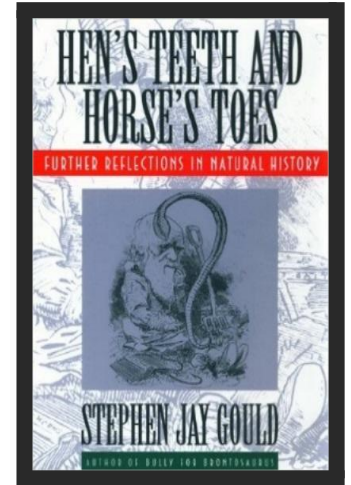
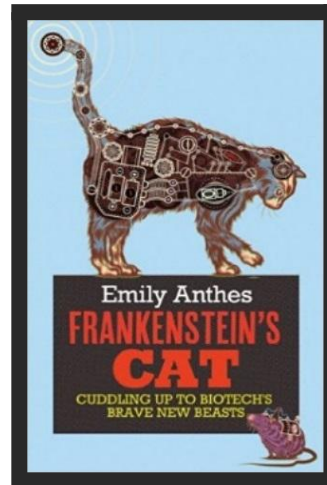
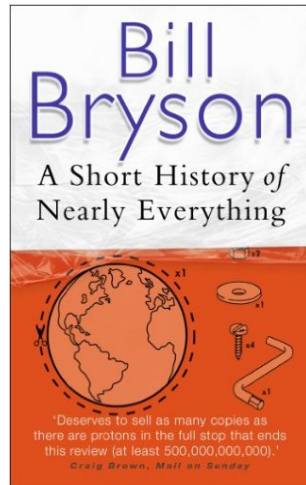
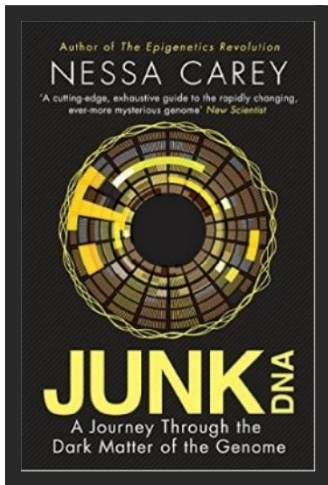


BIOLOGY

The following programme is designed to prepare you for A level Biology.

This is the outline of the course components and some of the texts you could read.













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












First year of A-level	Second year of A-level
1. Biological molecules	5. Energy transfers in and between organisms
2. Cells	6. Organisms respond to changes in their internal and external environments
3. Organisms exchange substances with their environment	7. Genetics, populations, evolution and ecosystems
4. Genetic information, variation and relationships between organisms	8. The control of gene expression



BIOLOGY

<p>WEEK 1</p>	<p style="text-align: center;">Virology & Global Health</p> <p> Watch The Life Scientific - viruses: Video</p> <p> Complete Kerboodle GCSE to A level biology transition questions. This will support you with certain topics and math skills needed in biology.</p> <p> Watch Tedtalk on COVID-19: Video</p> <p> Write: Use the information from the video above to write a detailed article for a local newspaper stating the true facts and figures to make the public aware of the situation at the moment, including key facts regarding viruses and how they work.</p>
<p>WEEK 2</p>	<p style="text-align: center;">Key Biological Concepts</p> <p> Watch Short video on electron microscopy images Video</p> <p> listen Podcast - 'In Our Time - Microscopes' https://www.bbc.co.uk/programmes/b03jdy3p</p> <p> listen 'In Our Time - Enzymes' https://www.bbc.co.uk/programmes/b08rp369</p> <p> Complete Head start to biology- Microscopes and enzymes reading and questions.</p> <p> Complete Microscopes and cells thinking activity- Looking at a comic strip, discuss the meaning, references to jokes, scientists and issues today.</p> <p> Read The microbes thriving in our bowels- Article. Suggest views on microbes and hygiene in different settings.</p>

BIOLOGY

<p>WEEK 3</p>	<p style="text-align: center;">Cells and Control</p> <p> Watch TEDx - Animations of unseeable biology Video</p> <p> Watch TEDx - A look inside the brain in real time Video</p> <p> Watch In Our Time - Free Radicals Video</p> <p> Reading on microbes: There are lots of articles available- read one of your choice.  Write a biological review on it. Articles</p> <p> Watch In Our Time - The Brain Video</p> <p> Watch Science behind aging Video and</p> <p> Discuss the key question; why we age and why we don't have to?</p>
<p>WEEK 4</p>	<p style="text-align: center;">Natural Selection & Genetic Modification</p> <p> Watch Can Science Make Me Perfect? Video</p> <p> Explain the advantages and disadvantages</p> <p> Watch Unnatural Selection (short series) Video</p>

BIOLOGY



Listen In Our Time: Neanderthals [Podcast](#)



Watch The Life Scientific: evolution of cancer [Video](#) and



Write what are the three key facts learnt from this video



Read Designer babies: [Read](#) the information and



Write your views on designer babies and why does this article state that it may not work?



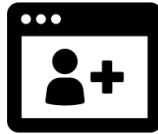
Complete Genetic diversity and adaptations [worksheet](#)

BIOLOGY

...CHALLENGES ...

This is your opportunity to try something outside the course that you are genuinely curious about: try an online course, watch TV, film, plays or listen to the radio, audio books or podcasts or enter a competition!

SIGN UP TO A FREE ONLINE COURSE



Future Learn - [browse courses here](#)

Examples of relevant courses

- Nature and Agriculture
- Healthcare and medicine

Open University - [browse courses here](#)

Examples of relevant courses

- Active, healthy lifestyles
- Imaging and medicine
- Forensics and fingerprinting

BIOLOGY

MOVIE RECOMMENDATIONS

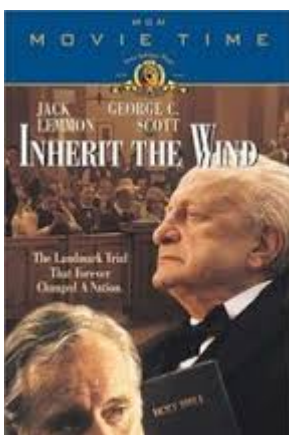


Everyone loves a good story and everyone loves some great science. Here are some of the picks of the best films based on real life scientists and discoveries. You won't find Jurassic Park on this list, we've looked back over the last 50 years to give you our top 5 films you might not have seen before. Great watching for a rainy day.



Gorillas in the Mist (1988)

An absolute classic that retells the true story of the life and work of Dian Fossey and her work studying and protecting mountain gorillas from poachers and habitat loss. A tear jerker.



Inherit The Wind (1960)

Great if you can find it. Based on a real life trial of a teacher accused of the crime of teaching Darwinian evolution in school in America. Does the debate rumble on today?

BIOLOGY



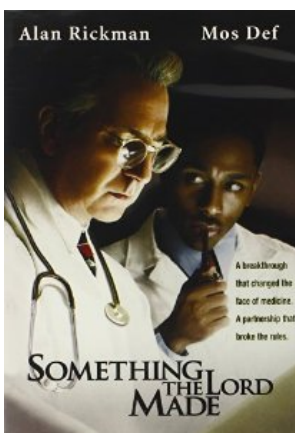
The Andromeda Strain (1971)

Science fiction by the great thriller writer Michael Crichton (he of Jurassic Park fame). Humans begin dying when an alien microbe arrives on Earth.



Lorenzo's Oil (1992)

Based on a true story. A young child suffers from an autoimmune disease. The parents research and challenge doctors to develop a new cure for his disease.



Something the Lord Made (2004)

Professor Snape (the late great Alan Rickman) in a very different role. The film tells the story of the scientists at the cutting edge of early heart surgery as well as issues surrounding racism at the time.

BIOLOGY

LISTEN TO PODCASTS & RADIO



Podcasts & Radio

- COVID-19
<https://www.theguardian.com/science/audio/2020/apr/22/covid-19-how-vulnerable-are-people-with-diabetes-podcast>
- The monkey cage
<https://www.bbc.co.uk/programmes/b00snr0w/episodes/downloads>
- Life sciences
<https://www.bbc.co.uk/programmes/b015sqc7>
- The natural selection
<https://naturalselectionpodcast.weebly.com/about-the-podcast.html>

SCIENCE ON SOCIAL MEDIA

Science communication is essential in the modern world and all the big scientific companies, researchers and institutions have their own social media accounts. Here are some of our top tips to keep up to date with developing news or interesting stories:

Follow on Twitter:

Commander Chris Hadfield – former resident aboard the International Space Station
@cmdrhadfield

Tiktaalik roseae – a 375 million year old fossil fish with its own Twitter account!
@tiktaalikroseae

NASA's Voyager 2 – a satellite launched nearly 40 years ago that is now travelling beyond our Solar System
@NSFVoyager2

Neil dGrasse Tyson – Director of the Hayden Planetarium in New York
@neiltyson

Sci Curious – feed from writer and Bethany Brookshire tweeting about good, bad and weird neuroscience
@scicurious

The SETI Institute – The Search for Extra Terrestrial Intelligence, be the first to know what

BIOLOGY

they find!
@setiinstitute

Carl Zimmer – Science writer Carl blogs about the life sciences
@carlzimmer

Phil Plait – tweets about astronomy and bad science
@badastronomer

Virginia Hughes – science journalist and blogger for National Geographic, keep up to date with neuroscience, genetics and behaviour
@virginiahughes

Maryn McKenna – science journalist who writes about antibiotic resistance
@marynmck

Find on Facebook:

Nature - the profile page for nature.com for news, features, research and events from Nature Publishing Group

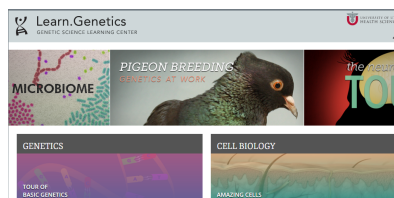
Marin Conservation Institute – publishes the latest science to identify important marine ecosystems around the world.

National Geographic - since 1888, National Geographic has travelled the Earth, sharing its amazing stories in pictures and words.

Science News Magazine - Science covers important and emerging research in all fields of science.

BBC Science News - The latest BBC Science and Environment News: breaking news, analysis and debate on science and nature around the world.

SCIENCE 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/>

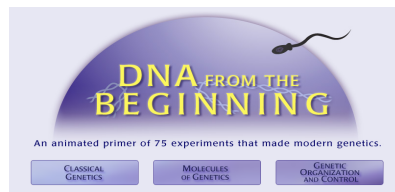
BIOLOGY



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/>



DNA from the beginning is full of interactive animations that tell the story of DNA from its discovery through to advanced year 13 concepts. One to book mark!
<http://www.dnaftb.org/>

READING LIST

Magazines, Newspapers and journals

- New Scientist
- Scientific American
- Nature Science
- Biological Sciences Review
- British Medical Journal
- Any scientific articles in newspapers (eg the Guardian on Wednesday)

Reading list to 'dip' in to:

- Richard Dawkins:
The Selfish Gene

BIOLOGY

The Blind Watchmaker.

Unweaving the Rainbow

Climbing Mount Improbable

The Ancestor's Tale

- Steve Jones:

Y: The Descent of Men

[In the Blood: God, Genes and Destiny](#)

[Almost Like a Whale: The 'Origin of Species' Updated](#)

The Language of the genes

- Matt Ridley

[Genome: The Autobiography of a Species in 23 Chapters](#)

[The Red Queen: Sex and the Evolution of Human Nature](#)

The Language of Genes

Francis Crick: Discoverer of the Genetic Code

Nature Via Nurture: Genes, Experience and What Makes Us Human

- James Watson:

DNA: The Secret of Life

The Double Helix: Personal Account of the Discovery of the Structure of DNA

- Lewis Thomas:

The Lives of a Cell: Notes of a Biology Watcher.

The Medusa and the Snail: More Notes of a Biology Watcher Barry Gibb: [The Rough Guide to the Brain \(Rough Guides Reference Titles\)](#)

- Charles Darwin: The origin of species
- Armand Marie Leroi: Mutants: On the Form, Varieties and Errors of the Human Body

BIOLOGY

- David S. Goodsell: The Machinery of Life
- Ernst Mayr: This Is Biology: The Science of the Living World
- George C. Williams: Plan and Purpose in Nature
- Steve Pinker: The Language Instinct
- Edward O Wilson: The Diversity of Life
- Richard Leaky: The Origin of Humankind