

GETTING AHEAD



Start to develop skills that are relevant to your course before you join HSDC this September!

Biology - A Level

Topic 1: Cells

- 1) Make a poster showing the structure of a **typical animal cell**.
You should:
 - a) Draw a diagram of your chosen cell.
 - b) Label the following organelles: Nucleus, nucleolus, rough endoplasmic reticulum, smooth endoplasmic reticulum, Golgi body, ribosomes, mitochondria, centriole, lysosome, cell membrane and cytoplasm.
 - c) Annotate your poster with the **functions** of each of the organelles that you have labelled.
- 2) Produce a table which shows the similarities **and** differences between **plant** and **animal** cells.
- 3) Write a definition for both "Eukaryotic cell" and "Prokaryotic cell".

Use these websites (and others) to help you.

- <http://www.s-cool.co.uk/a-level/biology>
- <http://www.cellsalive.com/>
- <https://ghr.nlm.nih.gov/primer/basics/cell#:~:text=The%20human%20body%20is%20composed,can%20make%20copies%20of%20themselves.>
- <https://alevelbiology.co.uk/notes/cell-structure/>

Watch:

Watch these TED talks linked to cells:

- https://www.ted.com/talks/craig_a_kohn_what_are_stem_cells
- https://www.ted.com/talks/carolyn_bertozzi_what_the_sugar_coating_on_your_cells_is_trying_to_tell_you

We look forward to seeing you in September!

For further information about your College and being a student at HSDC, please visit hsdc.ac.uk/Alton

Watch:

The Secret Life of a Cell:

- <https://www.youtube.com/watch?v=wJyUtbn0O5Y>

Can you recognise the cell organelles you drew in the poster activity?

Did You Know...How small cells really are?

Use this online scale to see how cells and their organelles compared to some common day items

- <https://learn.genetics.utah.edu/content/cells/scale/>

Topic 2: Heart structure and disease

Carry out some research into heart structure, function and disease using the links below. Think about what you can do to help you remember what you are learning, e.g. make revision notes, draw diagrams, make mind maps.

1. <https://www.youtube.com/watch?v=X9ZZ6tcxArl>
2. <https://www.youtube.com/watch?v=FLBMwcvOaEo>
3. <https://www.khanacademy.org/science/health-and-medicine/circulatorysystem/pressure-volume-loops/v/pressure-in-the-left-heart-part-1>
4. <https://www.heartuk.org.uk/healthy-living/introduction>
5. <https://www.getroman.com/romanhood/heart-disease>

Then, complete the quizzes and worksheets on these links:

- http://www.phschool.com/science/biology_place/biocoach/cardio1/anatomy.html
- https://www.biologycorner.com/worksheets/heart_internal.html

Hand in your revision materials and the completed worksheet when you start College.

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Useful Books for AQA A Level Biology

- <https://www.cgpbooks.co.uk/secondary-books/as-and-a-level/science/biology/bbr71-head-start-to-a-level-biology>

This is a book you may wish to buy to help you build on your GCSE knowledge and prepare for A Level Biology.

- <https://global.oup.com/education/product/9780198351771/?region=uk>

This is the book that we use at HSDC Alton to accompany the A Level Biology course. You will be able to log on to an online version of the book when you start College. This link will show you the book details in case you also want a paper copy. You can get a version of the book that contains the entire A Level topics, or you can buy the first and second year topics in two separate books.

- <https://www.cgpbooks.co.uk/secondary-books/as-and-a-level/science/biology/bmr71-a-level-biology-essential-maths-skills>

10% of A Level Biology involves Maths and so you may find this book helpful during the course to boost your Maths skills.

Extension work: Gain a MOOC qualification before you start College - optional.

MOOCs are short, free university courses that you study online. You gain a qualification at the end of each. If you Google Future learn MOOC it will take you to the site where you can search for a MOOC on any topic you are interested in. We will be studying Viruses and Vaccines in the first year of the course and the links below are just some of the Immunology related courses that are currently taking place that you may be interested in.

<https://www.futurelearn.com/courses/the-role-of-vaccines-in-preventing-infectious-diseases-and-amr>

<https://www.futurelearn.com/courses/introduction-to-microbiology>

<https://www.futurelearn.com/courses/plague-pestilence-pandemic>

<https://www.futurelearn.com/courses/covid19-novel-coronavirus>

<https://www.futurelearn.com/courses/introduction-to-bacterial-genomics>

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Extension work: Research into COVID-19 at Diamond Light - optional.

Did you know that the UK has its own smaller version of the Hadron collider called Diamond Light and that scientists there are working to develop our understanding of COVID-19?

Use one of the links below to go on a virtual tour of Diamond Light and the other one to see what research they are doing on COVID-19.

<https://www.diamond.ac.uk/Public/VisitUs/Virtual-Visit.html>

<https://www.diamond.ac.uk/covid-19/for-public>

Extension work: Research project on COVID-19 - optional.

You may be interested in developing your biological knowledge of COVID-19 by researching and making notes on the following topics (structure of the virus, history - where did it originate?), transmission, how the body responds to viral infections?, what are vaccines made of and how they work, how do COVID-19 tests work?).

Some links have been provided but please feel free to research further. Show where you obtained all of your information within the text and list all of your resources in a bibliography at the end.

<https://vk.ovg.ox.ac.uk/vk/how-do-vaccines-work>

https://www.youtube.com/watch?v=uVUf_pt7Sh0

<https://www.youtube.com/watch?v=GIJK3dwCWCw>

<https://www.newscientist.com/article/2238477-how-does-coronavirus-testing-work-and-will-we-have-a-home-test-soon/>

<https://vk.ovg.ox.ac.uk/vk/how-do-vaccines-work>

<https://www.youtube.com/watch?v=2DFN4IBZ3rl>

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