

# A Level Biology Transition Guide

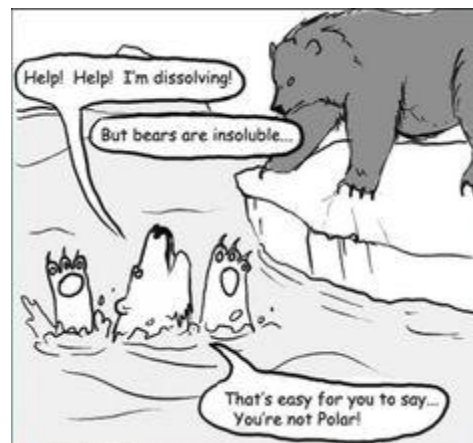


## You're studying A-level Biology

Welcome to A-level Biology. This pack contains a programme of activities and resources to prepare you to start an A-level in Biology in September. It is aimed to be used over the Summer Holidays to ensure you are ready to start your course in September.

The transition from GCSEs to A-levels is challenging, and we as teachers expect mature and organised students, but most of all we want you to be passionate about our subject.

Biology focuses on the study of living organisms. What is life? How do we protect it? How organisms survive at the molecular, cellular, and anatomical levels? What is the ecological interrelationship one organism has with another? What evolutionary patterns are associated with organisms? These questions are important to living creatures like ourselves and studying Biology is about understanding the answers.



At first, you may find the jump in demand from GCSE a little daunting, but if you follow the tips and advice in this guide, you'll soon adapt.

## The course

The specification is a useful reference document for you. You can download a copy from the AQA website: <https://www.aqa.org.uk/subjects/biology/a-level/biology-7402/specification/specification-at-a-glance>

The assessment for the A-level consists of three exams, which you will take at the end of the two year course:

Paper 1	Paper 2	Paper 3
<b>What's assessed</b> <ul style="list-style-type: none"><li>Any content from topics 1-4 including relevant practical skills</li></ul>	<b>What's assessed</b> <ul style="list-style-type: none"><li>Any content from topics 5 – 8 including relevant practical skills</li></ul>	<b>What's assessed</b> <ul style="list-style-type: none"><li>Any content from topics 1-8 including relevant practical skills</li></ul>
<b>How it's assessed</b> <ul style="list-style-type: none"><li>Written exam: 2 hours</li><li>91 marks</li><li>35% of the A-level</li></ul>	<b>How it's assessed</b> <ul style="list-style-type: none"><li>Written exam: 2 hours</li><li>91 marks</li><li>35% of the A-level</li></ul>	<b>How it's assessed</b> <ul style="list-style-type: none"><li>Written exam: 2 hours</li><li>78 marks</li><li>30% of the AS-level</li></ul>
<b>Questions</b> <ul style="list-style-type: none"><li>76 marks: a mixture of short and long answer questions</li><li>15 marks: extended response questions</li></ul>	<b>Questions</b> <ul style="list-style-type: none"><li>76 marks: a mixture of short and long answer questions</li><li>15 marks: extended response questions</li></ul>	<b>Questions</b> <ul style="list-style-type: none"><li>38 marks: structured questions, including practical techniques</li><li>15 marks: critical analysis of given experimental data</li><li>25 marks: one essay from a choice of two titles</li></ul>



## Course information:

- We will be following the AQA A-level Biology syllabus
- You will complete a baseline test in September to check your understanding of topics
- You will sit two exams at the end of Year 12, which you will need to pass in order to progress to Year 13. These exams do NOT contribute to your final A-level qualification.
- You will sit three exams at the end of Year 13, each contributing  $\approx 33\%$  towards your A-level qualification

## Biology lesson information and expectations:

- You will attend 5 x 60 minute lessons each week
  - Lessons and assessments will consist of both practical skill and theory content
  - You must complete at least 12 assessed practical investigations over the course of the A-level course
  - Homework must be completed and handed in on time
  - Tests will take place at the end of each topic and each unit
- Independent study will be completed each week

## Specification at a glance

### **Year 1:**

- Biological molecules
- Cells
- Organisms exchange substances with their environment
- Genetic information, variation and relationships between organisms

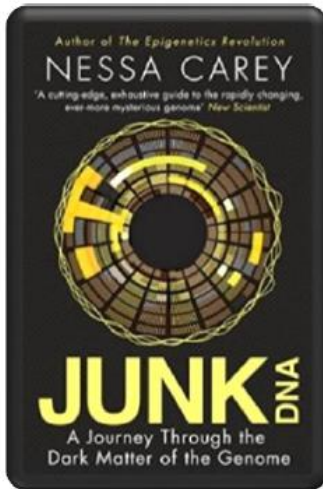
### **Year 2:**

- Energy transfers in and between organisms
- Organisms respond to changes in their internal and external environments
- Genetics, populations, evolution and ecosystems
- The control of gene expression

## Book Recommendations



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



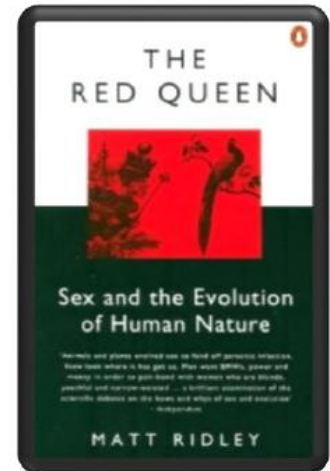
Only a small portion of the genome is used to build a body. A

### Junk DNA

Our DNA is so much more complex than you probably realize, this book will really deepen your understanding of all the work you will do on Genetics. Available at [amazon.co.uk](http://amazon.co.uk)

### The Red Queen

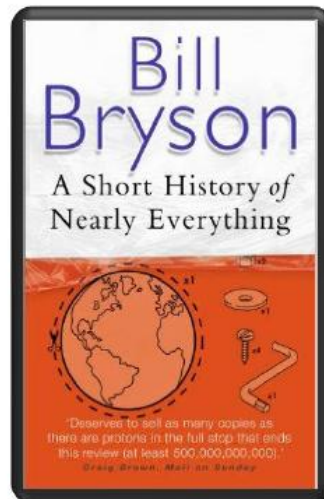
Its all about sex. Or sexual selection at least. This book will really help your understanding of evolution and particularly the fascinating role of sex in evolution. Available at [amazon.co.uk](http://amazon.co.uk)



MATT RIDLEY

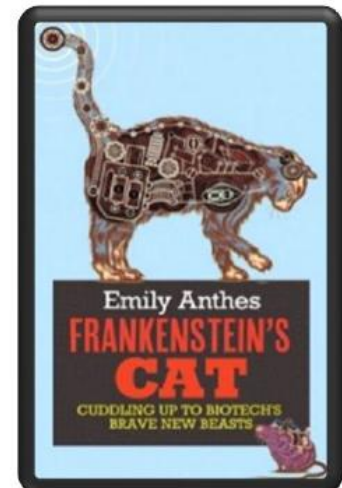
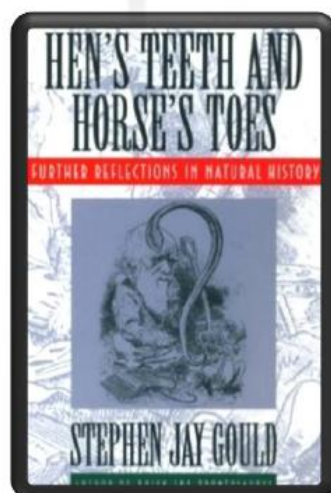
### A Short History of Nearly Everything

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](http://amazon.co.uk)



'Deserves to sell as many copies as there are protons in the full stop that ends this review (at least 500,000,000,000)'

Studying Geography as well? **Hen's teeth and horses 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](http://amazon.co.uk)



An easy read..

### Frankenstein's cat

Discover how glow in the dark fish are made and more great Biotechnology breakthroughs. Available at [amazon.co.uk](http://amazon.co.uk)

## Movie / Video Recommendations



Hopefully you'll get the opportunity to soak up some of the Sun's rays over the summer – synthesising some important Vitamin-D – but if you do get a few rainy days where you're stuck indoors here are some ideas for films to watch or clips to find online.

### 1. Gorillas in the Mist (1988)

### 2. Inherit The Wind (1960)

### 3. Andromeda Strain (1971)

### 4. Gattica

### 5. There are some great TV series and box sets available too, you might want to check out: Blue Planet, Planet Earth, The Ascent of Man, Catastrophe, Frozen Planet, Life Story, The Hunt and Monsoon.

## Online Clips

If you have 30 minutes to spare, here are some great presentations (and free!) from world leading scientists and researchers on a variety of topics. They provide some interesting answers and ask some thought-provoking questions.

### A New Superweapon in the Fight Against Cancer

[http://www.ted.com/talks/paula\\_hammond\\_a\\_new\\_superweapon\\_in\\_the\\_fight\\_against\\_cancer?language=en](http://www.ted.com/talks/paula_hammond_a_new_superweapon_in_the_fight_against_cancer?language=en)

Cancer is a very clever, adaptable disease. To defeat it, says medical researcher and educator Paula Hammond, we need a new and powerful mode of attack.

### Why Bees are Disappearing

[http://www.ted.com/talks/marla\\_spivak\\_why\\_bees\\_are\\_disappearing?language=en](http://www.ted.com/talks/marla_spivak_why_bees_are_disappearing?language=en)

Honeybees have thrived for 50 million years, each colony 40 to 50,000 individuals coordinated in amazing harmony. So why, seven years ago, did colonies start dying en-masse?

### Why Doctors Don't Know About the Drugs They Prescribe

[http://www.ted.com/talks/ben\\_goldacre\\_what\\_doctors\\_don\\_t\\_know\\_about\\_the\\_drugs\\_they\\_prescribe?language=en](http://www.ted.com/talks/ben_goldacre_what_doctors_don_t_know_about_the_drugs_they_prescribe?language=en)

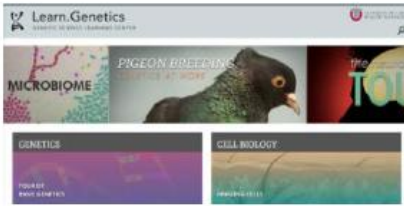
When a new drug gets tested, the results of the trials should be published for the rest of the medical world — except much of the time, negative or inconclusive findings go unreported, leaving doctors and researchers in the dark.

### Growing New Organs

[http://www.ted.com/talks/anthony\\_atala\\_growing\\_organs\\_engineering\\_tissue?language=en](http://www.ted.com/talks/anthony_atala_growing_organs_engineering_tissue?language=en)

Anthony Atalla's state-of-the-art lab grows human organs — from muscles to blood vessels to bladders, and more.

## Websites



Probably the best website on Biology....

Learn Genetics from Utah University has so much that is pitched at an appropriate level for you and has lots of interactive resources to explore, everything from why some people can taste bitter berries to how we clone mice or make glow in the dark jelly fish.

<http://learn.genetics.utah.edu>  
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In the summer you will most likely start to learn about Biodiversity and Evolution. Many Zoos have great websites, especially London Zoo. Read about some of the case studies on conservation, such as the Giant Pangolin, the only mammal with scales. <https://www.zsl.org/conservation>



At GCSE you learnt how genetic diseases are inherited. In this virtual fly lab you get to breed fruit flies to investigate how different features are passed on.

<http://sciencecourseware.org/vcise/drosophila/>

**You are not expected to watch / read all recommendations but if you could pick a selection that particularly appeals.**

## Transition tasks



Moving from GCSE Science to A Level can be a daunting leap. You'll be expected to remember a lot more facts, equations, and definitions, and you will need to learn new maths skills and develop confidence in applying what you already know to unfamiliar situations.

This tasks aim to give you a head start by helping you:

- to pre-learn some useful knowledge from the first chapters of your A Level course
- understand and practice of some of the maths skills you'll need.

1. You need to purchase and complete the 'Head Start to AS Biology' book

- Publisher: Coordination Group Publications Ltd (CGP) (2nd Mar. 2015)
- ISBN: 9781782942795

All of the questions should be fully answered with clear and structured workings on paper with content titles.

2. Look at AQA 'Lesson Activity: GCSE to A Level Progression:

<https://www.aqa.org.uk/subjects/biology/a-level/biology-7402/planning-resources?secondaryResourceType=GCSE+to+A-level+progression>

There are some useful exercises for you to print off and complete – there is also a mark scheme at the same reference

# Pupil Background Information



Name	
GCSE results	
Why you chose to study Biology at A-level?	
What are you most looking forward to about studying A-level Biology?	
What are you most apprehensive about studying A-level Biology?	
What areas of Biology interest you the most?	

**Please bring the completed background info sheet to your first lesson**