

Preparing to Study at A level

Work for Biology

Below you will find 5 weeks preparation work (around 10 hrs) for your A level course and an Enrolment Task (2 hrs). You will need to do the same for your other two subjects. The final enrolment task must be submitted to Enrolment@StratfordSchool.co.uk by Monday 12th July.

AQA

You can find the course specification here:

[AS and A-level Biology Specification Specifications for first teaching in 2015 \(aqa.org.uk\)](https://www.aqa.org.uk/subjects/biology/A-level/specification)

Research Tasks and Activities:

Task 1 – Week 1

How are medicines and vaccines developed? Part 1

During the current pandemic, development of a successful and safe treatment or vaccine for coronavirus has dominated the news. The following tasks will lead you through some of the key Biology in understanding the challenges that face today's scientists and what we can learn from the past.

Research Tasks:

As you watch at least two of the episodes of the series linked below record the key points on a Cornell notes sheet*.

*Watch the first 4 mins of this video for how to use Cornell notes:

<https://www.youtube.com/watch?v=WtW9IyE04OQ>)

Pain, pus and Poison: The Search for Modern Medicine – Dr Michael Mosley tells the story of our most useful and valuable drugs

This three part series can be downloaded from BBC iPlayer – but they are soon to expire
[BBC Four - Pain, Pus and Poison: The Search for Modern Medicines](#)

If you've missed downloading from iPlayer, episodes 1 and 3 can be found on YouTube (<https://www.youtube.com/watch?v=2hTZNDyLPLk> and <https://www.youtube.com/watch?v=SODjt60zSY8>)

Task 2 – Week 2

How are medicines and vaccines developed? Part 2

During the current pandemic, development of a successful and safe treatment or vaccine for coronavirus has dominated the news. The following tasks will lead you through some of the key Biology in understanding the challenges that face today's scientists and what we can learn from the past.

Research Tasks:

As you watch at the program linked below record the key points on a Cornell notes sheet (see link in task 1 above for a reminder how to use Cornell notes).

Panorama tells the inside story of the development of the Oxford vaccine against Covid-19. For 11 months, the BBC's medical editor Fergus Walsh followed the team at Oxford University and AstraZeneca, as they designed, developed, manufactured and trialled the vaccine.

[BBC iPlayer - Panorama - The Race for a Vaccine](#)

Activities:

1. Review the GCSE Science content on Infection and Response by completing the **assignment set** on Seneca Learning. Aim for 100% on each section.

If you don't have one, create an account at <https://www.senecalearning.com/en-GB/> and join our 'class' using the code **vf8gg5wtwr**.

Task 3 – Week 3

What makes us human? Part 1.

Research Tasks:

You share 99.4% of your genes with your neighbour, 98.7% with a chimp, and even 44% with a fruit fly – yet you are also entirely unique – there is nobody else quite like you.

In this series of videos, Professor Alice Roberts, and genetics expert Aoife McLysaght, take us on a journey to answer this most fundamental question: Who Am I?

As you watch the first two episodes linked here (<https://www.rigb.org/christmas-lectures/watch/2018/who-am-i>) record the key points on a Cornell notes sheet (see link in task 1 above for a reminder how to use Cornell notes).

Task 4 – Week 4

What makes us human? Part 2.

Research Tasks:

You share 99.4% of your genes with your neighbour, 98.7% with a chimp, and even 44% with a fruit fly – yet you are also entirely unique – there is nobody else quite like you.

In this series of videos, Professor Alice Roberts, and genetics expert Aoife McLysaght, take us on a journey to answer this most fundamental question: Who Am I?

As you watch the last video in the series (<https://www.rigb.org/christmas-lectures/watch/2018/who-am-i>) record the key points on a Cornell notes sheet (see link in task 1 above for a reminder how to use Cornell notes).

Activities:

1. Review the GCSE Science content on DNA and Inheritance by completing the **assignment set** on Seneca Learning. Aim for 100% on each section.

If you don't have one, create an account at <https://www.senecalearning.com/en-GB/> and join our 'class' using the code **vf8gg5wtwr**.

Task 5 – Week 5

How do living things interact?

Living things face a constant struggle to survive. Each species occupies a unique ecological niche interacting with biotic and abiotic factors in their environment. This fortnight's tasks will help you explore some of the adaptations organisms have evolved and consider the challenges they face to survive.

Research Tasks:

Spring Watch is an annual series on BBC TV which showcases the best of wildlife in the UK.

Follow the link to Spring Watch on iPlayer and pick at least one episode to watch [BBC Two - Springwatch, 2021, Introducing Springwatch 2021](#)

As you watch the Spring Watch episodes record the key points on a Cornell notes sheet (see link in task 1 above for a reminder how to use Cornell notes).

Activities:

1. Review the GCSE Science content on Ecology by completing the **assignment set** on Seneca Learning. Aim for 100% on each section.

If you don't have one, create an account at <https://www.senecalearning.com/en-GB/> and join our 'class' using the code **vf8gg5wtwr**

Enrolment Task (This task must be sent to Enrolment@StratfordSchool.co.uk by Mon 12th July):

Complete both the following tasks. If you work on paper, you should paste a clear photograph of your work into two separate word documents and attach to your email.

Task 1:

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.

Task: Produce a one page guide summarising the structures and functions of carbohydrates, proteins, lipids and nucleic acids (e.g. DNA)

your summary should include:
key words and definitions
clearly labelled diagrams

Links:

<http://www.s-cool.co.uk/a-level/biology/biological-molecules-and-enzymes>

And take a look at these videos:

[\(103\) Biological Molecules - You Are What You Eat: Crash Course Biology #3 – YouTube](#)

[\(103\) Biomolecules \(Updated\) - YouTube](#)

Task 2:

Cells

The cell is a unifying concept in biology, you will come across it many times during your two years of A level study. Prokaryotic and eukaryotic cells can be distinguished on the basis of their structure and ultrastructure. In complex multicellular organisms cells are organised into tissues, tissues into organs and organs into systems.

Task: Produce a one page guide summarising the differences between prokaryote and eukaryote cells

your summary should include:

key words and definitions
clearly labelled diagrams

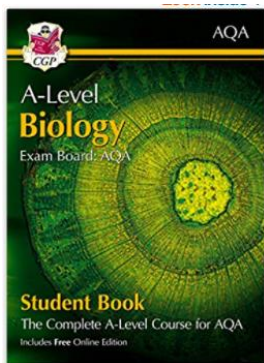
Links:

<http://www.s-cool.co.uk/a-level/biology/cells-and-organelles>

And take a look at these videos:

[\(103\) Introduction to Cells: The Grand Cell Tour - YouTube](#)

[\(103\) Prokaryotic vs. Eukaryotic Cells \(Updated\) - YouTube](#)



Recommended course textbook:

You will need your own copy of the course text book '[A-Level Biology for AQA](#)' published by CGP. It is available as a two-year version, or as two separate books which cover each year of the course.

You may wish to get a copy now or wait until your place on the course is confirmed in August.

Wider Reading and Extension Ideas:

As optional extra areas of study, you might like to:

- **Extend Task 1 and 2:**

1. Use the website of pharmaceutical company GSK to explore how they develop new medicines and vaccines and understand the regulation needed to make this a safe and effective process. Summarise your findings using mind map.

<https://www.gsk.com/en-gb/research-and-development/development/>

2. Complete the Future Learn course 'Causes of Human Disease: Understanding Causes of Disease' to learn about the epidemiological methods used to understand the causes of diseases and how social factors influence their development.

<https://www.futurelearn.com/courses/human-disease-understanding-causes-of-disease>

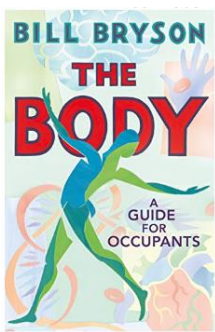
3. If you have access, this book will give you a personal understanding of the work of a Junior Doctor in the NHS.



[This is Going to Hurt – Adam Kay](#)

- **Extend Task 2 & 3:**

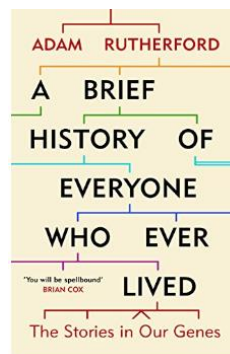
If you have access, to them, these books will give you a great wider understanding of what makes us human.



[The Body – Bill Bryson](#)

Bill Bryson takes us on a head-to-toe tour of the marvel that is the human body.

Also available electronically from [Warwickshire libraries](#) and for Kindle and Audible



[A Brief History of Everyone Who Ever Lived – Adam Rutherford](#)

This is a story about you and how you came to be.

Also available for Kindle and Audible

- **Extend Task 5:**

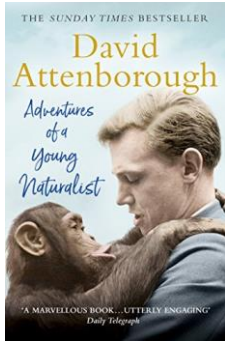
1. Take part in at least one of the activities listed on the Spring Watch 'How to Help Wildlife at Home' page. Some of the activities allow you to get involved in some real-life citizen science.

<https://www.bbc.co.uk/programmes/articles/RVN7BFtLDybfqKbQrcZBB/keep-doing-your-bit-for-wildlife>

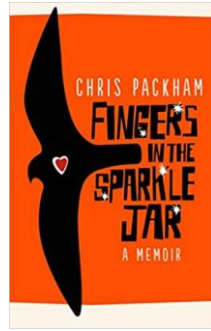
2. Record the wildlife in your garden or local outdoor space using [iRecord](#). iRecord is a website and app that allows you to submit biological records. This information allows us to build up a picture of where different species are around the UK. If it is done regularly, then we can see how a species' location, or distribution, is changing and may be able to conserve or manage it better. **Please observe current COVID-19 safe distancing guidelines while outside your house.**

<https://www.brc.ac.uk/irecord/>

3. If you have access to them, these books will give you insight into the life of two of our Nation's favourite naturalists.



[Adventures of a Young Naturalist – David Attenborough](#)



[Fingers in the Sparkle Jar – Chris Packham](#)

If you have any questions, please contact Dr V Larner:
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