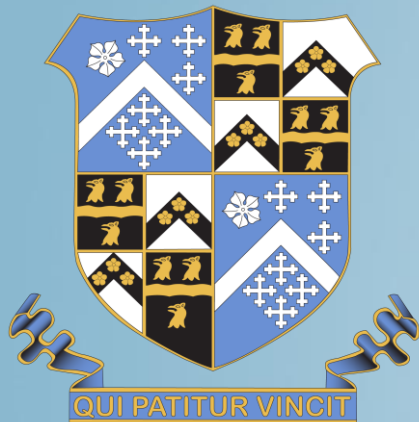


# Biology in the Sixth Form



# Reasons for taking Biology

The world is changing. Biology is important!

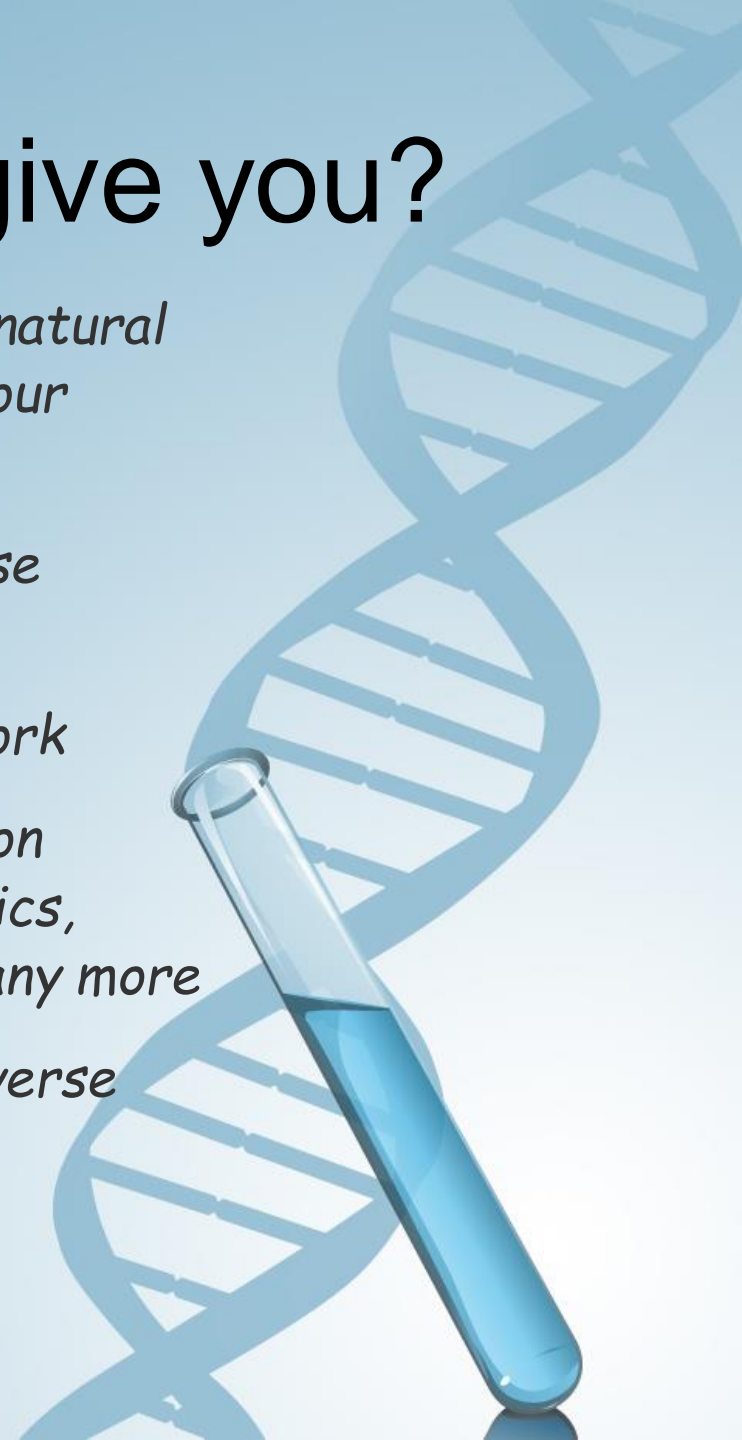
- *Climate change, sustainability and environmental issues*
- *Covid-19 and antibiotic resistance*
- *Genetic modification and gene editing*
- *Medical advances such as stem cells*
- *Healthy lifestyles and well-being*

"I think the biggest innovations of the 21st century will be at the intersection of biology and technology. A new era is beginning."

*Steve Jobs*

# What does Biology give you?

- *Gives you a deeper understanding of the natural world, how it works, our dependence and our impact on it*
- *Enables you to test ideas, critically analyse evidence and make informed judgements*
- *You learn through theory and practical work*
- *It is a multidisciplinary subject, drawing on mathematics, geography, chemistry, physics, philosophy, written communication and many more*
- *Provides a strong foundation for many diverse careers in natural sciences*
- *It's interesting and fun !*



# Enrichment activities

- Medical society
- Biological society
- Field trip
- Olympiad
- External speakers
- Dissections
- PCR Simulation

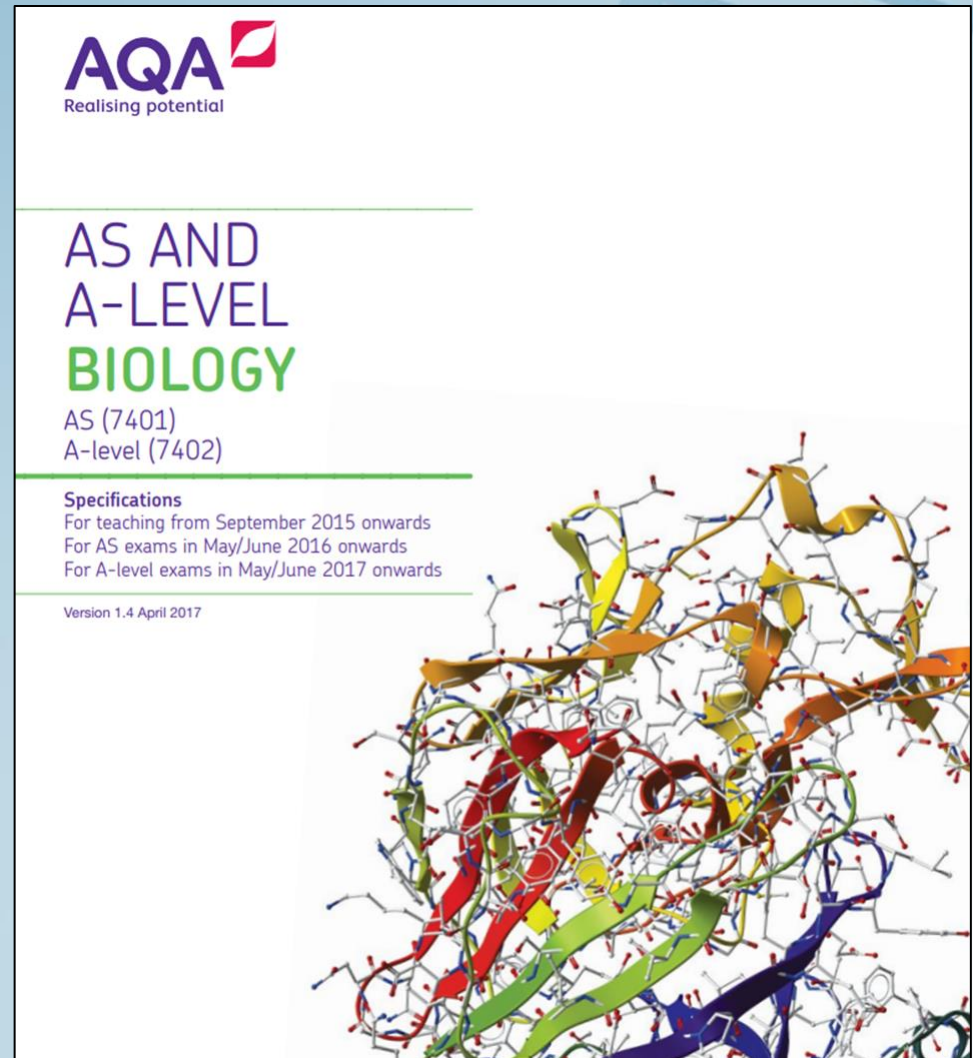




# The Biology Curriculum

AQA Biology 7401

[www.aqa.org.uk](http://www.aqa.org.uk)



**AQA**  
Realising potential

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AS AND  
A-LEVEL  
**BIOLOGY**

AS (7401)  
A-level (7402)

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**Specifications**  
For teaching from September 2015 onwards  
For AS exams in May/June 2016 onwards  
For A-level exams in May/June 2017 onwards

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Version 1.4 April 2017

# The Biology Department



Ms Chenery



Dr Elliott  
(HOD)



Ms Kocjancic



Ms O'Neill



Ms Safdar

# Year 12 Biology

- About 1/3 sixth form take biology
- Roughly equal boys:girls
- 4 well-equipped biology labs
- 5 Classes of 13-16 students
- Classes are not based on ability
- Each class has two teachers



# Year 12 Biology

	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 Ecology and Field Work (year 13 only)	

## 6 required practicals

1. Enzymes
2. Cell division in root tip (microscopy)
3. Osmosis in potato
4. Permeability of beetroot cell membranes
5. Dissection
6. Aseptic technique



# AS Exam

- Only for students dropping biology (8/79)
- Practical work may be tested

## Assessments

### Paper 1

#### What's assessed

- Any content from topics 1–4, including relevant practical skills

#### Assessed

- written exam: 1 hour 30 minutes
- 75 marks
- 50% of AS

#### Questions

- 65 marks: short answer questions
- 10 marks: comprehension question

+

### Paper 2

#### What's assessed

- Any content from topics 1–4, including relevant practical skills

#### Assessed

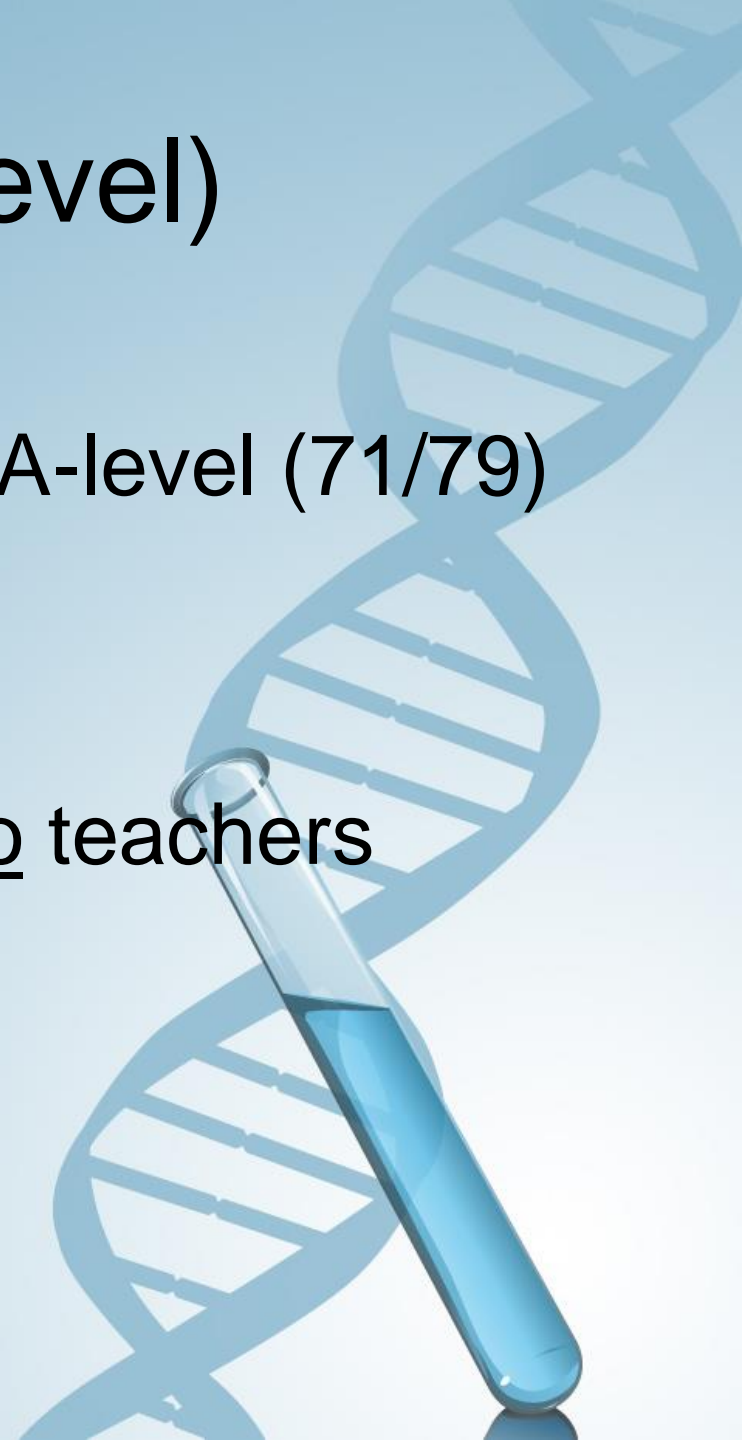
- written exam: 1 hour 30 minutes
- 75 marks
- 50% of AS

#### Questions

- 65 marks: short answer questions
- 10 marks: extended response questions

# Year 13 Biology (A-level)

- Most students continue to A-level (71/79)
- 5 classes
- Not based on ability
- Usually keep the same two teachers



# Year 13 Biology (A-level)

	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
8. Activity of Chloroplasts
9. Respiration in yeast
10. Behaviour of maggots
11. Measuring glucose in "urine" samples
12. Field work



# A-level Exam

- 12 required practicals may be tested
- Synoptic paper and essay

## Assessments

Paper 1	+	Paper 2	+	Paper 3
<b>What's assessed</b> <ul style="list-style-type: none"><li>• Any content from topics 1–4, including relevant practical skills</li></ul>		<b>What's assessed</b> <ul style="list-style-type: none"><li>• Any content from topics 5–8, including relevant practical skills</li></ul>		<b>What's assessed</b> <ul style="list-style-type: none"><li>• Any content from topics 1–8, including relevant practical skills</li></ul>
<b>Assessed</b> <ul style="list-style-type: none"><li>• written exam: 2 hours</li><li>• 91 marks</li><li>• 35% of A-level</li></ul>		<b>Assessed</b> <ul style="list-style-type: none"><li>• written exam: 2 hours</li><li>• 91 marks</li><li>• 35% of A-level</li></ul>		<b>Assessed</b> <ul style="list-style-type: none"><li>• written exam: 2 hours</li><li>• 78 marks</li><li>• 30% of A-level</li></ul>
<b>Questions</b> <ul style="list-style-type: none"><li>• 76 marks: a mixture of short and long answer questions</li><li>• 15 marks: extended response questions</li></ul>		<b>Questions</b> <ul style="list-style-type: none"><li>• 76 marks: a mixture of short and long answer questions</li><li>• 15 marks: comprehension question</li></ul>		<b>Questions</b> <ul style="list-style-type: none"><li>• 38 marks: structured questions, including practical techniques</li><li>• 15 marks: critical analysis of given experimental data</li><li>• 25 marks: one essay from a choice of two titles</li></ul>

# Biology Practical Endorsement

- A-level only
- 5 CPAC skills shown in practical work

## CPAC Skills

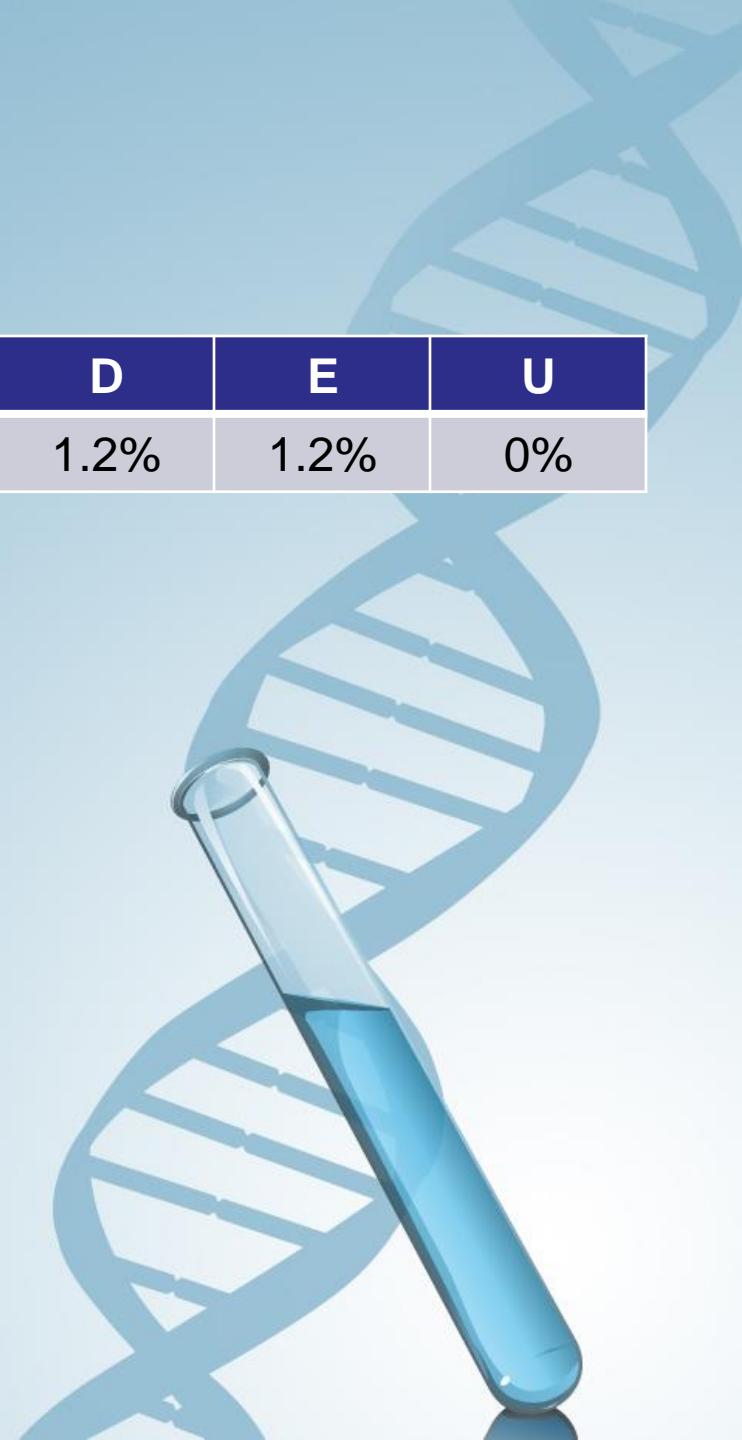
1. Following written instructions
2. Planning and carrying out investigations
3. Working safely
4. Gathering and recording accurate data
5. Analysing data and researching





# Exam Results 2022

	<b>A*</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>U</b>
2022	36.9 %	33.3%	17.9%	8.3%	1.2%	1.2%	0%



# Biology Leavers 2022

Destination	
Medical/related	29%
Biology/related	11%
Other science	19%

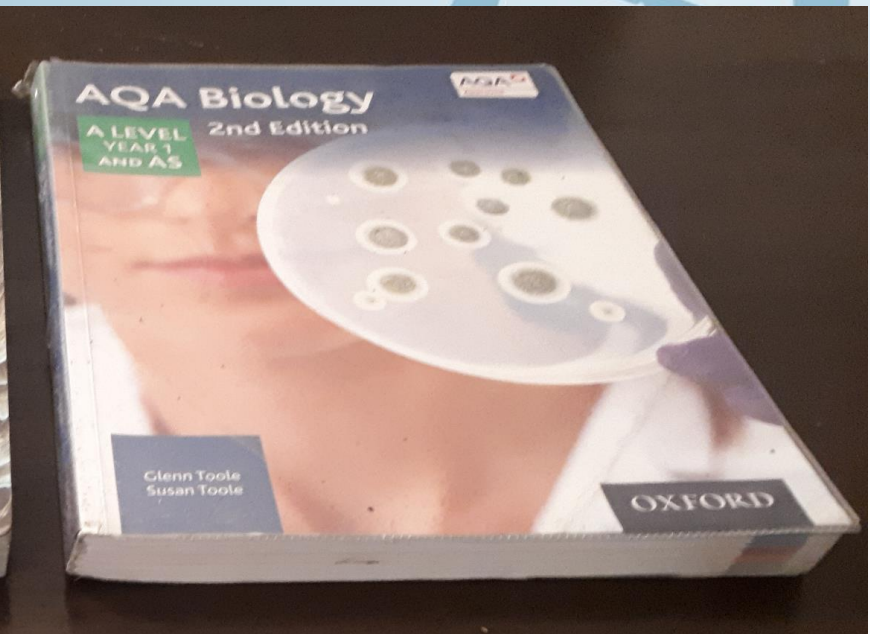
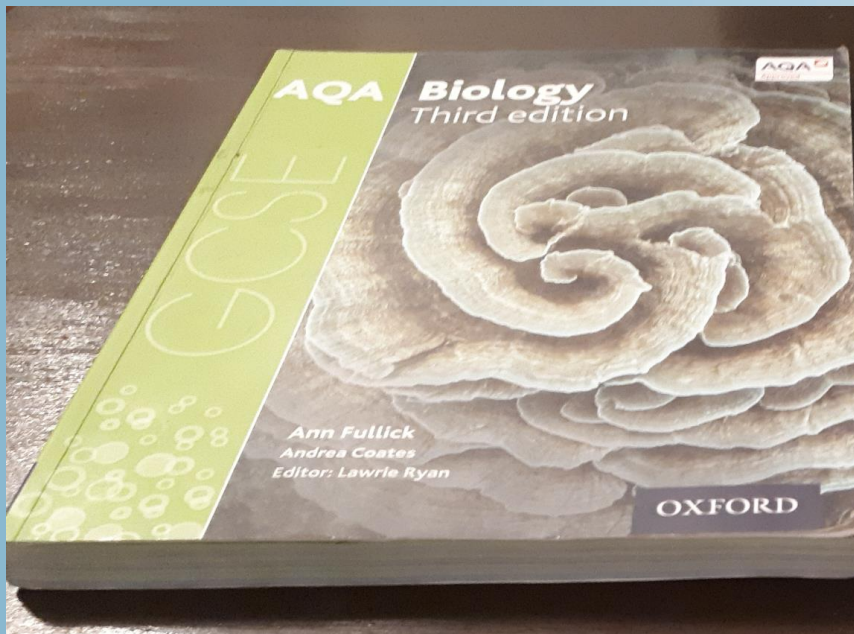


# GCSE vs A-Level Biology

- A-level is a lot more work
- You will have biology almost every day
- You will have to work outside lessons too

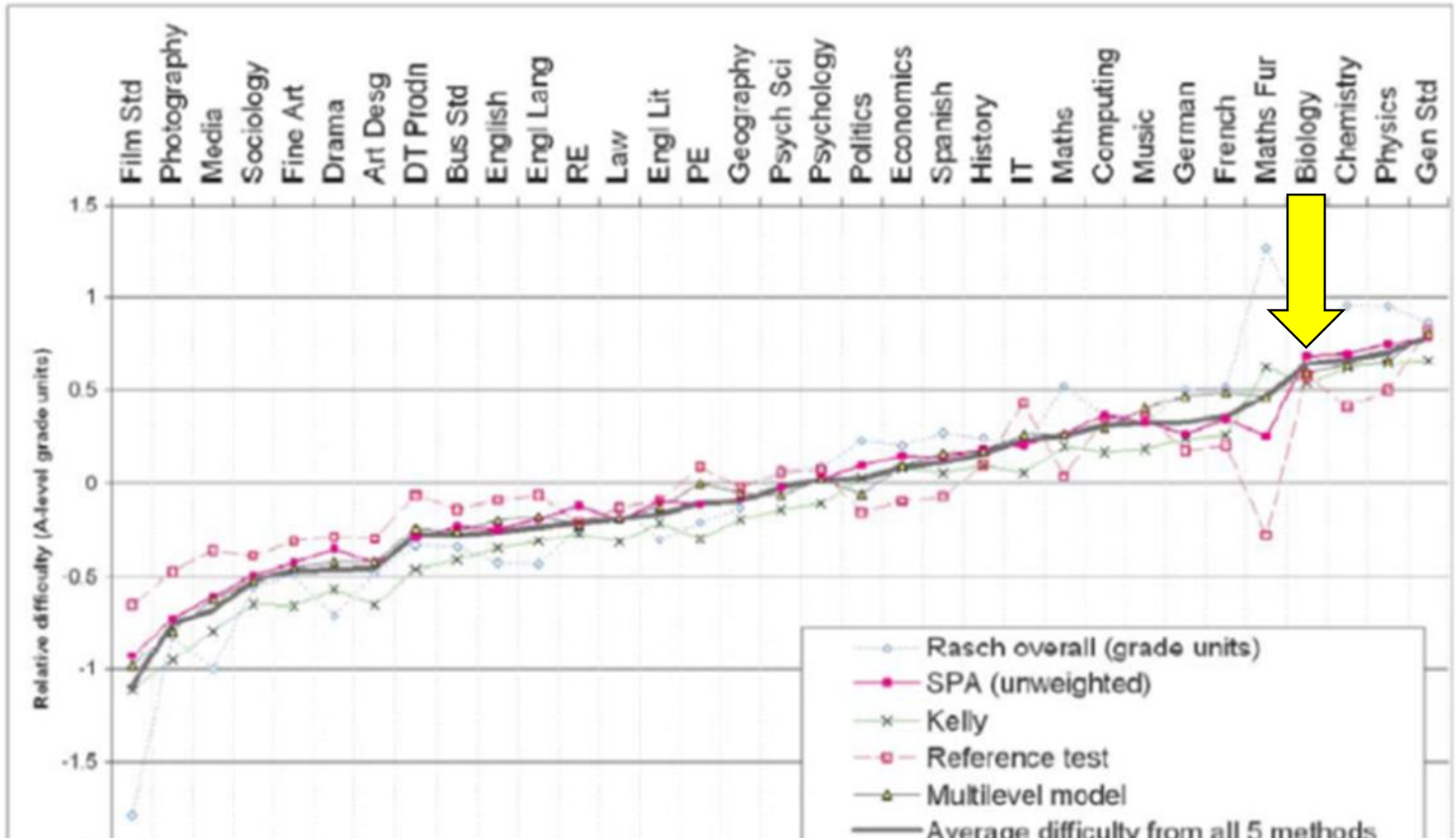
AQA GCSE Biology

AQA y12 Biology



# GCSE vs A-Level Biology

- A-level biology is a difficult science subject



# GCSE vs A-Level Biology

- You will need to write essays

## 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]

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# GCSE vs A-Level Biology

- You will need to like maths and statistics
- 10% of the exam questions will be mathematical

- (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.

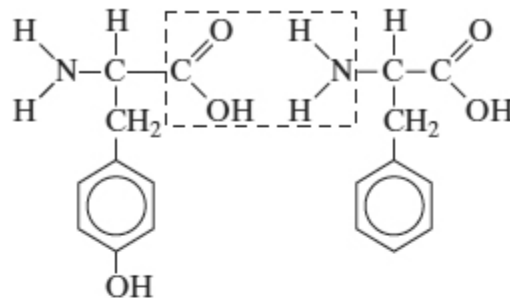
Explain what the results of these statistical tests show.

\_\_\_\_\_

# GCSE vs A-Level Biology

- You will need to like chemistry

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.

# Entrance Requirements

- GCSE grade 7 or above in Biology or double (combined) science
- Total of 6 GCSEs grade 7 or above
- OCR 21<sup>st</sup> Century science not ideal, but the website has bridging activities to convert over the Summer.
- External applicants are welcome
- 13% External students in year 12 biology (2021)

# Is A-Level Biology right for you?

- Do you like biology ?
- Do you like chemistry and physics?
- 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?

