

Getting Ready For <i>Biology</i>		
Your Name		
A Level Biology	Cytology Assignment	AQA

We are delighted you have chosen to study Biology at Worthing College.

Instructions: This pack will help you make the best possible start to studying this subject.

The tasks in this pack:

- should take you **about 4 hours to complete.**
- should be handed into your teacher when teaching starts
- are also available on the internet – follow the links in the document.

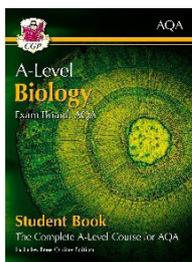
If you need help: The tasks are designed to get a bit more difficult as you work through them as they are preparing you for studying at a higher level and to become an effective independent learner. You should try to get as far as you can working on your own but if you do need help, please email us at gettingreadyfor@worthing.ac.uk, telling us which Getting Ready For pack you are working on and what help you need. Help is available throughout the summer holidays.

Skills Focus for this Getting Ready for Pack
Building on your GCSE knowledge through independent research Handling data

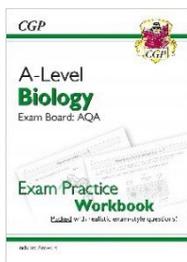


Task	Information																
<p>1 Research and writing notes</p>	<p>Cells research task</p> <p>The first topic you will be studying in September is Cells. Complete the research task below and bring your notes to your first lesson so they can be checked and added to. Use the information on the page 'Writing notes' to set up your notes – leave the key points and summary section blank for now.</p> <p>Eukaryotic cells</p> <p>Draw a labelled animal cell and a labelled plant cell. Add the functions of the following cell structures:</p> <table border="1" data-bbox="316 622 1390 725"> <tr> <td>Smooth endoplasmic reticulum</td> <td>Rough endoplasmic reticulum</td> <td colspan="2">Golgi apparatus</td> </tr> <tr> <td>Lysosomes</td> <td>Centrioles</td> <td colspan="2">Vesicles</td> </tr> </table> <p>Prokaryotic cells</p> <p>Draw a diagram of a typical Prokaryotic cell (bacterium) and label. Add the functions of the following structures:</p> <table border="1" data-bbox="316 904 1342 972"> <tr> <td>Genetic material</td> <td>Cell wall</td> <td>Capsule</td> <td>Plasma membrane</td> </tr> <tr> <td>Ribosomes</td> <td>Flagellum</td> <td>Plasmid</td> <td></td> </tr> </table> <p>Some useful links:</p> <p>https://www.khanacademy.org/science/biology/structure-of-a-cell</p> <p>https://www.youtube.com/watch?v=cj8dDTHGJBY</p>	Smooth endoplasmic reticulum	Rough endoplasmic reticulum	Golgi apparatus		Lysosomes	Centrioles	Vesicles		Genetic material	Cell wall	Capsule	Plasma membrane	Ribosomes	Flagellum	Plasmid	
Smooth endoplasmic reticulum	Rough endoplasmic reticulum	Golgi apparatus															
Lysosomes	Centrioles	Vesicles															
Genetic material	Cell wall	Capsule	Plasma membrane														
Ribosomes	Flagellum	Plasmid															
<p>2 Building on GCSE knowledge</p>	<p>Transition baseline assessment</p> <p>Complete the baseline assessment and bring your answers to your first lesson. This work will be marked, and feedback given.</p>																
<p>3 Research and building on GCSE knowledge</p>	<p>Pre-Knowledge topics</p> <p>This is an optional task where you can do some research on some of the topics that we will cover in Year 1. You can complete as many of the tasks as you like, and present your findings as suggested or in your own way. Keep any notes that you make as they will be useful to revisit throughout the year.</p>																

Biology A-Level Textbook Bundle



**AQA: Year 1 & 2
Biology Student
Book with Online
Edition**



**AQA Biology Year
1 & 2 Exam
Practice Workbook
- includes Answers**



**Hardback
casebound and
100% recycled A4
Laboratory
Notebook**

**Bundle
cost
£32**

**Available to buy
from 26th August**

RRP £55

Please note if you choose to purchase this bundle it will be given to you in your lessons at the start of the year.

How to purchase?

- Go to the Worthing College website – click on Staff and Student Links, then scroll down to Online Store and click on Find Out More to access the store

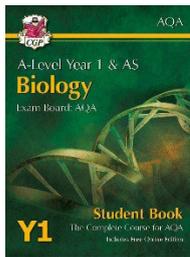


- If you have not used this service before, go to 'My account' and register an account

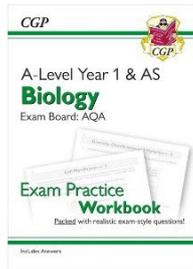


- When you fill in your details, please enter your student number or student name in the box marked 'student number' in the 'user details' section as this will enable us to track your purchase.
- Once registered in the shop navigate to product catalogue → worthing college → course materials the book bundle should be visible there. Once purchased you will then receive an email confirming your purchase, please retain your email invoice in case of problems. Your purchases will be given to you in your lesson.
- For those that get help with student funding once you have an account set up you will be able to email your receipt along with your name and student number to studentfinance@chigroup.ac.uk and you should be reimbursed.

Vis Students Biology AS-Level Textbook Bundle



**AQA: Year 1
Biology Student
Book with Online
Edition**



**AQA: Year 1
Biology Exam
Practice Workbook
- includes Answers**



**Hardback
casebound and
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**Bundle
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£20**

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from 26th August**

RRP £28

Please note if you choose to purchase this bundle it will be given to you in your lessons at the start of the year.

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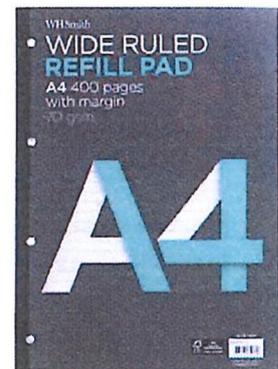
- If you have not used this service before, go to 'My account' and register an account



- When you fill in your details, please enter your student number or student name in the box marked 'student number' in the 'user details' section as this will enable us to track your purchase.
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Other equipment:

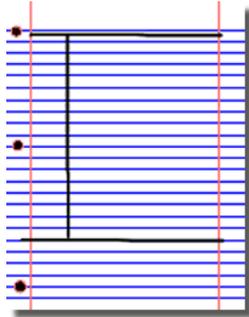
- ✓ Pens, pencils, ruler, highlighter etc...
- ✓ Scientific calculator
The one you used at GCSE is fine for A-Level Biology.
- ✓ A4 folder
Most students get a smaller one to bring into college every day and a lever arch one to store notes from past topics at home.
- ✓ A4 paper
Loose paper is better than a notebook as you will need to file pages in different places and add to your lesson notes during independent study. Bringing a notebook to lesson also means you are unlikely to bring a folder, and you'll need a folder to store handouts, worksheets and topic tests.
- ✓ Dividers
Useful to separate your notes into topics.
- ✓ Phone / iPad
We will use online resources in lessons, and you will submit work online so access to the internet in lesson is useful. Please don't worry if you can't, we have laptops that you can use in class if needed.



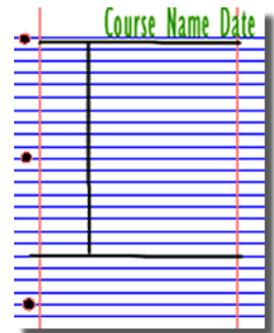
Writing Notes

Research, reading and note making are essential skills for A level Biology study. When you start lessons, you can produce 'Cornell Notes' to summarise learning. You might want to try using Cornell Notes if you complete any of the optional research tasks.

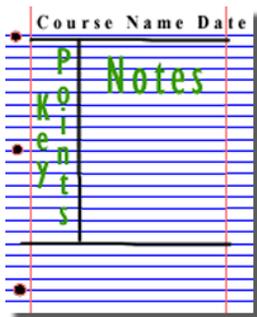
1. Divide your page into three sections like this



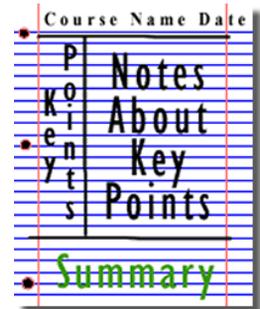
2. Write the name, date and topic at the top of the page



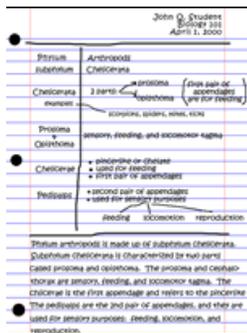
3. Use the large box to make notes. Leave a space between separate idea. Abbreviate where possible.



4. Review and identify the key points in the left hand box



5. Write a summary of the main ideas in the bottom space



Task 2

A LEVEL BIOLOGY TRANSITION BASELINE ASSESSMENT

Part 1: Cell structure and microscopes

1. Why do scientists use microscopes? [1]

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2. Explain the function of the mirror in a light microscope [1]

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3. An animal cells is viewed using a 10x eye piece lens and a 20x objective lens. Calculate the total magnification. [2]

4. Define resolution [1]

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5. Calculate the actual size of an onion cell if it measures 20mm using a 1000x magnification. [2]

6. The invention of the electron microscope has allowed scientists to find out more information about cells. Explain how the electron microscope has done this. [2]

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Scientists want to examine onion cells under a light microscope. They take one sheet of cells from the epidermis of the onion and place it on a glass slide. Iodine is used to dye the cells and a cover slip is placed on the top.

7. Draw what the scientists would expect to see under the light microscope [1]

8. Why is a thin layer of cells used? [1]

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9. What is the role of iodine? [1]

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10. Why can't scientists see all the cell components? [1]

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11. What is a specialised cell? [1]

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12. Give 2 examples of specialised cells and their functions [2]

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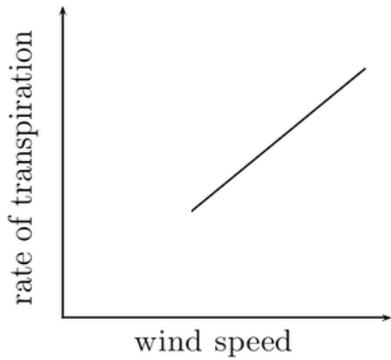
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Part 2: Data questions

1. Scientists need to be able to interpret data in graphs to decide if there are trends in the results. For each graph below, describe the trend [5]

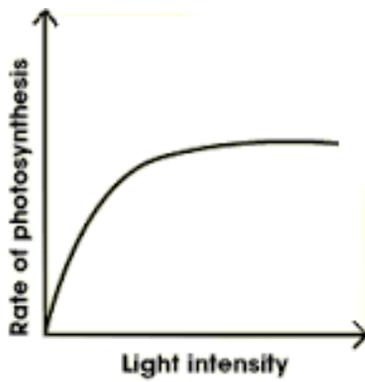


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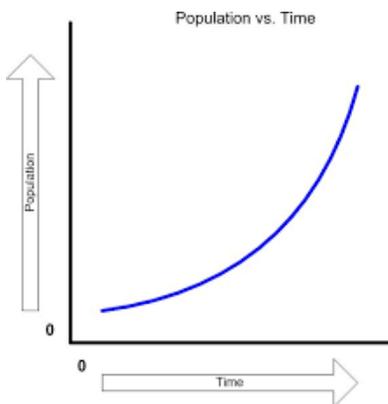


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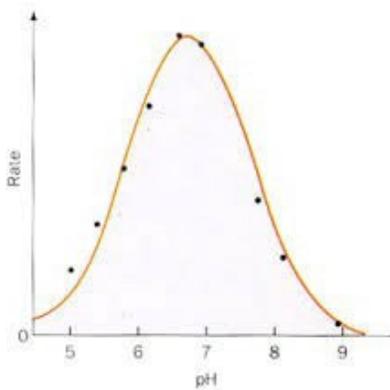


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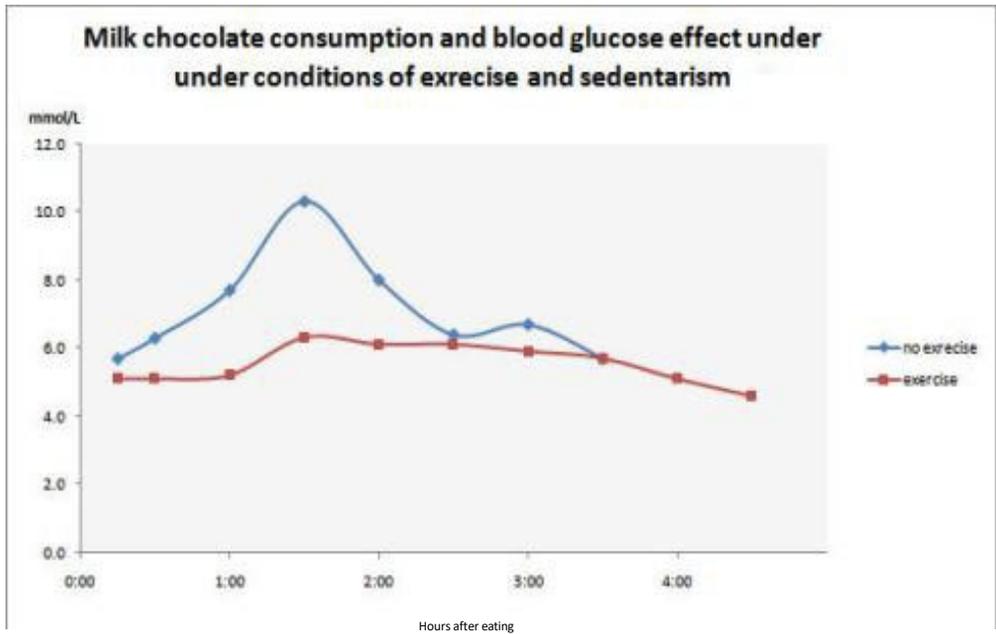
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2. A medical research team investigated how quickly the body deals with glucose after a meal. They studied the blood glucose concentration of people who exercised versus those who did not.

Here are their results:



(a) What organ in the body regulates blood glucose concentration? [1]

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(b) Explain the stages that would bring about a return to normal blood glucose concentration after eating chocolate [4]

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Task 3

Pre-Knowledge Topics - Optional

A level Biology will use your knowledge from GCSE and build on this to help you understand new and more demanding ideas. Complete the following tasks to make sure your knowledge is up to date and you are ready to start studying:

DNA and the Genetic Code

In living organisms nucleic acids (DNA and RNA have important roles and functions related to their properties. The sequence of bases in the DNA molecule determines the structure of proteins, including enzymes.

The double helix and its four bases store the information that is passed from generation to generation. The sequence of the base pairs adenine, thymine, cytosine and guanine tell ribosomes in the cytoplasm how to construct amino acids into polypeptides and produce every characteristic we see. DNA can mutate leading to diseases including cancer and sometimes anomalies in the genetic code are passed from parents to babies in disease such as cystic fibrosis, or can be developed in unborn foetuses such as Downs Syndrome.

Read the information on this website (you could make more Cornell notes if you wish):

<http://www.bbc.co.uk/education/guides/z36mmp3/revision>

And take a look at these videos:

<http://ed.ted.com/lessons/the-twisting-tale-of-dna-judith-hauck>

<http://ed.ted.com/lessons/where-do-genes-come-from-carl-zimmer>

Task:

Produce a wall display to put up in your classroom in September. You might make a poster or do this using PowerPoint or similar Your display should use images, keywords and simple explanations to:

Define gene, chromosome, DNA and base pair

Describe the structure and function of DNA and RNA

Explain how DNA is copied in the body

Outline some of the problems that occur with DNA replication and what the consequences of this might be.

Evolution

Transfer of genetic information from one generation to the next can ensure continuity of species or lead to variation within a species and possible formation of new species. Reproductive isolation can lead to accumulation of different genetic information in populations potentially leading to formation of new species (speciation). Sequencing projects have read the genomes of organisms ranging from microbes and plants to humans. This allows the sequences of the proteins that derive from the genetic code to be predicted. Gene technologies allow study and alteration of gene function in order to better understand organism function and to design new industrial and medical processes.

Take a look at these videos:

<http://ed.ted.com/lessons/how-to-sequence-the-human-genome-mark-j-kiel>

<http://ed.ted.com/lessons/the-race-to-sequence-the-human-genome-tien-nguyen>

Task:

Produce a one page revision guide for an AS Biology student that recaps the key words and concepts in this topic. Your revision guide should:

Describe speciation

Explain what a genome is

Give examples of how this information has already been used to develop new treatments and technologies.

Biological Molecules

Biological molecules are often polymers and are based on a small number of chemical elements. In living organisms carbohydrates, proteins, lipids, inorganic ions and water all have important roles and functions related to their properties. DNA determines the structure of proteins, including enzymes. Enzymes catalyse the reactions that determine structures and functions from cellular to whole-organism level. Enzymes are proteins with a mechanism of action and other properties determined by their tertiary structure. ATP provides the immediate source of energy for biological processes.

Take a look at these videos:

<https://www.youtube.com/watch?v=H8WJ2KENIKO>

<http://ed.ted.com/lessons/activation-energy-kickstarting-chemical-reactions-vance-kite>

Task:

Krabbe disease occurs when a person doesn't have a certain enzyme in their body. The disease effects the nervous system. Write a letter to a GP or a sufferer to explain what an enzyme is.

Your poster should:

Describe the structure of an enzyme

Explain what enzymes do inside the body

Biodiversity

The variety of life, both past and present, is extensive, but the biochemical basis of life is similar for all living things. Biodiversity refers to the variety and complexity of life and may be considered at different levels. Biodiversity can be measured, for example within a habitat or at the genetic level. Classification is a means of organising the variety of life based on relationships between organisms and is built around the concept of species. Originally classification systems were based on observable features but more recent approaches draw on a wider range of evidence to clarify relationships between organisms. Adaptations of organisms to their environments can be behavioural, physiological and anatomical. Adaptation and selection are major factors in evolution and make a significant contribution to the diversity of living organisms.

Take a look at these videos:

<http://ed.ted.com/lessons/why-is-biodiversity-so-important-kim-preshoff>

<http://ed.ted.com/lessons/can-wildlife-adapt-to-climate-change-erin-eastwood>

Task:

Write a persuasive letter to an MP, organisation or pressure group promoting conservation to maintain biodiversity.

Your letter should:

Define what is meant by species and classification

Describe how species are classified

Explain one way scientists can collect data about a habitat, giving an example

Explain adaptation and how habitat change may pose a threat to niche species

Work Placement Week

All students are required to participate in a **compulsory** week-long work placement. It is recommended that the placement chosen is either relevant to your course, or relevant to what your future career aspirations are.

Work placement form submission deadline

<p>All L2 and L3 students studying on triple or double courses will be given their work placement week dates by their course leaders when they start in September.</p> <p>The deadline to submit your placement forms are as follows:</p>	Date of work placement week	Deadline for returning completed form
	Dec-25	24th October 2025
	January / February 2026	24th October 2025
	March / April 2026	19th December 2025
	May / June 2026	13th February 2026

<p>All students studying 2 or more single subjects will have the option of either carrying out their work placement during:</p> <ul style="list-style-type: none"> • February half term • Easter holidays • May half term • 22nd – 26th June 2026 <p>The deadline to submit your placement forms are as follows:</p>	Date of work placement week	Deadline for returning completed form
	February half term (16th - 20th February)	Friday 24th October 2025
	Easter holidays (27th March - 13th April)	Friday 19th December 2025
	May half term (26th - 29th May)	Friday 13th February 2026
	22nd – 26th June	Friday 1st May 2026