



A Level Biology

Welcome to A level Biology. We cover 8 topics over the course of the two years and the activities on this sheet will give you a flavour of what to expect. Please do not think you have to watch every video or read every book, choose the ones that interest you.

Topic 1

This focuses on cardiovascular disease, looking at the heart and circulatory system and all the terminology associated with this. It also includes risk factors associated with the disease.

<https://www.youtube.com/watch?v=X9ZZ6tcxArl> This looks at heart basics.

<https://www.youtube.com/watch?v=v43ej5lCeBo> This looks at blood vessels

<https://www.youtube.com/watch?v=Ab9OZsDECZw> This looks at blood pressure

<https://www.youtube.com/watch?v=ZagG-rXrgPA> This is an autopsy of an obese woman who died of CVD, do not watch this if you think it will upset you.

The following book looks at heart surgery, but you can read each chapter as a separate story. 'Fragile lives – A heart surgeons' stories of life and death on the operating table' by Steve Westby.

Topic 2

Looks at the genetic disorder Cystic Fibrosis. Not only what goes wrong at a molecular level in the DNA but also how this is expressed in the cell.

<https://www.youtube.com/watch?v=bHZsvBdUC2I> This looks at the anatomy of the lungs.

<https://www.youtube.com/watch?v=omkp2VJTE3c> A simplified look at cystic fibrosis.

<https://www.youtube.com/watch?v=6lbP1ASGv9w> Cystic fibrosis at a cellular level.

<https://www.youtube.com/watch?v=dPKvHrD1eS4> Cell membranes and transport.

<https://www.youtube.com/watch?v=H8WJ2KENIK0> Biochemistry – this is useful for all the topics.

Any book which looks at genetics is useful for this section my favourite is 'The Language of the Genes' by Steve Jones, but any of his books are good. Or anything by Richard Dawkins.

Topic 3

How to go from a single cell at fertilisation to a complex organism.

<https://www.youtube.com/watch?v=qCLmR9-YY7o> Meiosis

https://www.youtube.com/watch?v=_5OvgQW6FG4 Fertilisation

<https://www.youtube.com/watch?v=L0k-enzoeOM&t=1s> Mitosis

Topic 4

Looks at biodiversity of species, ecosystems and within species.

https://www.youtube.com/watch?v=GK_vRtHJZu4 Why biodiversity is important

https://www.youtube.com/watch?v=b6Ua_zWDH6U What is biodiversity?

https://www.youtube.com/watch?v=F38BmgPcZ_I Taxonomy

A really lovely book, written by a man with a great love of trees is 'Hidden life of trees – What they feel, how they communicate, the discoveries from a secret world' by Peter Wohlleben – this will make you look at trees and plants in general in a different light.

Topic 5

The effect of climate change on ecosystems and organisms.

<https://www.youtube.com/watch?v=ysa5OBhXz-Q> How wolves change rivers – looking at the interconnectedness of ecosystems.

<https://www.youtube.com/watch?v=9tKS1alqiiU> Climate change

https://www.youtube.com/watch?v=G4H1N_yXBIA Climate change – cause and effect.

https://www.youtube.com/watch?v=sQK3Yr4Sc_k&t=3s Photosynthesis

This topic is a good excuse to watch anything by Sir David Attenborough – so choose your favourite (mine is slug sex).

A good book that looks at climate change from a slightly different angle is 'There is no Planet B – a handbook for the make or break years' by Mike Berners Lee. He has looked at some of the things that we could do and tried to decide which we should do first – give up plastic? Go vegan? Stop flying? Stop fracking?

Topic 6

Forensic science including body identification, time of death and cause of death. Looking at examples of viruses and bacteria and the immune response to them.

<https://www.youtube.com/watch?v=h3-Pj-zbEq8> Forensic Science

<https://www.youtube.com/watch?v=GIJK3dwCWCw&t=487s> Immunology

<https://www.youtube.com/watch?v=2DFN4IBZ3rI> The immune system.

This topic is a good excuse to watch any of those crime scene programmes, like CSI.

A really interesting book written by a forensic pathologist who has performed over 23 000 post-mortems is 'Unnatural Causes' by Dr Richard Shepherd

One of my favourites is 'Stiff – the curious lives of human cadavers' by Mary Roach which looks at the huge variety of uses cadavers can be put too when donated to medical research.

Topic 7

Sports science including respiration, homeostasis and muscle contraction.

https://www.youtube.com/watch?v=00jbG_cfGuQ Respiration.

<https://www.youtube.com/watch?v=ousflrOzQHc> Muscle contraction.

https://www.youtube.com/watch?v=fctH_1NuqCQ Why do we sweat?

I think this topic can be used as an excuse to watch any sporting event, although at the moment this may need to be historical ones.

Topic 8

Nervous system including receptors, effectors, synapses the brain and nervous transmission.

https://www.youtube.com/watch?v=qPix_X-9t7E Nervous system part 1

https://www.youtube.com/watch?v=OZG8M_ldA1M Nervous system part 2

<https://www.youtube.com/watch?v=VitFvNvRIIY> Nervous system part 3

General Books

Anything by Ben Goldacre is always interesting as is Mary Roach.

‘Why we sleep – new science of sleep and dreams’ by Matthew Walker will make you ensure you get a minimum 8 hours sleep a night for the rest of your lives!

‘The Body – a guide for occupants’ Bill Bryson tries to explain the extraordinary contraption we live in – our bodies.

My email is claire.dewilde@hurtwood.net if you wish to contact me with any queries.