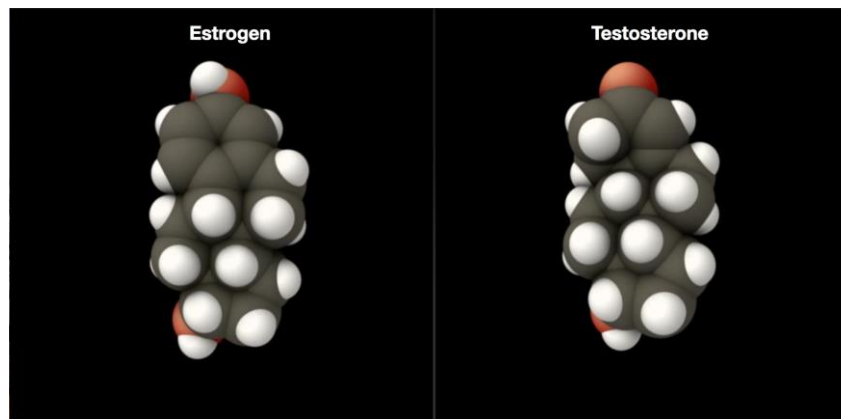




Unit 3 Biology HOLIDAY HOMEWORK 2018



**Teacher/Subject
Coordinator
Contact:**

Jory Clark
clark.jory@sssc.vic.edu.au

Key Links:

VCAA Biology page: find the **Study Design**, past exam papers, assessment information, etc. here:

<http://www.vcaa.vic.edu.au/Pages/vce/studies/biology/biologyindex.aspx>

Edrolo: see the Swinburne School main website sign on.

Biozone Academy Beta: available early 2018

Introduction to the subject

In this unit students investigate the workings of the cell from several perspectives. They explore the importance of the insolubility of the plasma membrane in water and its differential permeability to specific solutes in defining the cell, its internal spaces and the control of the movement of molecules and ions in and out of such spaces. Students consider base pairing specificity, the binding of enzymes and substrates, the response of receptors to signalling molecules and reactions between antigens and antibodies to highlight the importance of molecular interactions based on the complementary nature of specific molecules.

Students study the synthesis, structure and function of nucleic acids and proteins as key molecules in cellular processes. They explore the chemistry of cells by examining the nature of biochemical pathways, their components and energy transformations. Cells communicate with each other using a variety of signalling molecules. Students consider the types of signals, the transduction of information within the cell and cellular responses. At this molecular level students study the human immune system and the interactions between its components to provide immunity to a specific antigen.

A student practical investigation related to cellular processes and/or biological change and continuity over time is undertaken in either Unit 3 or Unit 4, or across both Units 3 and 4, and is assessed in Unit 4, Outcome 3. The findings of the investigation are presented in a scientific poster format.

Work required in preparation for start of 2017

1. Purchase the Biozone: Biology for VCE Units 3 & 4 Student Workbook.
2. **Complete the following: Pages 1 - 10. Membranes**
3. Edrolo: Sign on via school website and start the first 7 topics from Unit 3: Area of Study 1. (I will be monitoring all online platforms for completion and achievement)

Due date: First week back of Semester 1, 2018.

List of textbooks and other resources

- Biozone: Biology for VCE Units 3 & 4 Student Workbook
- Biol Notes Units 3 and 4 (A+ publishing) OPTIONAL & very useful for exam preparation
- ATAR Notes: <http://www.atarnotes.com/>

Links to useful sites and suggested inspiration and extension activities

- Online Preview of Student Workbook:
http://issuu.com/biozone/docs/biology_for_vce_units_3_4?e=3794344/39786182
- Free eBooks for Biology (Great media resources): <https://itunes.apple.com/au/book/e-o-wilsons-life-on-earth-unit-2/id888118327?mt=13>
- Cold Spring Harbour Laboratory:
<https://www.youtube.com/user/DNALearningCenter/featured>
- Protein Data Base 101: <https://pdb101.rcsb.org/>
- Autodesk Molecular Viewer: <https://lifesciences.autodesk.com/MoleculeViewer/index.html>
- Labster: Virtual Laboratory Simulations: <https://www.labster.com/simulations/>
- GTAC Online Courses: <https://www.gtac.edu.au/online-coursestypeonline-learning-modules/?type=online-learning-modules>
- VIDEO: Cell Membrane with concept check questions:
<https://online.clickview.com.au/share?sharecode=4abeea9a>
- WEHI: Molecular Machinery and Animations:
<https://www.youtube.com/channel/UCdBrXvJn60zgplQcZ0Fe7w>