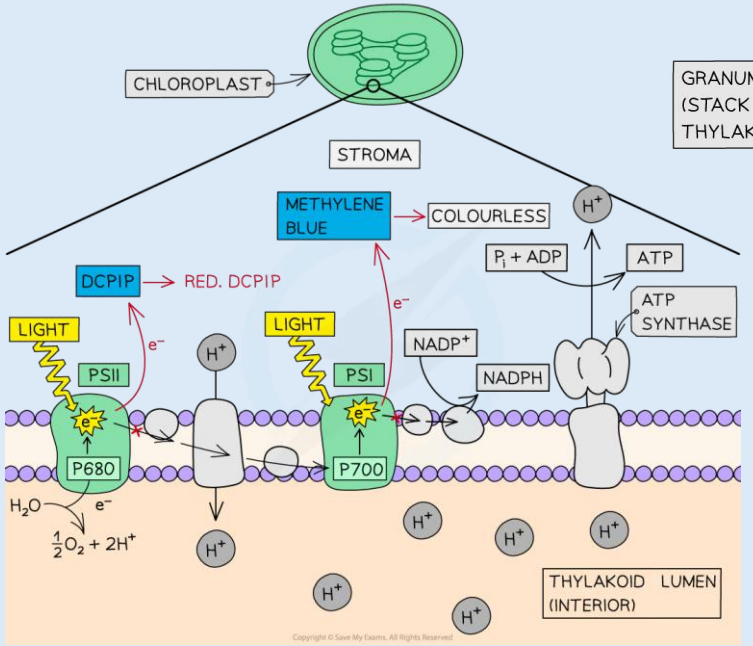
# Drastic jump from GCSE to A Level

## GCSE



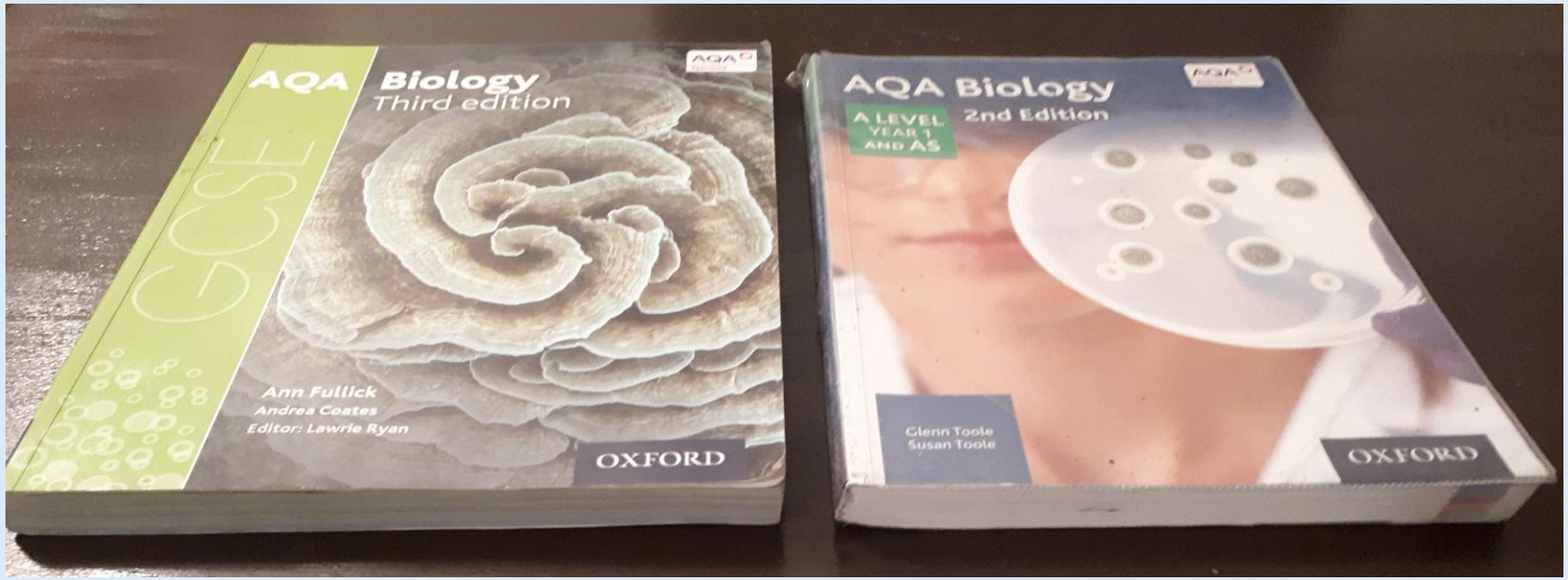

## A Level



# Drastic jump from GCSE to A Level

- A-level is a lot more work and the exam questions are a lot less formulaic
- You will have biology almost every day
- You will have to work outside lessons too



# Paper 3 has a 25 mark essay

**Section B**

Answer **one** question.

You are advised to spend no more than 45 minutes on this section.

*Do not write outside the box*

**0 7** Write an essay on **one** of the topics below.

**EITHER**

**0 7 . 1** The importance of DNA as an information-carrying molecule **and** its use in gene technologies.

**[25 marks]**

**OR**

**0 7 . 2** The importance of bonds and bonding in organisms.

**[25 marks]**

# Maths skills are vital

- 10% of the exam questions will be mathematical/ statistical

(c) By how many times is the species diversity in the canopy greater than in the understorey? Show your working.

Use the following formula to calculate species diversity.

$$d = \frac{N(N-1)}{\sum n\,(n-1)}$$

where $N$ is the total number of organisms of all species and $n$ is the total number of organisms of each species.

Answer = _____

**(3)**

(d) The scientists carried out a statistical test to see if the difference in the distribution of each species between the canopy and understorey was due to chance. The P values obtained are shown in the table.

Explain what the results of these statistical tests show.

_____

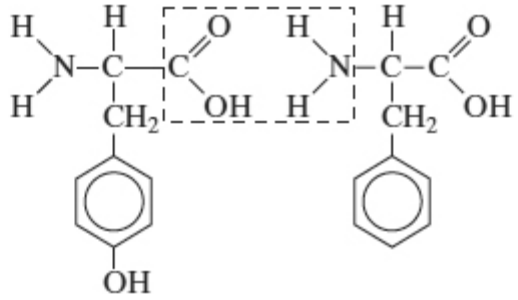
_____

_____

# You’ve got to enjoy chemistry (at least a bit!)

- The course contains a lot of biochemistry

The diagram shows the structure of two amino acid molecules, tyrosine and phenylalanine.



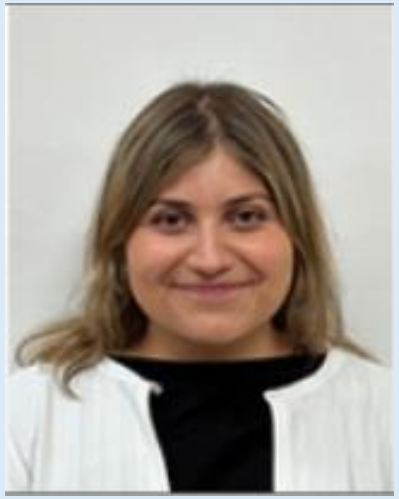
Tyrosine Phenylalanine

(b) Copy from the diagram the R group in the phenylalanine molecule.

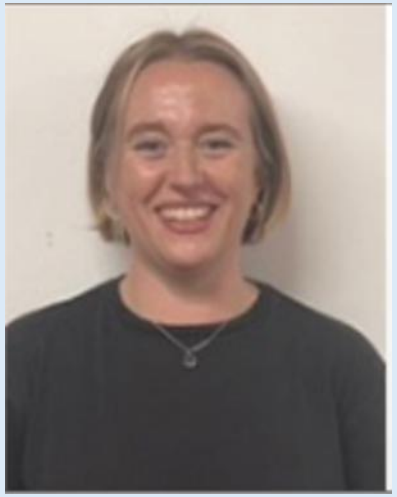
**(1)**

(c) (i) In the space below, draw the chemical bond formed when these two amino acids are joined by condensation. You need only draw the parts of the molecules shown in the box.

# Latymer Biology team



Dr Bermudez



Ms Bridle (HOD)



Ms Kocjancic



Ms Owen



Ms Safdar



Ms Barber (technician)

# Class sizes and structure

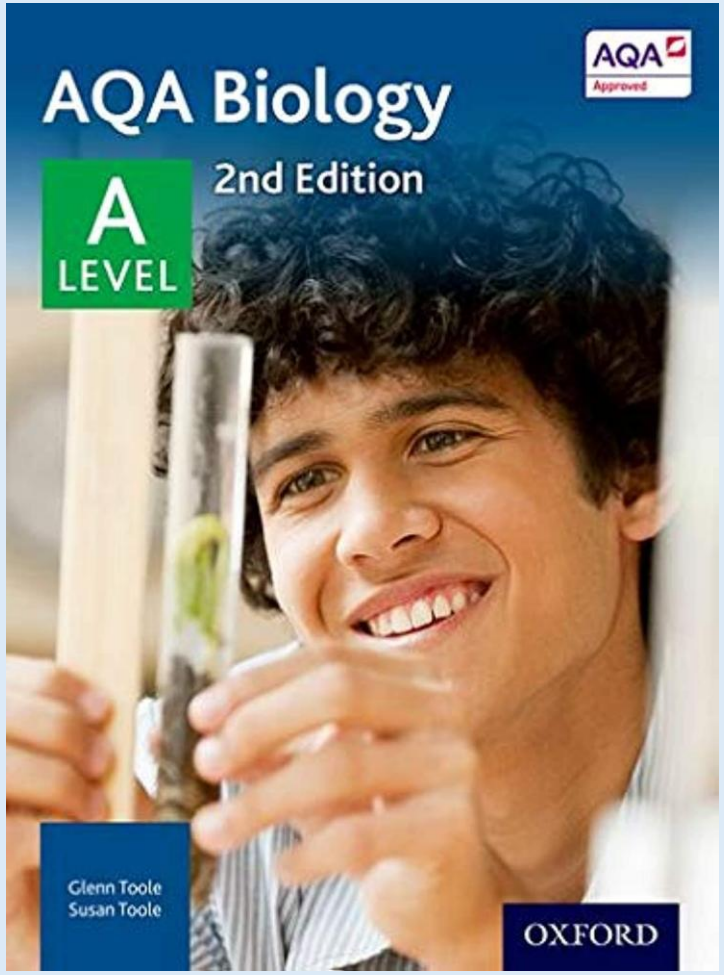
- About 1/3 of the sixth form take biology – we are very popular!
- Roughly equal boys:girls
- 4 well-equipped biology labs and a dedicated biology specialist technician
- 5 Classes of around 16 students (maximum 20)
- Classes are **not** based on ability
- Each class has **two teachers**
- 14 x 40 minute lessons per fortnight split evenly between teachers (so roughly 5 hours of biology contact time each week)

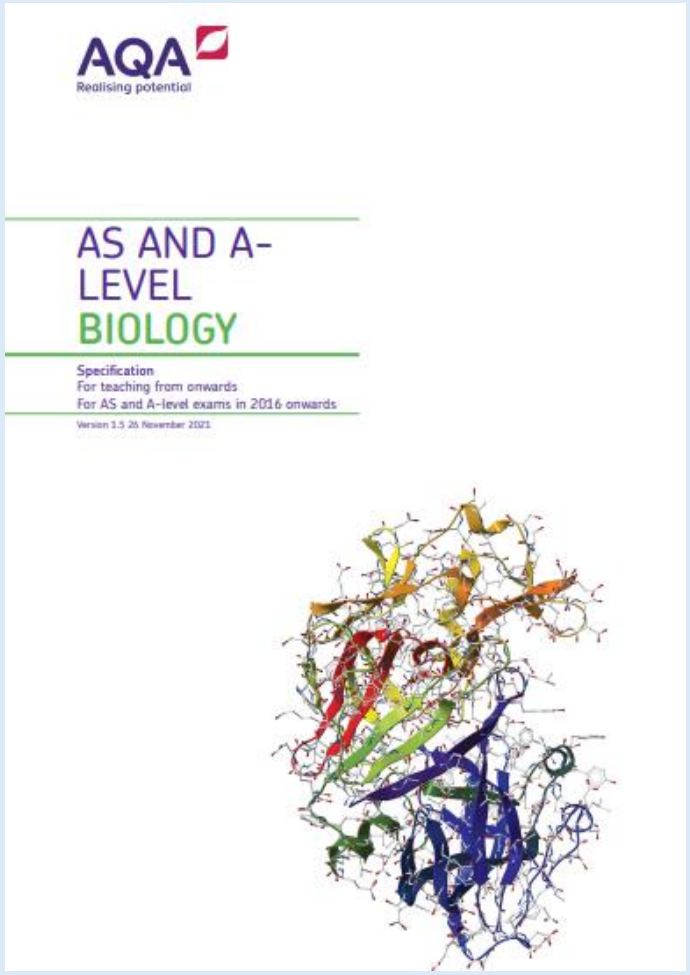
# Enrichment opportunities are what make biology at Latymer special

- Medical society
- Biology society
- Local field trip (part of course)
- Biology Olympiad
- External speakers



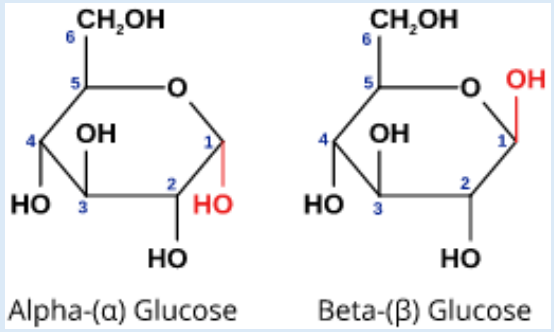
# The Biology Curriculum – AQA (7402)



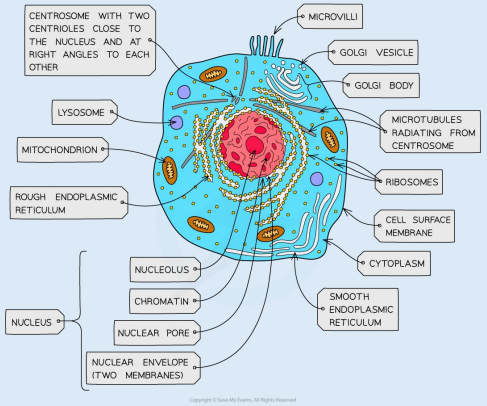



# Y12 Topics

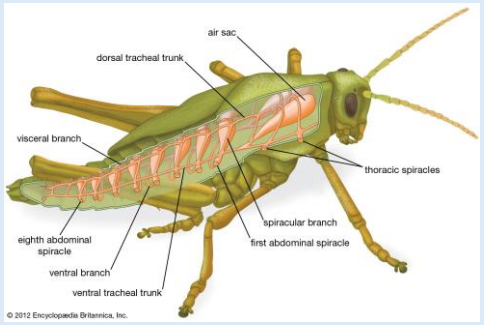
1. Biological molecules



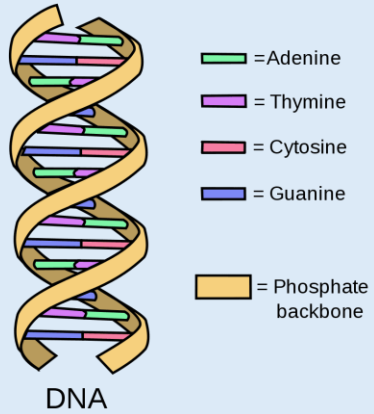

2. Cells




3. Organisms exchange substances with their environment




4. Genetic information, variation and relationships between organisms



# Y12 Structure

| | Teacher A | Teacher B |
|---|---|---|
| Autumn Term | Biological Molecules | Cells |
| Spring Term | Genetics and Variation | Exchange |
| Summer Term | Either AS external exam OR internal UCAS exam<br>Ecology and Field Work (year 13 only) | |

| 6 required practicals |
|---|
| 1. Enzymes<br>2. Cell division in root tip (microscopy)<br>3. Osmosis in potato<br>4. Permeability of beetroot cell membranes<br>5. Dissection<br>6. Aseptic technique |

# Y12 External AS exam

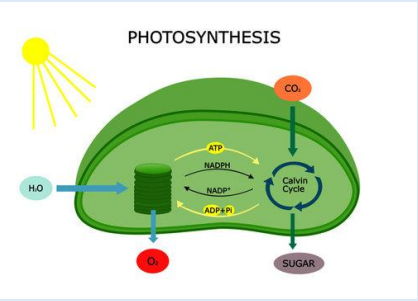
- Sat only by a small number of students intending to drop biology in Y13
- Rest of the cohort will sit the internal UCAS exam

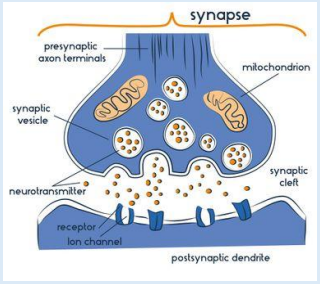
## Assessments

| Paper 1 | + | Paper 2 |
|---|---|---|
| **What's assessed**<br>• Any content from topics 1–4, including relevant practical skills | | **What's assessed**<br>• Any content from topics 1–4, including relevant practical skills |
| **Assessed**<br>• written exam: 1 hour 30 minutes<br>• 75 marks<br>• 50% of AS | | **Assessed**<br>• written exam: 1 hour 30 minutes<br>• 75 marks<br>• 50% of AS |
| **Questions**<br>• 65 marks: short answer questions<br>• 10 marks: comprehension question | | **Questions**<br>• 65 marks: short answer questions<br>• 10 marks: extended response questions |

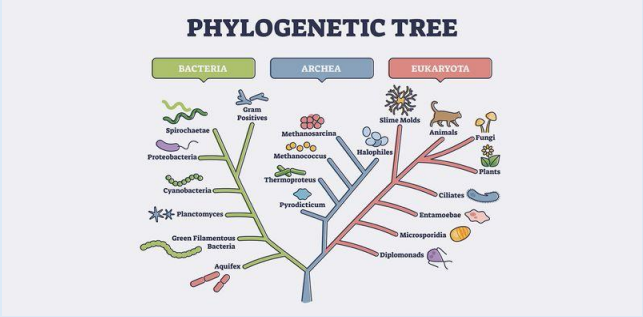
# Y13 Topics

5. Energy transfers in and between organisms



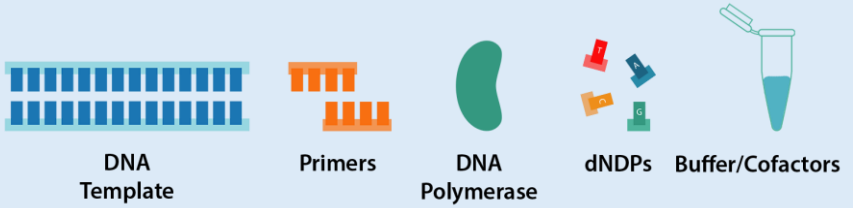




6. Organisms respond to changes in their internal and external environments




7. Genetics, populations, evolution and ecosystems

8. The control of gene expression



# Y13 Structure

| | Teacher A | Teacher B |
|---|---|---|
| Autumn Term | Energy Transfers | Response to change |
| Spring Term | Gene expression | Genetics and Evolution |
| Summer Term | External A-level Exam | |

| 6 more required practicals |
|---|
| 7. Chromatography of plant pigments<br>8. Activity of Chloroplasts<br>9. Respiration in yeast<br>10. Behaviour of maggots<br>11. Measuring glucose in “urine” samples<br>12. Field work |

# Y13 A Level Exams

## Assessments

marksphysicshelp MPH

| Paper 1 | Paper 2 | Paper 3 |
|---|---|---|
| **What's assessed**<br>• Any content from topics 1– 4, including relevant practical skills | **What's assessed**<br>• Any content from topics 5–8, including relevant practical skills | **What's assessed**<br>• Any content from topics 1–8, including relevant practical skills |
| **Assessed**<br>• written exam: 2 hours<br>• 91 marks<br>• 35% of A-level | **Assessed**<br>• written exam: 2 hours<br>• 91 marks<br>• 35% of A-level | **Assessed**<br>• written exam: 2 hours<br>• 78 marks<br>• 30% of A-level |
| **Questions**<br>• 76 marks: a mixture of short and long answer questions<br>• 15 marks: extended response questions | **Questions**<br>• 76 marks: a mixture of short and long answer questions<br>• 15 marks: comprehension question | **Questions**<br>• 38 marks: structured questions, including practical techniques<br>• 15 marks: critical analysis of given experimental data<br>• 25 marks: one essay from a choice of two titles |

3 X 2 hour papers.

Paper 3 is synoptic.

Practical skills are assessed across all 3 papers.

**Paper 3 has a 25 mark synoptic essay**

# 12 required practicals

Biology required activities (1-6 AS), (1-12 A-level)

| Required activity | Apparatus and technique reference |
|---|---|
| 1. Investigation into the effect of a named variable on the rate of an enzyme-controlled reaction | a, b, c, f, l |
| 2. Preparation of stained squashes of cells from plant root tips; set-up and use of an optical microscope to identify the stages of mitosis in these stained squashes and calculation of a mitotic index | d, e, f |
| 3. Production of a dilution series of a solute to produce a calibration curve with which to identify the water potential of plant tissue | c, h, j, l |
| 4. Investigation into the effect of a named variable on the permeability of cell-surface membranes | a, b, c, j, l |
| 5. Dissection of animal or plant gas exchange or mass transport system or of organ within such a system | e, h, j |
| 6. Use of aseptic techniques to investigate the effect of antimicrobial substances on microbial growth | c, i |
| 7. Use of chromatography to investigate the pigments isolated from leaves of different plants, eg leaves from shade-tolerant and shade-intolerant plants or leaves of different colours | b, c, g |
| 8. Investigation into the effect of a named factor on the rate of dehydrogenase activity in extracts of chloroplasts | a, b, c |
| 9. Investigation into the effect of a named variable on the rate of respiration of cultures of single-celled organisms | a, b, c, i |
| 10. Investigation into the effect of an environmental variable on the movement of an animal using either a choice chamber or a maze | h |
| 11. Production of a dilution series of a glucose solution and use of colorimetric techniques to produce a calibration curve with which to identify the concentration of glucose in an unknown 'urine' sample | b, c, f |
| 12. Investigation into the effect of a named environmental factor on the distribution of a given species | a, b, h, k, l |

You build your investigative and practical skills through **12 required practicals** assessed via 5 'CPAC' skills.

You 'pass' or 'fail' the practical aspect of the course, but all skills gained are relevant to the 3 papers.

**CPAC Skills**

1. Following written instructions
2. Planning and carrying out investigations
3. Working safely
4. Gathering and recording accurate data
5. Analysing data and researching

# Is A Level Biology right for you?

- Do you like chemistry?
- Do you like maths and analysing data?
- Do you write full, in-depth answers?
- Do you work hard?
- Are you organised?
- Are you ambitious and like a challenge?
- Are you an independent learner?
- Do you have a **genuine strong interest in biology**? Never study an A Level science because somebody is else is telling you to, you need to enjoy it to thrive.