


Course:	 <p style="text-align: center;"><b>Biology</b></p>
<b>Specification and code:</b>	<b>OCR Biology A H420</b>
Exam Board website:	<a href="http://www.ocr.org.uk/qualifications/as-a-level-gce-biology-a-h020-h420-from-2015/">http://www.ocr.org.uk/qualifications/as-a-level-gce-biology-a-h020-h420-from-2015/</a>
Course outline:	<p>You will be studying a broad biology curriculum through both years. In your first year you will start off by study cells; microscopy; cell division and organisation. You will then move onto biological molecules; cell membranes; enzymes; disease; exchange and transport; biodiversity, classification and evolution. At the end of the summer term there are 2 days of practical field work at Leeson house. Throughout the course you will develop practical skills &amp; keep a record of all your practical work in order to complete your practical endorsement module.</p>
Essential Reading:	<p>Your textbook and recommended information provided by your teachers in lessons. The textbooks will be issued when you start the course and must be handed back when you finish. You can find cheap 2<sup>nd</sup> hand copies online if you wish to buy your own. Here is a link to the recommended textbook we use</p> <p><a href="http://www.hoddereducation.co.uk/Product?Product=9781471809156">http://www.hoddereducation.co.uk/Product?Product=9781471809156</a></p>
Background reading:	<p>Reading widely around the subject e.g.</p> <ul style="list-style-type: none"> <li>• Nature, or New Scientist &amp; popular science books will give rounded view and help develop understanding you can still find these in most local public libraries and in the school libraries.</li> <li>• Biological Sciences Review is a magazine produced by Manchester University aimed at A level &amp; first year university students.</li> </ul> <p><a href="https://www.hoddereducationmagazines.com/magazines/biological-sciences-review/">https://www.hoddereducationmagazines.com/magazines/biological-sciences-review/</a></p>

## 6<sup>th</sup> Form Summer Bridging Tasks 2024

### Summer Task:

#### **Revise key skills from maths GCSE**

1. You need to be able to use key mathematical formulae.
2. Calculate the circumference and area of a circle
3. Calculate the surface area & volume of rectangular prisms, of cylindrical prisms & of spheres e.g. calculate the surface area or volume of a cell.

Key formulae can be found in the mathematical skills handbook on page 58 below is a link to this

<https://www.ocr.org.uk/Images/294471-biology-mathematical-skills-handbook.pdf>

#### **Microscopes & Cells ICT Independent Learning Task**

You need to do some background reading about each of the following areas. You may choose to make notes, produce a poster or record your learning in some other way. You will be expected to demonstrate your understanding in the first week of term in a short assessment.

1. Images of light & electron microscopes
2. The difference between magnification & resolution
3. The 2 types of electron microscope, how they work and the images they produce. (Transmission electron microscope & scanning/laser scanning confocal electron microscope)
4. The maximum resolution & magnification that can be achieved with a) light microscopes b) electron microscopes (TEM, SEM, LSCM)
5. Advantages & limitations of using a) light microscopes b) electron microscopes
6. How to use an eye piece graticule & calibrate it with a stage micrometer
7. Recognise cell structures in eukaryotic cells
8. How cell structures are represented as seen with a light microscope using drawings & annotated diagrams
9. Using & re-arranging the magnification formula  $magnification = \frac{image\ size}{object\ size}$
10. The similarities & differences in the structure & ultrastructure of prokaryotic & eukaryotic cells

Here are some suggested websites to help

- <https://alevelnotes.com/Magnification/106>
- <https://alevelnotes.com/Cell-Structure/6>
- <https://www.slideshare.net/MrOakes/as-biology-lesson-2-measuring-cells>
- <https://www.youtube.com/watch?v=BDu0Gfilool> Microscopes
- <https://www.youtube.com/watch?v=xTnNv7YplSo> Eukaryotes & Prokaryotes
- <https://www.youtube.com/watch?v=tSB1I UT7yQ> Cell structure and function
- <https://www.youtube.com/watch?v=cj8dDTHGJBY> Animal Cells
- <https://www.youtube.com/watch?v=9UvlgAVCoqY> Plant Cells
- <https://www.youtube.com/watch?v=QplXd76lAYQ> Inner life of a cell