

Welcome to A Level Biology!

At Chew Valley we follow the AQA A Level biology specification which can be found here:

<https://www.aqa.org.uk/subjects/science/as-and-a-level/biology-7401-7402>

It is a two year course with 3 exams at the end of Y13.

You will also be assessed on your practical skills and there will be questions on these practical skills in your exams.

Preparation

You will need the following text(s) for the course:

AQA Biology A-level Student Book by Glenn and Susan Toole (2nd Edition)

You will also need a way of storing organised notes

Expectations

Students are expected to

- ensure their own notes are complete and comprehensive – if you have questions, clarify these with your teacher in the next lesson
- Re-do any homework/assessments which have been disappointing
- Use course textbook and additional resources to read around the subject
- Complete exam questions when you finish a topic
- Ensure practical book is complete and up to date

Essential Knowledge and Skills

In order to do well at the start of your Biology course you will need be confident in the following.

If you are struggling with these ideas, seek support as early as you can when you start the course.

- Describe structures and functions of cells.
- Describe and explain the transport of molecules across cell membranes (diffusion, osmosis and active transport).
- Describe and explain how enzymes work and their role in digestion.
- Describe and explain the cell cycle including mitosis.
- Essential maths skills such as unit conversions, significant figures, magnification calculations, calculating percentage change, and standard form.

Pre-course activities – these should be completed and handed in on your first lesson of A Level biology in September

Maths Essential Skills

1. Give the following values in a different unit so they make more sense to the reader. Choose the final units yourself. (Hint: make the final number as close in magnitude to zero as you can. For example, you would convert 1000 m into 1 km.)
 - a. 0.000 057 m
 - b. 8 600 000 μl
 - c. 68 000ms
 - d. 0.009 cm
2. Complete the following unit conversions.
 - a. 500cm³ into dm³
 - b. 620mL into cm³
 - c. 150mL into dm³
 - d. 1.5L into dm³
3. Complete these sentences
 - a. 1 mL is equivalent to 1 mm³ / cm³ / dm³
 - b. 1 L is equivalent to 1 mm³ / cm³ / dm³
4. Change the following into standard form
 - a. 3060 kJ
 - b. 140 000 kg
 - c. 0.000 18 m
 - d. 0.000 004 m
5. Give the following as decimals
 - a. 4.7×10^9
 - b. 7.96×10^{-4}
6. Give the following to i) 2 significant figures ii) 3 significant figures
 - a. 0.8195
 - b. 7644
 - c. 5.995×10^2
7. What would be the most appropriate unit to use for the following measurements?
 - a. The time between heart beats
 - b. The diameter of a cheek cell
 - c. The distance that a migratory bird travelled each year
 - d. The thickness of a DNA helix
 - e. The mass of a rabbit
 - f. The mass of iron in the body
 - g. The diameter of a glucose molecule

Essential content for the first two topics of A Level

1. Compare the structure of an animal cell and plant cell. (2)
2. Compare the structure of a eukaryotic cell and prokaryotic cell. (3)
3. Compare the two types of cell division; meiosis and mitosis. (4)
4. Write a method to view a prepared slide using a light microscope, at x1000 magnification. The eyepiece lens has a magnification of x10. (4)
5. Complete the table below. (3)

Enzyme	Substrate	Product	Made in	Works in
	Starch			
		Fatty Acids and Glycerol		
Protease				

6. Explain why amylase cannot catalyse the digestion of lipids. (2)
7. Describe and explain the effect of temperature on enzyme action. (6)

Extended writing and research task

You should aim to fill at least one-side of A4. This can be hand written or digital. Provide at least 3 different references for the information you give.

Describe the structure of DNA and the structure of a chromosome. Outline the key scientists/experiments that led to the discovery of the structure of DNA.