

Biology Induction Work Y11 into Y12

Welcome and thank you for choosing Biology A-Level at Idsall School.

Biology is a huge, fascinating subject as it is the study of life itself and the diversity of living things. Our knowledge of living systems is continually advancing as we integrate new technology into biological research pushing the boundaries of our understanding forward.

At Idsall School we study 'OCR A' Biology course, which is a classic, balanced approach to biology, covering a large breadth of fundamental biology in significant depth.

We are giving you 3 tasks to do which should help to provide you with some foundations as you begin you're a level studies.

Task 1) Please go to the OCR A level biology website and download the current specification for the course (no need to print it out at this stage as it is a huge document).

<https://www.ocr.org.uk/qualifications/as-and-a-level/biology-a-h020-h420-from-2015/>

Have a look through it to see the structure and content of the course. The first few pages are very important as it provides detail of the course components and the underlying skills you will need to develop throughout the course.

Please read through the sections from Module 2 – Foundations in Biology

2.1.1 Cell Structure and

2.1.2 Biological Molecules

as these are the first 2 units we will be studying.

Task 2) Research/review of cells topic.

Cells

The cell is a unifying concept in biology, you will come across it many times during your two years of A level study. Prokaryotic and eukaryotic cells can be distinguished on the basis of their structure and ultrastructure. In complex multicellular organisms cells are organised into tissues, tissues into organs and organs into systems. During the cell cycle genetic information is copied and passed to daughter cells. Daughter cells formed during mitosis have identical copies of genes while cells formed during meiosis are not genetically identical

Read the information on this website (you could make Cornell notes if you wish):

<https://www.s-cool.co.uk/a-level/biology/cells-and-organelles>

And take a look at these videos:

<https://www.dailymotion.com/video/x4fjy56> (the Secret Life of the Cell)

<https://www.youtube.com/watch?v=L0k-enzoeOM>

<https://www.youtube.com/watch?v=qCLmR9-YY7o>

Task:

Produce a one page revision guide summarising each of the following topics: Cells and Cell Ultrastructure, Prokaryotes and Eukaryotes, Mitosis and Meiosis.

Your revision guide should include:

Key words and definitions

Clearly labelled diagrams

Short explanations of key ideas or processes.

Task 2) Research/review of biological molecules topic.

Biological Molecules

Biological molecules are often polymers and are based on a small number of chemical elements. In living organisms carbohydrates, proteins, lipids, inorganic ions and water all have important roles and functions related to their properties. DNA determines the structure of proteins, including enzymes. Enzymes catalyse the reactions that determine structures and functions from cellular to whole-organism level. Enzymes are proteins with a mechanism of action and other properties determined by their tertiary structure. ATP provides the immediate source of energy for biological processes. Read the information on this website (you could make more Cornell notes if you wish):

<https://www.s-cool.co.uk/a-level/biology/biological-molecules-and-enzymes>

And take a look at these videos:

<https://www.youtube.com/watch?v=H8WJ2KENIK0>

<https://ed.ted.com/lessons/activation-energy-kickstarting-chemical-reactions-vance-kite>

Task:

Krabbe disease occurs when a person doesn't have a certain enzyme in their body. The disease effects the nervous system. Write a factsheet for use by a GP or a sufferer to explain what an enzyme is.

Your factsheet should:

Describe the structure of an enzyme

Explain what enzymes do inside the body and how they work

We hope that you have a great summer and we look forward to meeting you next academic year.

The Idsall biology team.