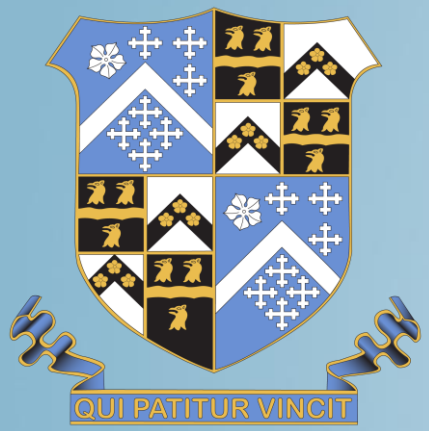
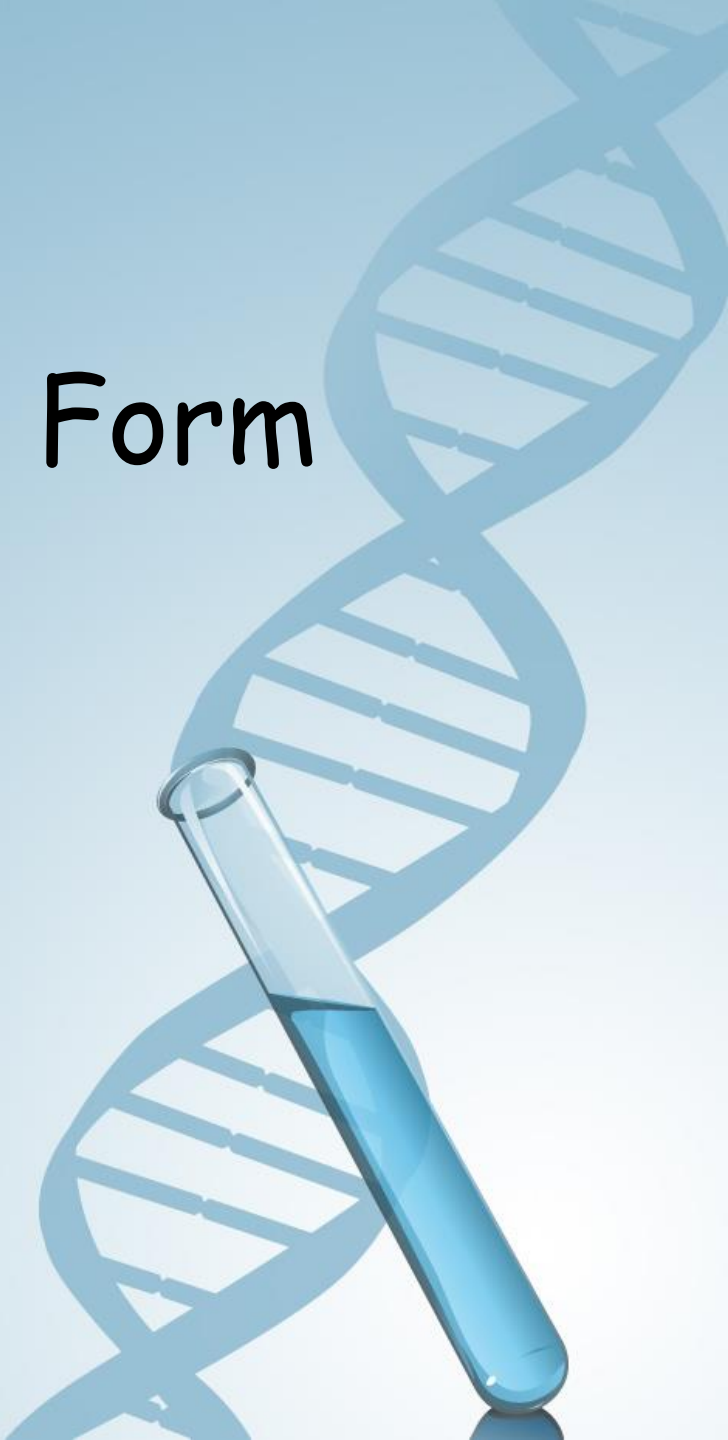
Biology in the Sixth Form





Reasons for taking Biology

The world is changing. Biology is important!

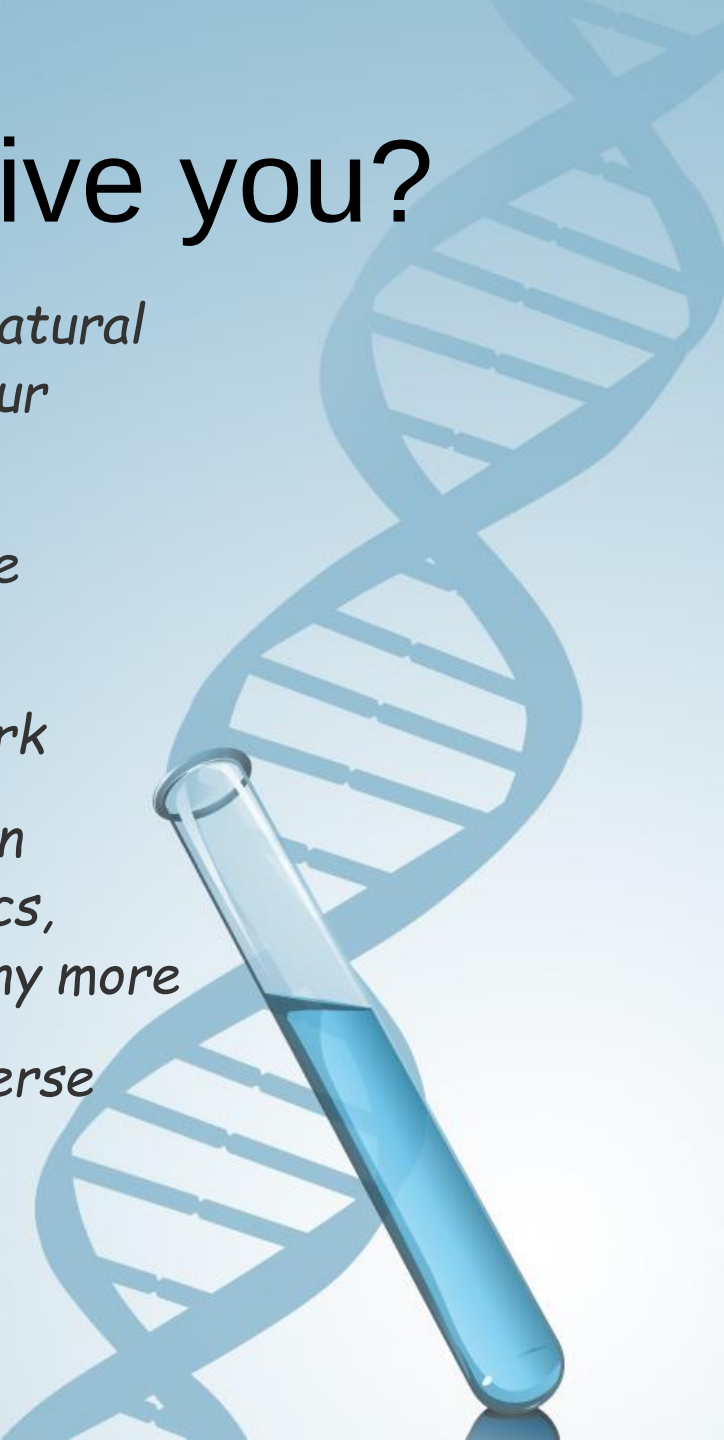
- *Climate change, sustainability and environmental issues*
- *Covid-19 and antibiotic resistance*
- *Genetic modification and gene editing*
- *Medical advances such as stem cells*
- *Healthy lifestyles and well-being*

"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 !*



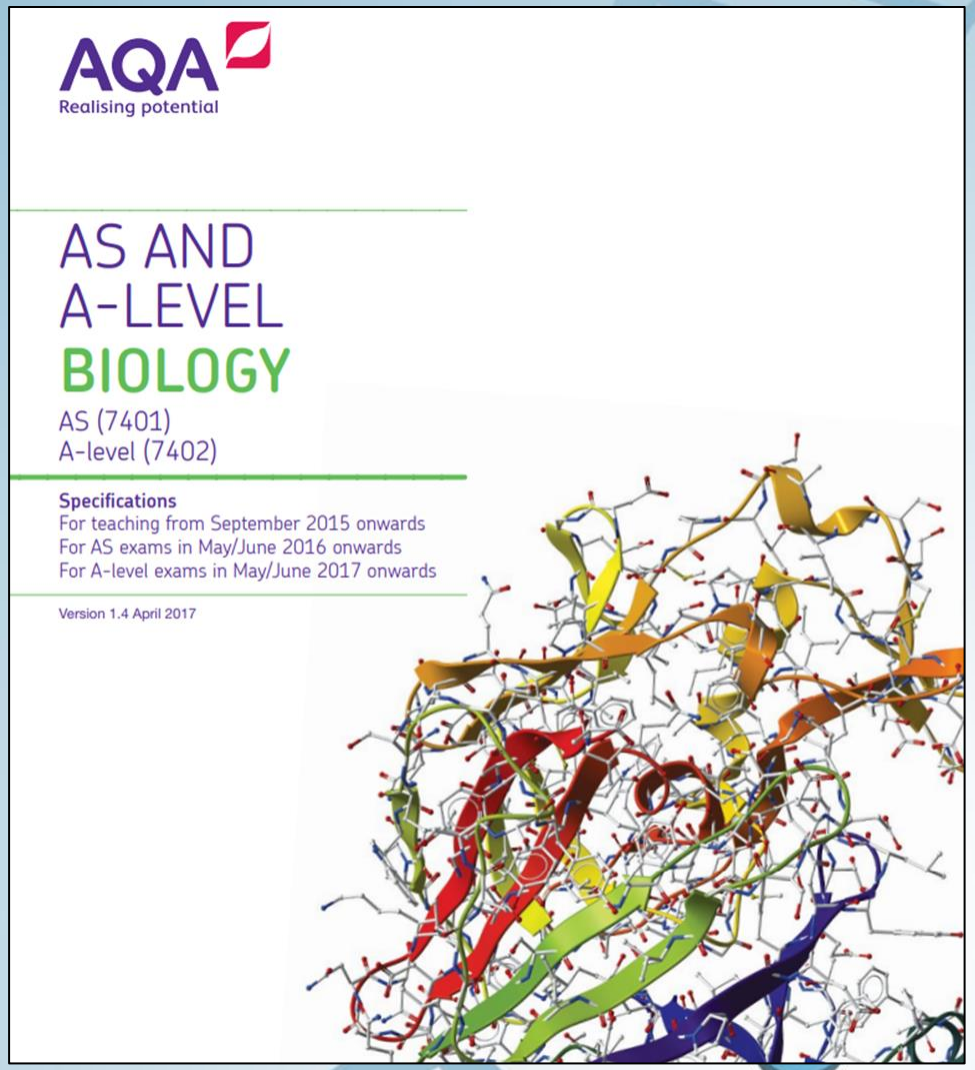
Enrichment activities

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

The Biology Curriculum

AQA Biology 7401

www.aqa.org.uk



The Biology Department

Dr Bermudez

Dr Elliott (HOD)

Ms Kocjancic

Ms Owen

Ms Safdar

Year 12 Biology

- About 1/3 sixth form take biology
- Roughly equal boys:girls
- 4 well-equipped biology labs
- 5 Classes of 13-19 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 students dropping biology (8/84)
- Practical work may be tested

Assessments

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

Year 13 Biology (A-level)

- Most students continue to A-level (76/84)
- 5 classes
- **Not** based on ability

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

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 2024

	A*	A	B	C	D	E	U/X
2024	24.6%	38.6%	26.3%	7.0%	3.5%	0%	0%

(SISRA Analytics 21.10.24)

Biology Leavers 2024

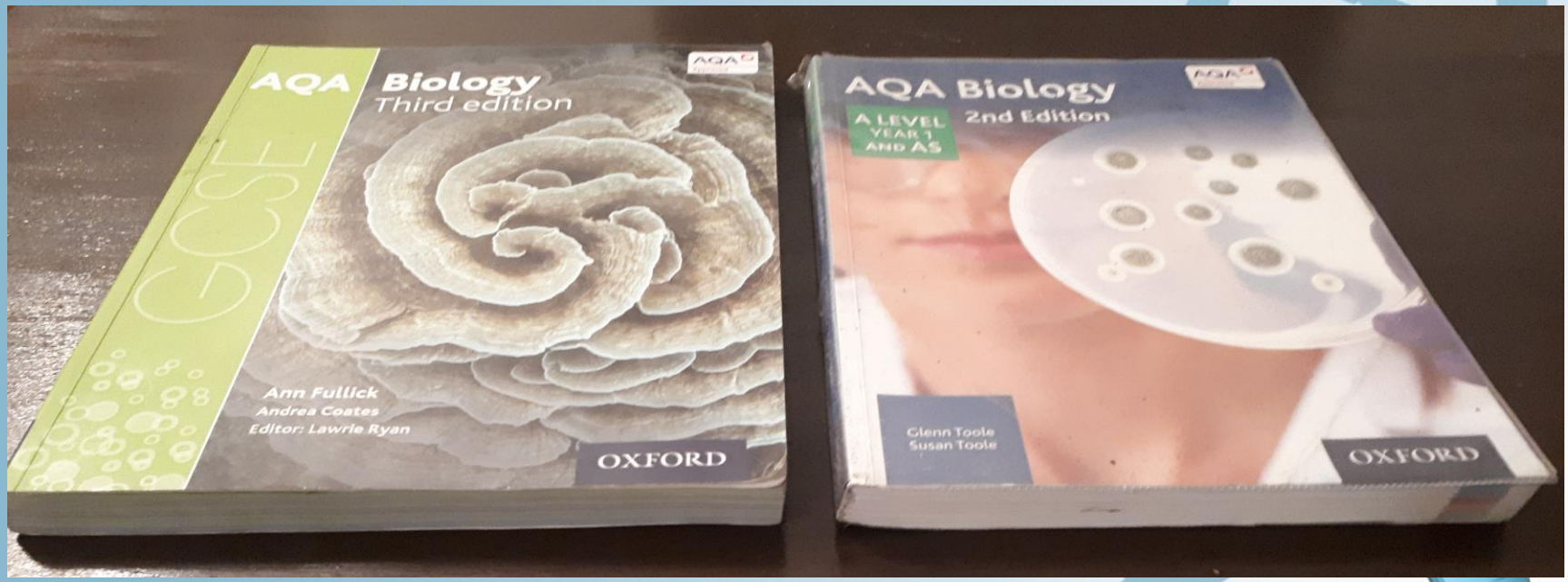
Destination	
Medical/related	30%
Biology/related	39%
Other science	2%
Oxbridge	2%
(no-response yet)	(27%)

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

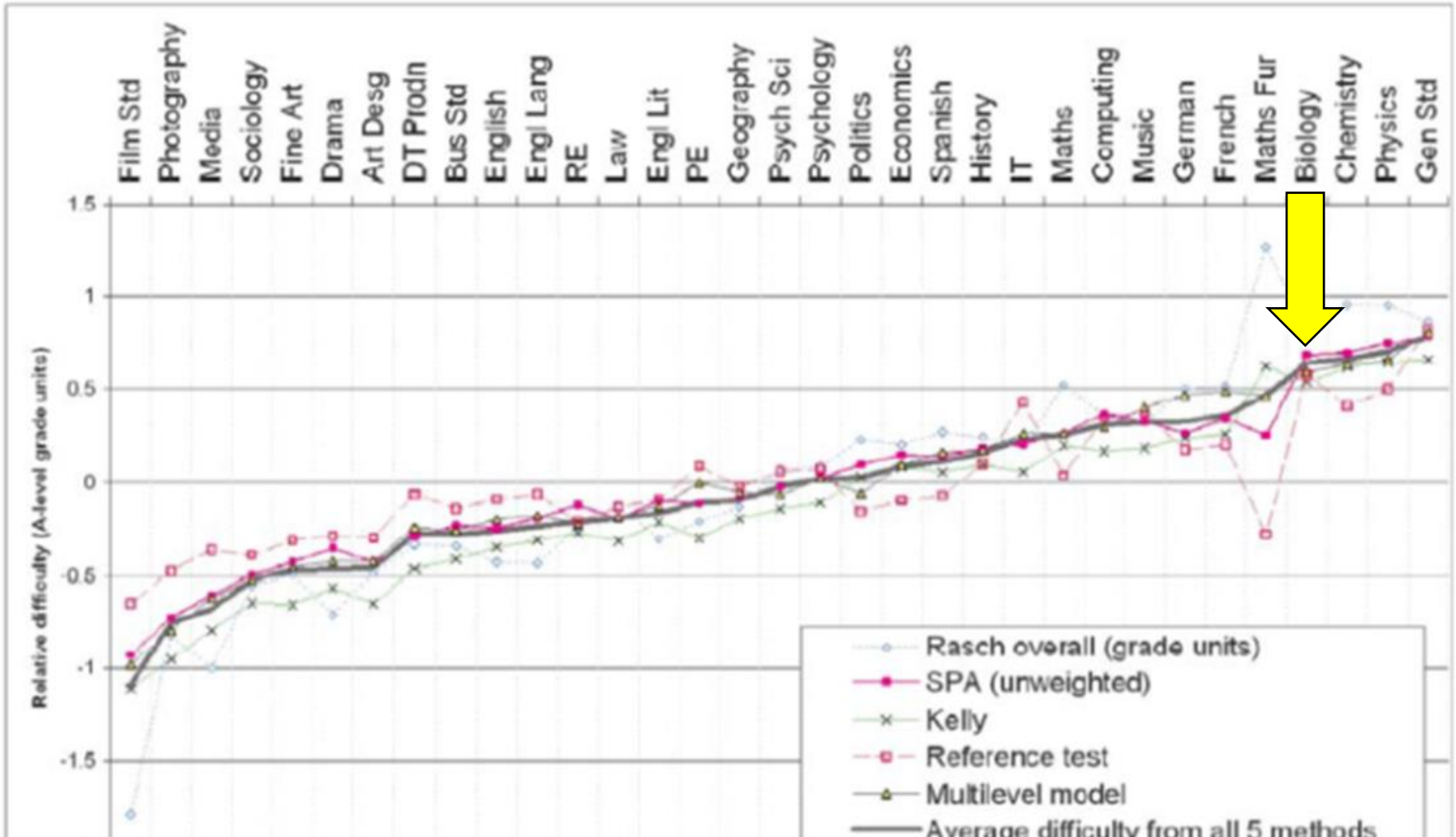
AQA GCSE Biology

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]

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.

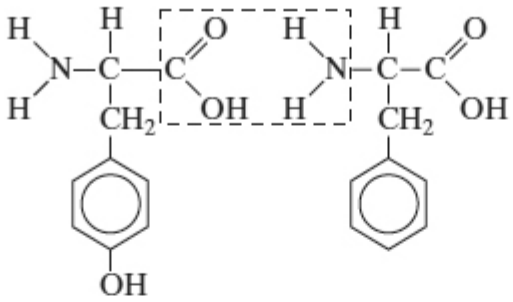
Explain what the results of these statistical tests show.

_____

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

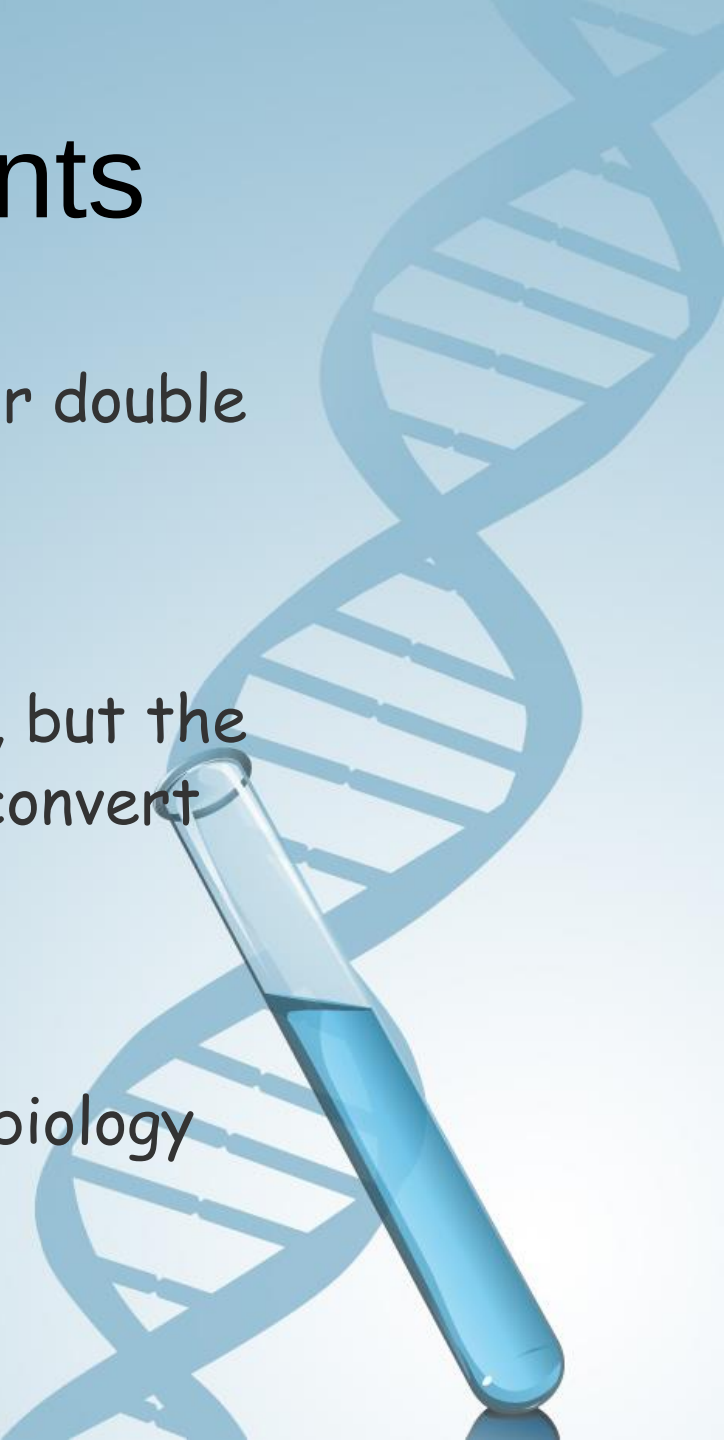
(b) Copy from the diagram the R group in the phenylalanine molecule.

(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 21st 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 (2024)



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?