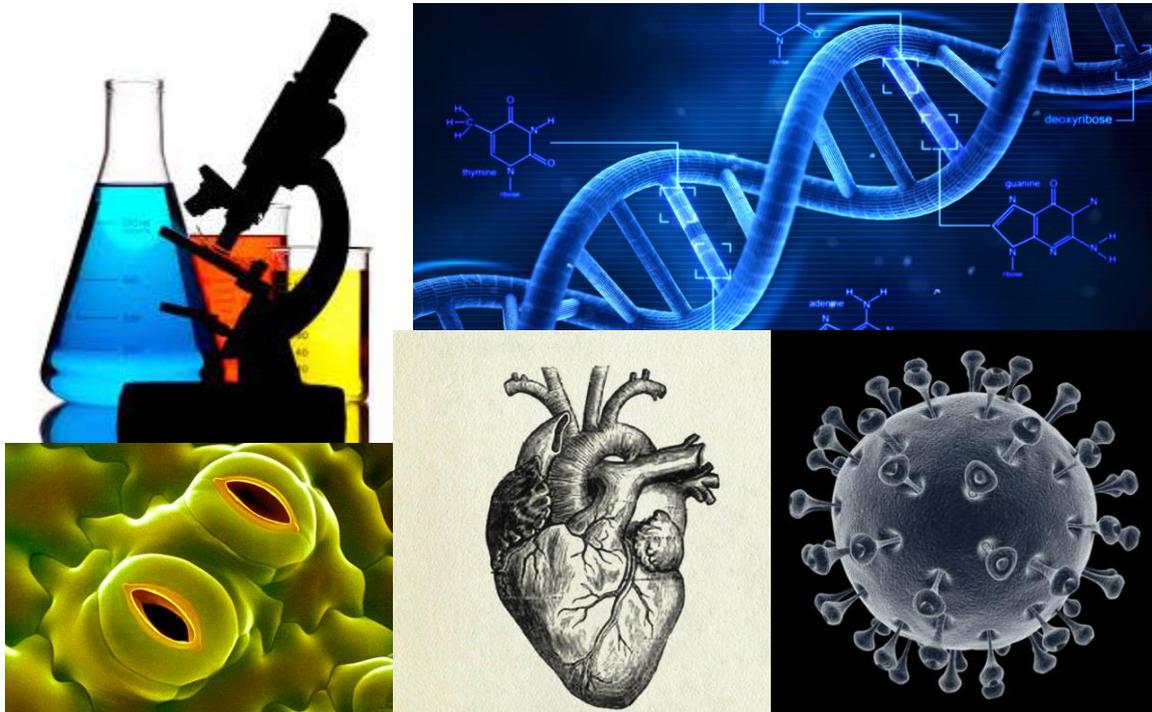


AS and A Level Biology



Thinking about a career in medicine or life sciences?

Interested by how DNA and cells operate?

Do you want to find out more about the environment, and health?

First year – AS

Module 1 – Development of practical skills in biology – How to do effective practical work.

Module 2 – Foundations in biology – E.g. Cell structure, biological molecules and nucleic acids.

Module 3 – Exchange and transport – E.g. Exchange surfaces, transport in animals and in plants.

Module 4 – Biodiversity, evolution and disease – E.g. Communicable diseases, disease prevention and the immune system.

Assessment through 2 x 90 minute exams in Summer 2017.

→ Summer trip to Trewern Field Centre in Wales ←

Second year – A level

Module 5 – Communication, homeostasis and energy – E.g. Communication and homeostasis, neuronal and hormonal communication, plant and animal responses, photosynthesis and respiration.

Module 6 – Genetics, evolution and ecosystems – Cellular control, patterns of inheritance, manipulating genomes, cloning and biotechnology, ecosystems, populations and sustainability.

Assessment through 3 x exams (6 hours) that cover both AS and A level material in Summer 2018

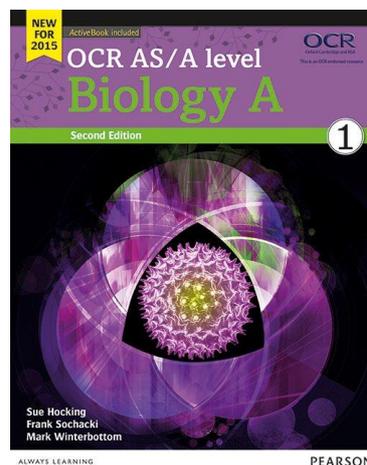
Course preparation resources

The specification we follow is OCR Biology A (H420/H020). It can be found here:

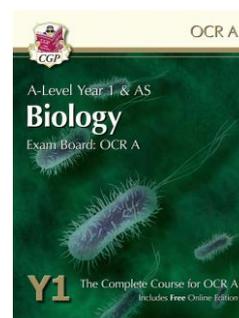
<http://www.ocr.org.uk/qualifications/as-a-level-gce-biology-a-h020-h420-from-2015/>

During the course you will be loaned textbooks to support your learning and for home study. You do not need to buy these books but if you would prefer to have your own these can be bought over the summer.

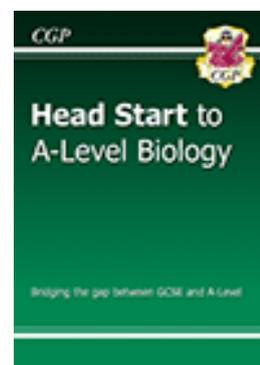
1. Pearson OCR AS/A Biology
ISBN: 978 1 44799 079 6
Price £23



2. CGP OCR A level biology year 1 and AS
Product Code: BRATB52
ISBN: 978 1 78294 320 4
Price £20



Also consider getting a copy of the 'Head Start to AS Biology' revision guide from CGP, this covers topics linking GCSE to AS level biology particularly if you did not do Triple GCSE Science.



Suggested Reading over the summer

Over the summer a good way to prepare for A level is to do some general science reading. Below are some suggestions:

A Short History of Nearly Everything – Bill Bryson (an accessible overview of the history of science)

The Andromeda Strain – Michael Crichton (science fiction but interesting)

Dr Tatiana's Sex Advice for All Creation – Olivia Judson (the strange sexual practices of some animals)

The Double Helix – James Watson (account of how the structure of DNA was deduced by Watson and Crick)

Bad Science – Ben Goldacre (a journalist writes about misrepresentation of science)

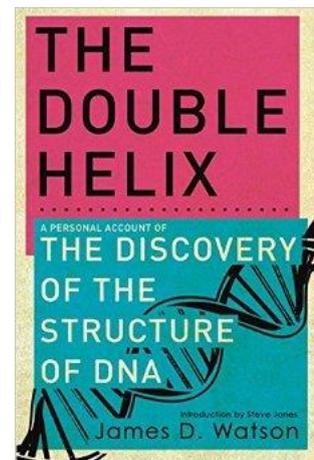
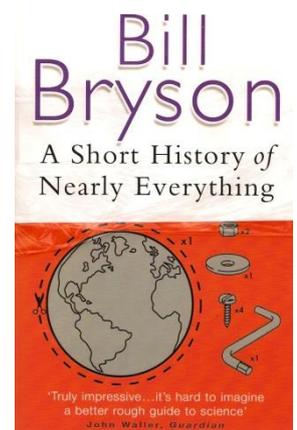
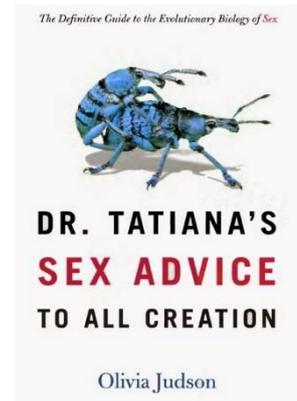
The Red Queen – Matt Ridley (this one is very good but on the more advanced side)

The Self Gene – Richard Dawkins (all about evolution)

There are many more...

Magazines are also good general reading. For example, try New Scientist or Scientific American.

There are also many good websites that publish science stories and podcasts. A good starting point is <http://www.theguardian.com/science>.



AS Biology bridging work

This work must be completed by the time you start the course in September

The Aim: The purpose of these tasks is to prepare you for your AS Biology course. You will need to develop your skills in key areas. These skills will include time management, research, writing, analysis, logic, independent learning, originality, and determination.

Task 1: Pick an exhibit on the biology topic that interests you from one of the many museums available to you in London (or further afield; see list below for ideas). Visit the exhibit and make clear notes on what is covered. Take pictures to support your writing and collect information leaflets if provided.

Do some new reading around the topic and then write **500 - 1000 words** on why you picked the exhibit, what you learned and why the topic so interesting to you.

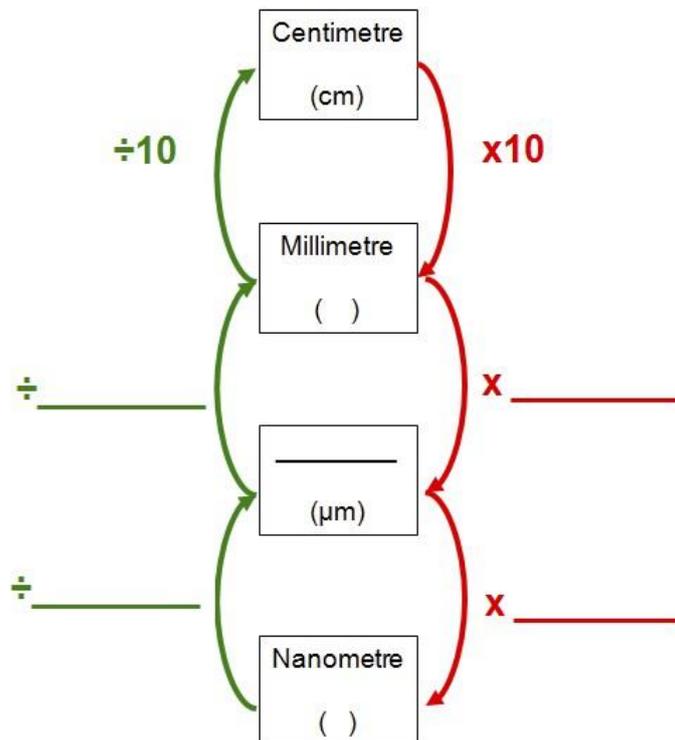
Ideas for Museums to visit (although there are many more):

The Science Museum (Free)
The Natural History Museum (Free)
The Wellcome collection (Free)
The Royal Society (Summer Science Series 4-10th July - free)
The Museum at St Barts (Free)
The British Museum (Free)
The Horniman Museum (Free)
Rainham Marshes (free)
ZSL London Zoo
Kew Gardens

Units of measurement

When looking at cells and organelles, biologists need to use units that are *smaller* than cm or mm. This section gets you familiarised with them.

1) Complete the diagram below to show: names of the units of measurement, unit symbols, and mathematical operations for converting between units.



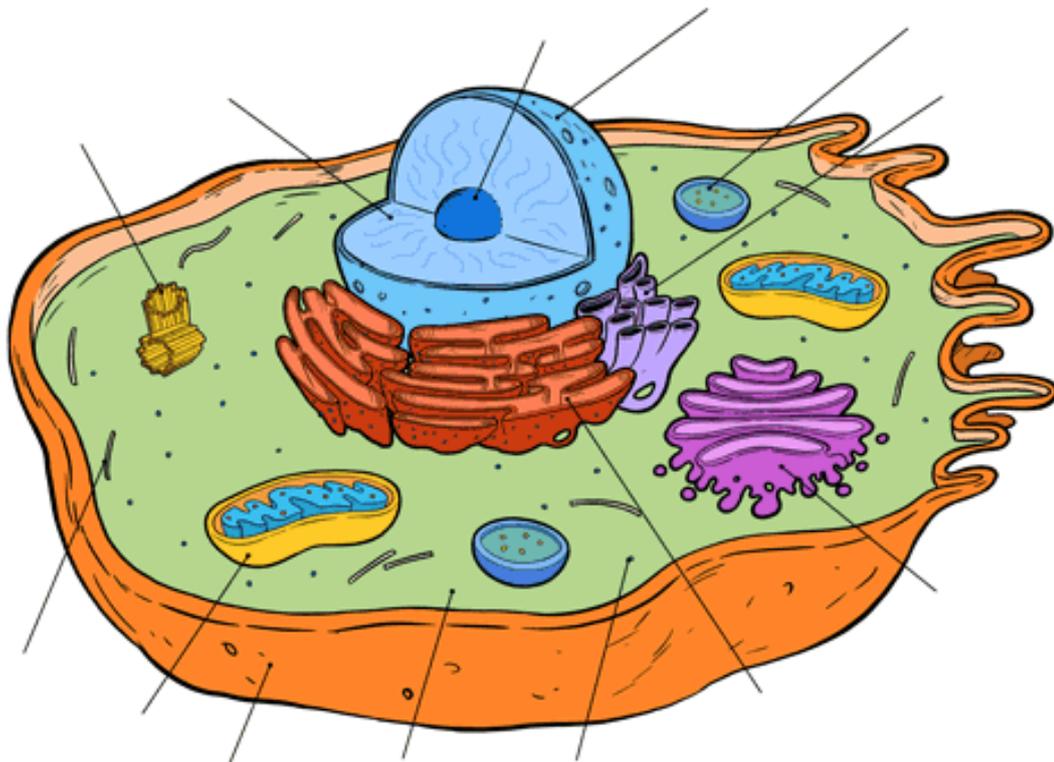
(4 marks)

2) Complete the table below to show the corresponding value nanometres, micrometres and millimetres for the measurements given in each row. The first row has been completed for you. Ensure that your answers use the correct unit symbols.

(8 marks)

<u>Nanometre</u>	<u>Micrometre</u>	<u>Millimetre</u>
5	0.005	0.000005
1		
	1	
		1
	3	
7		
		0.5

3. Using books you already have or the internet, label as many parts of this animal cell as you can with annotations about their function. You should be able to add at least 10 labels. (10 marks)



4) Describe the function of the organelles in the table below. Identify whether the organelles are found in animal, plant or bacteria cells. (14 marks)

<u>Organelle</u>	<u>Function</u>	<u>Cells found in</u>		
		<u>Animal</u>	<u>Plant</u>	<u>Bacteria</u>
Nucleus		√	√	X
Chloroplast				
Ribosome				
Mitochondria				
Cell membrane				
Cell wall				
Permanent Vacuole				
Cytoplasm				

Total out of 36 marks
