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Biology A LEVEL

A picture containing spring, drawing, coil spring, art

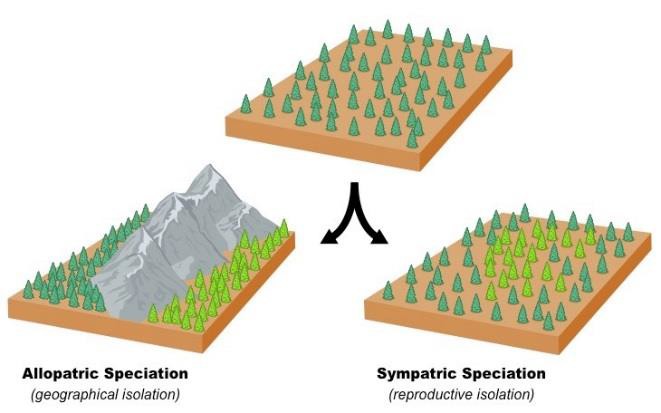
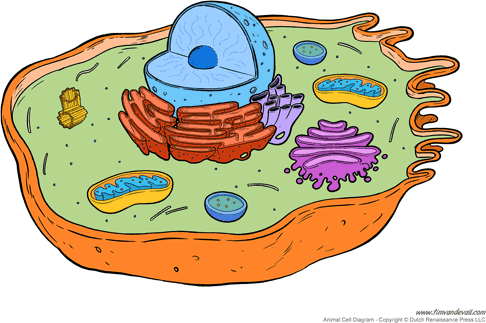
Description automatically generatedCourse handbook & Pre course tasks

2023

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# Course outline with key assessment dates

**HOW THE COURSE IS DELIVERED**

The specification can be accessed here(OCR Specification):

OCR H420 <http://ocr.org.uk/Images/171736-specification-accredited-a-level-gce-biology-a-h420.pdf>

Classes are assigned two teachers. The modules are split between these teachers. Theoretical modules 2-4 are taught in Year 12

Theoretical modules 5 and 6 are taught in Year 13

Module 1 is taught across Year 12 and Year 13 alongside the Practical Endorsement.

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Description automatically generatedThe Practical Endorsement is reported separately and does not count towards the overall A level grade.

# A LEVEL BIOLOGY DEPARTMENTAL EXPECTATIONS

* **Organisation**. You are expected to keep work filed and indexed appropriately. You will be asked to submit your file on occasion for inspection.
* **Equipment**. You are expected to arrive to lessons with appropriate stationary (paper,pens,scissors, glue) and equipment. A scientific calculator is essential.
* **Attendance**. You are expected to attend all timetabled lessons. You are also expected to attend support sessions if asked to do so. It is expected that you will make use of revision sessions and booster classes when these are made available to you. If a lesson is missed you are expected to catch up on notes and homework and show these to your Biology teacher at the start of the next lesson.
* **Standards**. Submitted work is expected to be of A level standard. Word processing of items is appropriate but plagiarism of items from sources such as the internet will not be tolerated. If tasks require research it is expected that these items will be fully referenced.
* **Personal Study**. You are expected to augment your lesson work with detailed homestudy. It is a basic expectation that notes are enhanced and powerpoint presentations will be annotated. During folder checks teachers will be looking for evidence of revision resources being produced and that the available online content is being accessed and used effectively.
* **RESPONSE** – You are expected to act on written feedback from teachers. Failure to do so will result in a request to resubmit work.
* **PERFORMANCE** – You are expected to maintain performance in line with your target level. You will be asked to resit tests or resubmit work if there is a noticeable decline in performance below your target grade.
* **HOMESTUDY** – Failure to submit homestudy will not be accepted a supported study session will be triggered

# HOME STUDY ROUTINE

## For every hour of lesson, it is expected students dedicate an hour to independent study time. You are expected to engage with the following tasks as a matter of routine. Evidence of this will be looked for in folder checks.

* **PLC review**. It is expected that these are used on a regular basis and some form of annotated traffic light system is used to track and monitor progress.
* **Feedback**. You are expected to act on feedback on submitted written work.
* **Revision**. During folder checks work will be examined for evidence of active revision. Mind-maps/revision cards/glossaries and topic summaries should be produced for each section of work.
* **Online Resources**. There is an extensive suite of online resources to help support your study. It is expected that you make regular use of this resource as part of your homestudy routine.
* **Read Ahead.** The most successful students at A level Biology are fully responsible for their own learning. Get in the habit of reading ahead to familiarise yourself with subject content.

**What does a successful A-level Biology student look like?**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **After every lesson** |  | **After each chapter** |  | **Throughout** |
| **REVIEW YOUR NOTES**  Are they complete? Do you need to re-draw or write anything so that it will make sense in 6 months time? Do not waste time making notes pretty! Check against the specification. |  | **Keep on top of revision**  Create a concise flash card of definitions or processes you need to know by rote (use mark-scheme language). Use them! Test yourself each evening. A picture containing kitchenware, black and white  Description automatically generated |  | **Join in**  Get involved in the biology department: competitions, clubs for younger students, online events etc |
| **Check your understanding**  Decide what you don’t yet “know” and what you don’t yet “understand”. Cover up definitions and processes and see what you can say out-loud.  A picture containing sketch, drawing, line art, clipart  Description automatically generated |  | **test yourself**  You need to identify what you can still recall and what you can’t recall anymore. Use “look, cover, write, check” for definitions and processes (AO1 knowledge). |  | **Read**  BBC News (Science / Health section)  Books (why not read with a friend?)  Keep a list in your phone or make a personal page on Firefly. |
| **Read the TEXTBOOK**  Read your textbook and revision guide. Are there any other facts, diagrams, examples, analogies etc that you need to add into your notes? |  | **Past paper questions**  Finish off your exam questions booklet. Check all of your answers strictly against the mark-scheme. Learn the mark-scheme language. |  | **Evaluate**  Every time you see a science-based headline, read the article and try to evaluate the evidence. Think sample size and make-up, stats tests, etc |
| **Complete assigned homework**  Attempt exam questions without your notes. Switch colour and fill in gaps using your notes. Submit the work as a PDF on Firefly but don’t mark the task as done. As soon as work comes back marked, read the feedback add corrections using the mark-scheme |  | **seneca**  Lots of people find Seneca useful for study and revision. I have assigned the relevant courses to you: class code for A-level 2021-23: XXXXXX  Working at Seneca (UK) | Glassdoor |  | **YouTube**  YouTube is great for taking you’re a-level knowledge to a higher level. Keep a record of things you’ve watched. |
| **Post-it reminders**  Use post-its to remind yourself which parts of your homework you needed to use your notes for or concepts you don’t understand yet, and questions you need to ask. |  | **Timing**  For smaller tests, you should be studying throughout so final ‘revision’ can be done in the week before your test.  For larger exams you will need to start a few months ahead of the date  A picture containing clock, font, circle, text  Description automatically generated |  | **revise regularly**  Schedule time to review older chapters regularly. Follow the advice in the “after each chapter” section. |
| **Ask questions**  Email your teacher to arrange a time to talk-through a concept you don’t understand or ask in the next lesson.  A picture containing symbol, clipart, font, graphics  Description automatically generated |  |  | **No distractions!**  When you do sit down to work, make sure you leave your phone in another room. Focus on what you’re doing.  A picture containing gadget, electronic device, mobile phone, portable communications device  Description automatically generated |

# ASSESSMENT AND EXAMINATION

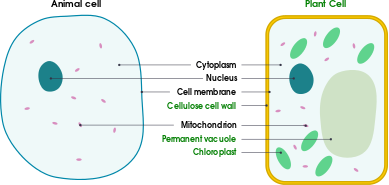
* All units are assessed with an end of topic examination. These are internal tests and will not count towards your A level grade. However, they will be used to track your progress and inform teaching staff of suitable predicted grades.
* It is essential that you keep your PAG books up to date and that submitted work satisfies the required criteria. The practical component is either a ‘Pass’ or a ‘Fail’. It **does not** contribute to your overall A level grade. **However** be aware that many degree courses will demand that you pass the practical component as a prerequisite for an offer.
* An internal examination is undertaken at the beginning of the Spring term
* Your grade will be decided upon three final written examinations.

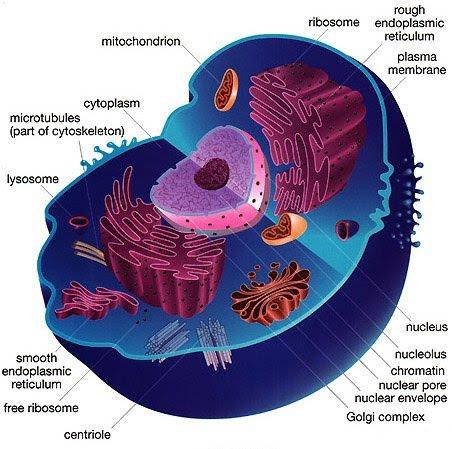
## Precourse Startup Tasks

## Task 1

## ‘All Life is cellular’

## Here are some ‘GCSE’ cells:



**Here is an ‘A level’ cell:**

Identify three organelles that are present in the ‘A level cell’ but not in the GCSE cell.

Use the internet to research the function of these organelles and explain why they are needed.

Provide references for your information. your guide should include:

* Key words and definitions
* Clearly labelled diagrams
* Short explanations of key ideas or processes.

And take a look at these videos: <https://www.youtube.com/watch?v=gcTuQpuJyD8> <https://www.youtube.com/watch?v=L0k-enzoeOM> <https://www.youtube.com/watch?v=qCLmR9-YY7o>

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Description automatically generated**TASK 2 Why Carbon ?**

All major groups of biomolecules are based on chains of carbon. Why is this? Detail an answer in a couple of paragraphs.

You will need to use a period table of elements. Your answer should make reference to specific types of chemical bond and basic biological processes.

And take a look at these videos: <https://www.youtube.com/watch?v=H8WJ2KENlK0>

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

**TASK 3**

**‘I’m 50% Banana’**



Discuss whether this is this a nonsense statement or is there some truth in it? What does it tell us about life on this planet?

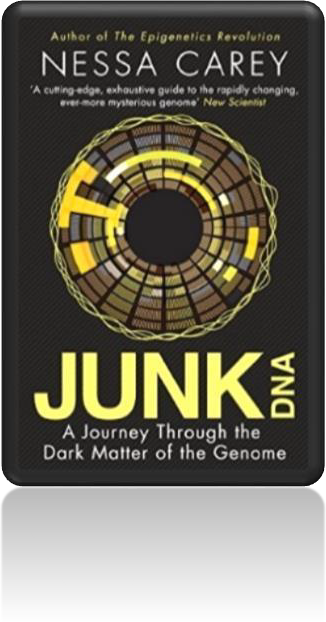
* Define gene, chromosome, DNA and base pair
* Describe the structure and function of DNA and RNA
* Explain how DNA is copied in the body
* Outline some of the problems that occur with DNA replication and what the consequences of this might be.

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-](http://ed.ted.com/lessons/where-do-genes-come-from-carl-zimmer) [zimmer](http://ed.ted.com/lessons/where-do-genes-come-from-carl-zimmer)



Kick back this summer with a good read. The books below are all popular science books and great for extending your understanding of Biology.

Studying Geography as well? **Hen’s Teeth and Horse’s Toes**

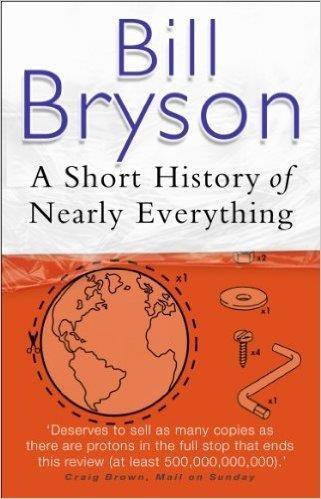
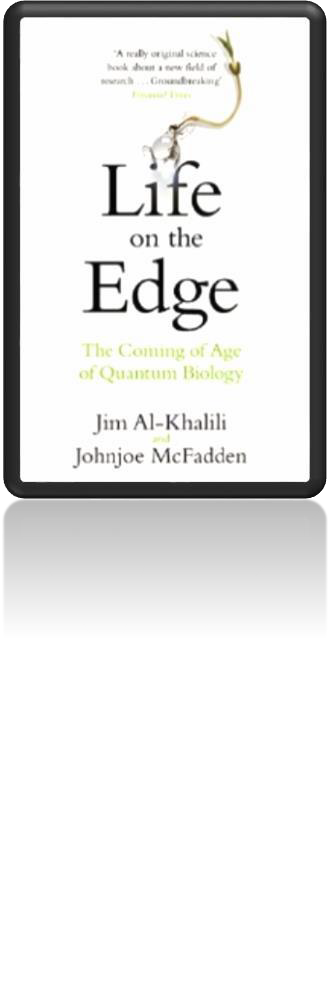
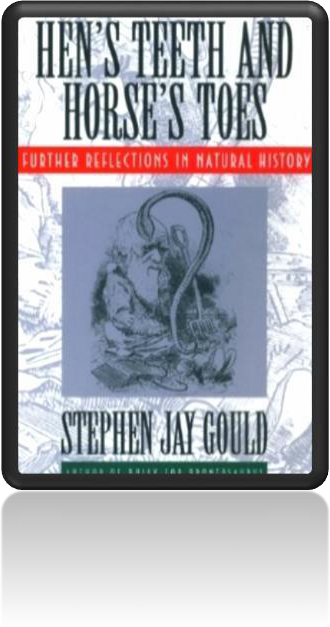
Stephen Jay Gould is a great evolution writer and this book discusses lots of fascinating stories about geology and evolution.

Available at amazon.co.uk

**The Red Queen**

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Description automatically generatedIts all about sex. Or sexual selection at least. This book will really help your understanding of evolution and particularly the fascinating role of sex in evolution. Available at amazon.co.uk



**A Short History of Nearly Everything**

A whistle-stop tour through many aspects of history from the Big Bang to now. This is a really accessible read that will re-familiarise you with common concepts and introduce you to some of the more colourful characters from the history of science! Available at amazon.co.uk

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An easy read..

**Frankenstein’s Cat** Discover how glow in the dark fish are made and more great biotechnology breakthroughs.

**Career Pathways in Biology**

**Science and Research**

Studying GCSE or A Level Biology can help set you up for a range of [careers in Science and Research](https://successatschool.org/careerzonesummary/34/Science-Research). If you enjoy studying Biology at A Level and want to pursue a career in the subject, then you might want to consider looking into research fields. Biology researchers work over a range of different disciplines that explore the 'make up' of living things. Typical jobs that require GCSE Biology include:

**Biochemist**

Biochemistry combines the study of Biology with Chemistry. Biochemists typically investigate living things like people, viruses and bacteria. To become a Biochemist, you'll need to have a good eye for detail and be able to work with a range of scientific equipment.

**Botanist**

An A Level in Biology could help set you up for a career in botany. Botanists work with all forms of plant life and help grow, preserve and discover various species of plants and flowers.

**Forensic Scientist**

If you think you'd enjoy working at crime scenes, then in a career in forensic science could be right up your street. Forensic Scientists typically study evidence to be used in court hearings. GCSE Biology will certainly help you break into this field.

**Medicine and Healthcare**

If you enjoy helping people and would like to work in a hospital or laboratory environments, then a [career in Medicine and Healthcare](https://successatschool.org/careerzonesummary/23/Medicine-Healthcare) could be for you. Typical jobs in this industry include:

**Nursing**

To [become a nurse](https://successatschool.org/advicedetails/392/career%20in%20Medicine%20and%20Healthcare), you'll need to be a naturally caring person. Having your A Level Biology will be a big plus as most nurses have a degree in nursing. There are various different types of nursing jobs out there including ambulatory nursing, dermatology nurses and neuroscience nurses.

**Doctor**

Working as a doctor can be a very rewarding job if you're passionate about biology. To become a doctor you'll typically need GCSE and A Level Biology in order to apply to medical school an obtain a degree in medicine.

**Pharmacist**

Pharmacists are experts in medicine and give people advice about a range of health matters. To work as a pharmacist, you'll need to have a degree in pharmacy, so gaining your A Level Biology is essential.

**Agriculture**

If you enjoy being in the great outdoors and have an interest in nature, then a [career in agriculture and the environment](https://successatschool.org/careerzonesummary/40/Agriculture-Environment) could be for you. Typical jobs in this sector include:

**Farming**

As a farmer, you'll be responsible for growing and maintain crops or caring for livestock. Many people become farmers as the result of a family business but having your GCSE Biology will certainly help you find a job if you're not from a farming background.

**Ecology**

Ecologists study the relationship between plants, animals and the environment. This wide-ranging discipline would suit someone with an interest in the environment and preservation.

**Landscaping**

Landscapers help shape outdoor environments. Typically, a landscaper could design gardens, public parks or areas surrounding housing developments.

**Sport and Fitness**

GCSE and A Level Biology is well-suited to [careers in sports and fitness](https://successatschool.org/careerzonesummary/32/Sport-Fitness). Whether you're an athlete yourself or have in interest in sports performance, studying Biology will help you find jobs like:

**Personal Trainer**

A personal trainer works closely with people who want to improve their physical fitness. As a personal trainer you could work with professional athletes or ordinary people who want to become fitter.

**Professional Sportsperson**

If you have a talent for a particular sport, then you may be able to study at university on a sports scholarship. Having a GCSE or A Level in Biology will definitely help you along the way.

**Physiotherapist**

Physiotherapists typically help people who have physical injuries as a result of playing sports or otherwise. If you enjoy helping people and coaching them back to fitness, then physiotherapy could be the perfect job for you.

**Engineering**

A [career in engineering](https://successatschool.org/careerzonesummary/2/Engineeringq) may not be the first thing you think of when studying GCSE or A Level Biology, but the field has many opportunities for biologists. Some Biology jobs in engineering include:

**Biological Engineer**

Biological engineering lends itself well to A Level Biology. Biological engineers typically work in roles relating to the preservation of soil, water and natural resources.

**Environmental Engineer**

In this role, you'll be responsible for developing techniques to reduce waste created during product manufacturing. If you have an interest in the environment and recycling, then this job could be for you.

**Biomedical Engineer**

This specialist job role involves developing innovations in healthcare. For example, as a Biomedical Engineer, you could find yourself working in prostheses, health management and care delivery systems.

**Police and Emergencies**

Working as part of the [emergency services](https://successatschool.org/careerzonesummary/38/Police-Security-Emergencies), you'll play a vital role in upholding the law and helping people. Although Biology may not be the first subject you think of in these roles, having a GCSE or A Level in Biology can help you work in the following job roles.

**Police Officer**

As a Police Officer, you'll be responsible for enforcing the law in a variety of different situations. With a Biology qualification, you could find yourself specialising in crime scenes.

**Firefighter**

A Level Biology is a good subject to have if you're interested in [becoming a firefighter](https://successatschool.org/advicedetails/548/How-to-become-a-firefighter). This job involves working in dangerous environments so you'll need to have a good awareness of health and safety.

**Ambulatory Staff**

Working as part of a team, as an ambulatory staff member, you could be responsible for taking care of patients on their way to hospital. An A Level in Biology will come in useful here as you'll also need to be able to medically treat patients

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**Top Universities for Biological Sciences in the UK**

(data from the Guardian)

  
**Well done** for choosing the fascinating subject of Biology to study at A level!

We look forward to teaching you in September.

Best wishes,

The Highcliffe Biology Team

