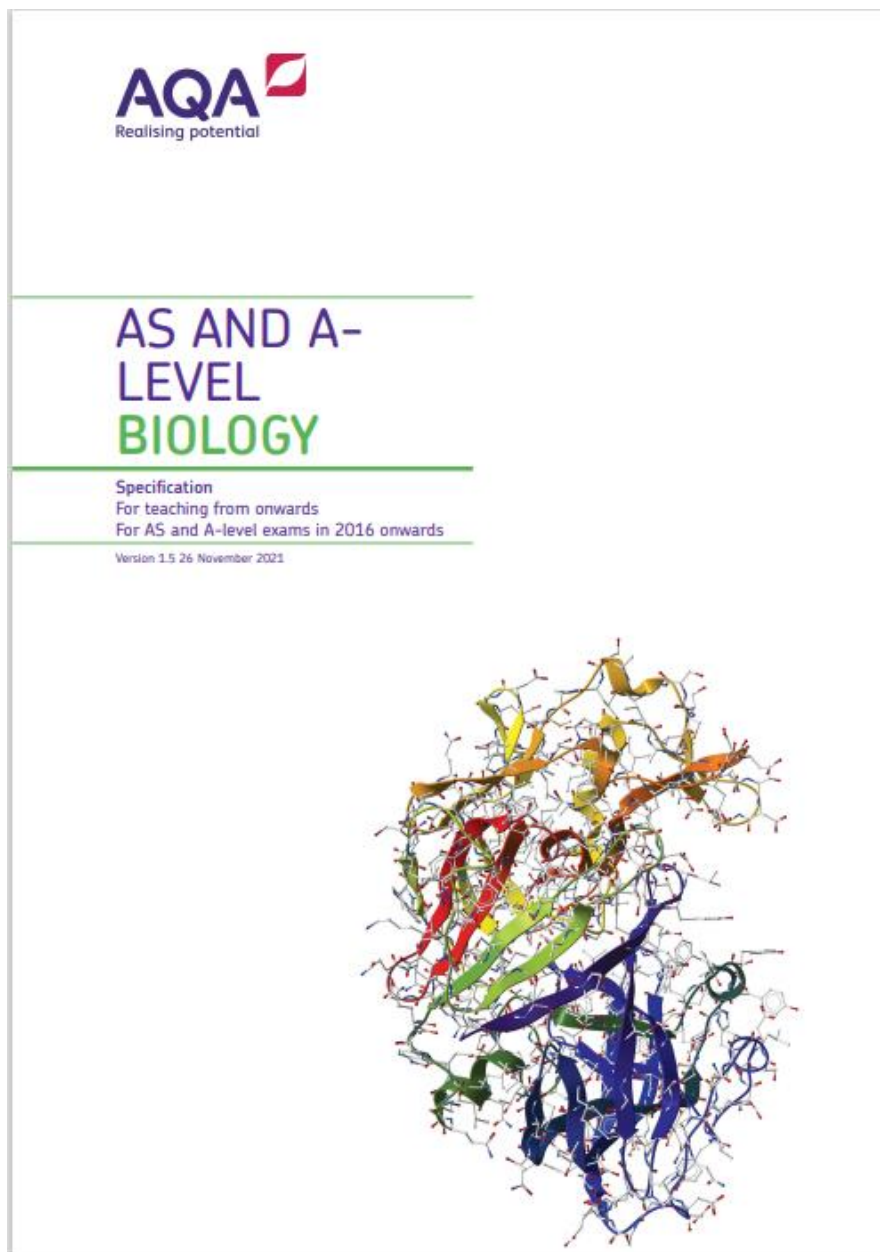


# BIOLOGY

AQA Biology 7401, 7402

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



# Transition to Sixth Form:



## Sixth Form Study

You are likely to study 3 subjects at Bolder Sixth form. Each subject will have six lessons per week. You can expect to engage in a wider range of learning strategies in lessons as well as independently. These could be anything from:

- Making and organising presentations.
- Seminar style reading and group work.
- Use of debate, discussion-based learning, TED-talks, and documentaries.
- Wider reading outside of lesson hours.
- Extended 1-1 practice of practical or experimental work.
- Flip learning – learning in your own time and presenting what you have found to the class.

## Independent Study

A Levels and Applied Qualifications will require more study to be completed by you independently rather than with a teacher. At Bolder we recommend that you spend the same time studying outside of lessons as you do in lessons. Therefore, if you have 6 hours of Biology per week, this means that 6 hours should be spent revisiting notes, revising content, completing practice questions outside of the classroom each week also.

This pack will support you with starting to practice independent study over the summer period which will help you understand what works best for you.

## What do you need to complete?

Over the summer it is expected that you engage with this transition booklet to support with your movement into A level Biology.

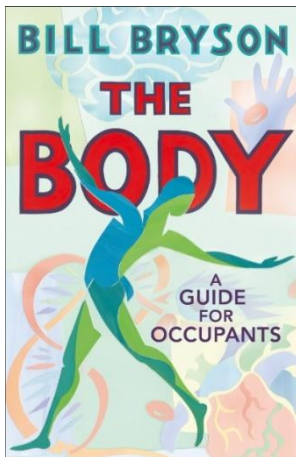
## You must make a total of 200 credits through the summer.

The points for each task are outlined below:

1. Engaging with a recommended book and writing a summary – 100 credits.
2. Completing a task from 'Getting ahead' – 50 credits.
3. Research activities – 25 credits.
4. Documentaries and Ted talks – 25 credits.
5. Completing a day trip with photo evidence and written summary – 100 credits.

You can decide what combination of tasks to complete, but this must add up to 200 credits. These must also be evidenced on your return in September.

## Book recommendations:

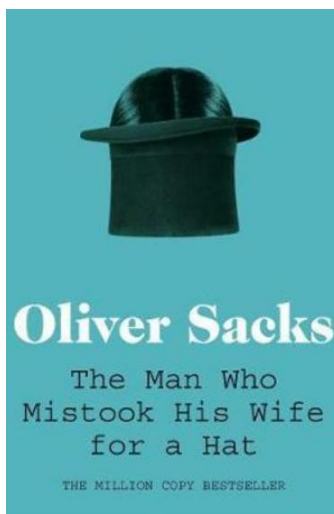
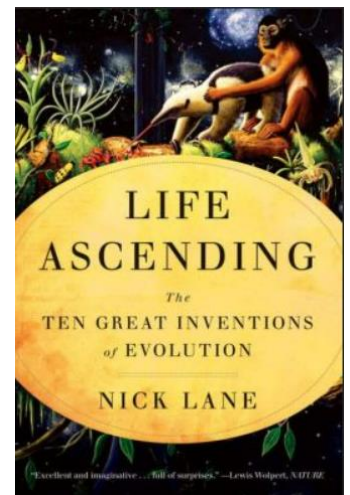


Full of extraordinary facts and stories about the body. Perfect if you are interested in reading about the human body and how it works.

This book would be a good read if you are interested in a medical career.

If you are interested in learning more about evolution and genetics then this book is for you.

Life Ascending by Nike Lane will answer questions such as, where does DNA come from and how did the eye evolve?

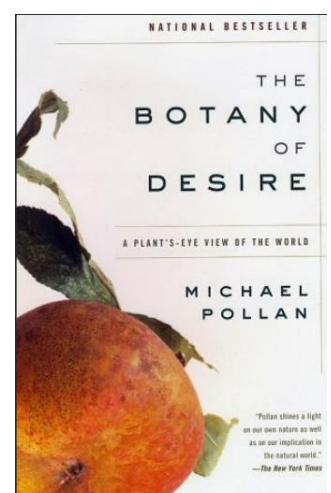


Oliver Sacks is a neurologist who describes the cases of some of his most interesting patients in this book.

If you are interested in neuroscience, this is the book for you.

If you are more interested in plant biology than animal biology then this book is a good place to start.

The Botany of Desire will take you through breeding, growing and genetic engineering of plants and the history behind this.



# Getting ahead!

In A level biology you will need to build on your knowledge from GCSE. Here are some links that you can use to look over some topics:

## Biological Molecules

[4.1 Biological Molecules – Human Biology \(umn.edu\)](#)

[#1 A Level Biology - Biological Molecules - YouTube](#)

[Activation energy: Kickstarting chemical reactions - Vance | TED-Ed](#)

Task: For A level biology you will need to write essay in science for the first time. Write an essay explaining the importance of water for biological organisms. You should include:

1. The importance of water as a habitat.
2. The importance of water as a solvent.
3. The importance of water as a reactant.
4. The importance of water having a high specific heat capacity.

## Cells

[A Level Biology, Topic 1: Cell Structure - YouTube](#)

[Cell Structure \(A Level\) — the science hive](#)

[Cell division - YouTube](#)

Task: Produce a 1 page revision guide summarising cell ultrastructure. You should include the following:

1. Key organelles in the cell and their functions.
2. Annotated scientific diagrams.

## Biodiversity

[Why is biodiversity so important? - Kim Preshoff | TED-Ed](#)

[Can wildlife adapt to climate change? - Erin Eastwood | TED-Ed](#)

Task: Write a persuasive letter to an MP or pressure group promoting conservation to maintain biodiversity. You should include:

1. Definition of species and classification.
2. Describe how new species are classified.
3. Explain one way that scientists collect data about a habitat and give an example.
4. Explain adaptations and how habitat change may pose a threat to niche species.

## DNA

[The twisting tale of DNA - Judith Hauck | TED-Ed](#)

[Where do genes come from? - Carl Zimmer | TED-Ed](#)

[DNA Structure | A-level Biology | OCR, AQA, Edexcel - YouTube](#)

Task: Produce a wall display to put in your classroom in September. You should use images, keywords and explanations to:

1. Define gene chromosome and base pair.
2. Describe the structure and function of DNA and RNA using annotated diagrams.
3. Explain how DNA is copied in the body.
4. Outline some of the problems that occur with DNA replication and the consequences of this.

# Research Activities

Use each of the links below to produce one page of Cornell style notes.

## Topic 1: The Cell

Available at: <http://bigpictureeducation.com/cell>

The cell is the building block of life. Each of us starts from a single cell, a zygote, and grows into a complex organism made of trillions of cells. In this issue, we explore what we know – and what we don't yet know – about the cells that are the basis of us all and how they reproduce, grow, move, communicate and die.



## Topic 2: The Immune System

Available at:

<http://bigpictureeducation.com/immune>

The immune system is what keeps us healthy in spite of the many organisms and substances that can do us harm. In this issue, we explore how our bodies are designed to prevent potentially harmful objects from getting inside and what happens when bacteria, viruses, fungi or other foreign organisms or substances breach these barriers.



## Topic 3: Exercise, Energy and Movement

Available at:

<http://bigpictureeducation.com/exercise-energy-and-movement>

All living things move. Whether it's a plant growing towards the sun, bacteria swimming away from a toxin or you walking home, anything alive must move to survive. For humans though, movement is more than just survival – we move for fun, to compete and to be healthy. In this issue we look at the biological systems that keep us moving and consider some of the psychological, social and ethical aspects of exercise and sport.



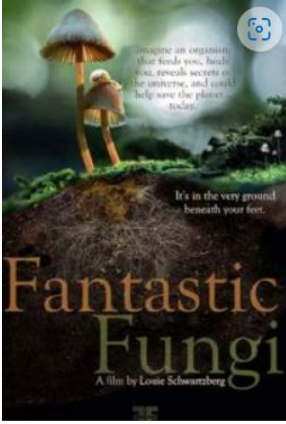
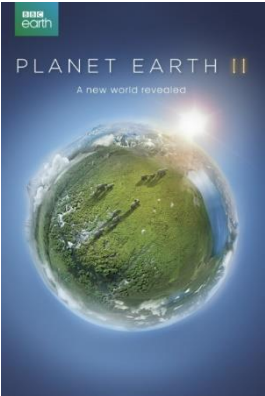
## Topic 4: Health and Climate Change

Available at: <http://bigpictureeducation.com/health-and-climate-change>

The Earth's climate is changing. In fact, it has always been changing. What is different now is the speed of change and the main cause of change – human activities. This issue asks: What are the biggest threats to human health? Who will suffer as the climate changes? What can be done to minimise harm? And how do we cope with uncertainty?



# Film, Lecture & Podcast recommendations:

Documentaries	Summary
 <p>The poster for 'Fantastic Fungi' features two mushrooms on a mossy log. Text on the poster includes: 'Imagine an organism that feeds you, heals you, reveals secrets of the universe, and could help save the planet today.' and 'It's in the very ground beneath your feet.' The title 'Fantastic Fungi' is at the bottom, with 'A film by Louie Schwartzberg' below it.</p>	<p><b>Fantastic Fungi</b></p> <p>A documentary looking at the identification of different fungi, their biochemical properties and uses and applications.</p>
 <p>The poster for 'Planet Earth II' shows a view of Earth from space. Text includes the BBC Earth logo, 'PLANET EARTH II', and 'A new world revealed'.</p>	<p><b>Planet Earth II</b></p> <p>A documentary series about wildlife found on earth where each episode covers a different habitat. Episodes are based on deserts, mountains, fresh water, plains and jungles. Narrated by David Attenborough.</p>

## TED Talks

A new superweapon in the fight against cancer:

[Paula Hammond: A new superweapon in the fight against cancer | TED Talk](#)



Why are bees disappearing?

[Marla Spivak: Why bees are disappearing | TED Talk](#)



What doctors don't know about the drugs they prescribe:

[Ben Goldacre: What doctors don't know about the drugs they prescribe | TED Talk](#)



Growing new organs

[Anthony Atala: Growing new organs | TED Talk](#)



# Ideas for Day trips and things to do:

