HELSBY

Sixth Form

Year 11 Sixth Form Transition Material

Biology

Congratulations on choosing to study Biology at A Level

The information and tasks contained in this booklet will help you to research and prepare for your course when you start at Sixth Form Helsby in September. They will provide you with an overview of what to expect from your A Level studies and help you to develop a greater understanding of the subject.

This is by no means an exhaustive list but it will help you to start thinking about the subject and extra-curricular study and research.

Podcasts/TED talk

- This week in Evolution https://www.microbe.tv/twievo/
- Big Biology https://www.bigbiology.org/
- Teach me Biology https://teachmescience.co.uk/
- RadioBio https://www.radiobio.net/
- Two Scientists walk into a bar https://www.gene.com/topics/two-scientists-walk-into-a-bar
- Bio eats World https://future.a16z.com/bio-eats-world/
- All creatures podcast https://www.allcreaturespod.com/
- Ask a Biologist https://askabiologist.asu.edu/listen-and-watch
- Ologies https://www.alieward.com/
- In defence of plants https://www.indefenseofplants.com/podcast
- The Infinite Monkey cage https://www.bbc.co.uk/programmes/b00snr0w/episodes/downloads
- The life scientific https://www.bbc.co.uk/programmes/b015sqc7

Trips/Visits

- A fieldwork trip to Anglesey
- A fieldwork trip to Delamere forest

Reading

- Silent Spring: Rachel Carson
- The Selfish Gene – Richard Dawkins
- Sapiens: A Brief History of Humankind – Yuval Noah Harari
- On the Origin of Species – Charles Darwin
- Behave – Robert M. Sapolsky
- The Blind Watchmaker – Richard Dawkins
- The Body – Bill Bryson
- The Hot Zone – Richard Preston

Films/Documentaries/TV

- Contagion
- Outbreak
- Smallpox: Silent Weapon
- Gattacca
- Osmosis Jones
- Anything with David Attenborough
- https://www.rigb.org/explore-science/explore/video/back-brink-completely-stuffed-2007

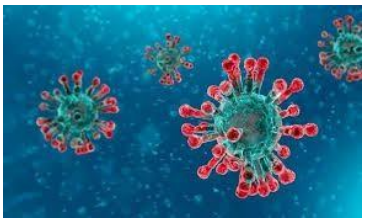
UCAS
https://www.ucas.com/explore/search/all?query=Biology

Genetic Engineering

Below are a selection of videos linked to Genetic Engineering. Use them, and whatever other resources you want to answer the following questions.

Present your answers in whatever format you like.

- What is genetic engineering?
- How is it done?
- What could it be used for? What is it used for?
- On a day to day basis, do you come across any genetically engineered organisms (or Genetically Modified Organisms – known as GMOs) or products made by them?
- Could we cope without GMOs? (think about food)
- What are the risks of Genetic Engineering (Can we engineer humans? Technically? Morally?)Where do you see the future of genetic engineering.
  https://www.youtube.com/watch?v=jHx-01plgyY
  https://www.youtube.com/watch?v=EXW3GX4FjEY
  https://www.youtube.com/watch?v=bfqLD7iTR0U
  https://www.youtube.com/watch?v=B0zT9CN3-50
  https://www.youtube.com/watch?v=yAud1iynheY
  https://www.youtube.com/watch?v=v8tJGlicgp8



Covid-19 Research Task

Now more than ever it is important to have a good scientific understanding of what's going on in the world around us. Without understanding the science behind things like a global pandemic, it is impossible to make informed decisions about your own health. This knowledge will also help you interpret what is factual information from false, inaccurate information.

Task 1:
Watch the following TED talk and use reliable sources on the internet (such as the BBC or WHO) to find out the answers to the following questions:

1. How many corona viruses exist which affect humans?

2. Why are these viruses called coronaviruses?

3. What is another name for Covid-19? What other coronavirus is Covid-19 similar to?

4. Which part of the body does Covid-19 infect?

5. How is Covid-19 spread?

6. In which type of environment does Covid-19 spread fastest?

7. What does the virus do when it enters/ infects a host cell?

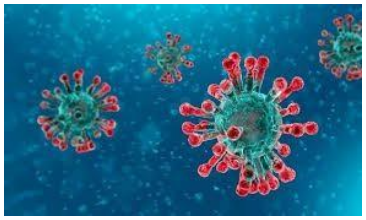
8. How can mutations in a virus be beneficial?

9. (a) What is it called when a virus can 'jump' species (transfer from one species to a new species)?

(b) Name three other viruses which have' jumped' species to infect humans.
Bonus question: find out which animal these viruses originated from.

(c) Which animal is believed to have passed Covid-19 onto humans?

10. What is the advantage of a slow mutation rate in a virus?



Task 2:
Watch this short video by the WHO (World Health Organisation) and take a look at the following poster.

1. Do you think we should all use masks outside? In which situations would you definitely wear a mask and why?

2. How else can we keep ourselves safe from catching the virus? Try to come up with your own poster of 'Do's and Don'ts' to explain to the public how we can prevent the spread of the virus.

Task 3:
Finally, which do you think is better: Washing hands with **soap and water** or using alcohol based **hand-sanitiser**?

Watch this TED talk, has it changed your opinion?

Task 4: How we have dealt with covid

The following is a series of questions you can research and try and answer. Some helpful video clips are included.

Present your answer as a ppt slide show. You don't have to stick to the suggested slide format.

- Slide 1: Where did covid 19 originate? Can we be certain? https://www.youtube.com/watch?v=HI4-HS3bv_k
- Slide 2: Has our understanding of this changed over the last 18 months?
- Slide 3: How did we start to deal with it originally?
- Slide 4: What sort of things have we done to limit the spread?
- Slide 5: How did we originally identify sufferers:
- Slide 6: How do we identify sufferers now? What are the 2 tests we can use? How are they different?
- https://www.youtube.com/watch?v=VUvtuKUP-M0
- https://www.youtube.com/watch?v=SBQklbZ9Rgo
- Slide 7: Why are people worried about future spikes? https://www.youtube.com/watch?v=hZ34tVBFKF0
- https://www.youtube.com/watch?v=YTlFRJN1Xik
- Slide 8: What are the simplest ways of trying to prevent transmission?
- Slide 9: How do the vaccination methods differ? https://www.youtube.com/watch?v=-m72m1Tmy_M
- Slide 10: What treatments are available?
- Slide 11: What treatments are we starting to develop? https://www.bbc.co.uk/news/health-57488150

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Additional links, tasks and resources can be found in the PiXL Biology Transition Pack.