



## Summer Tasks July 2019

**So, you think you would like to study: Biology**

### **Summer Task Title / Instructions:**

**A level Biology will use your knowledge from GCSE and build on this to help you understand new and more demanding ideas. You need to complete the following tasks to get you ready to start your studies in September. These activity directly link to the first 3 units you will cover at the start.**

### **Task 1 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 these websites (you could make more Cornell notes if you wish):

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

<http://www.bbc.co.uk/education/guides/zvjycdm/revision>

And take a look at these videos:

<https://www.youtube.com/watch?v=gcTuQpuJyD8>

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

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

### **Task:**

**Produce a revision guide to share with your class in September summarising the following topics: Cells and Cell Ultrastructure, Prokaryotes and Eukaryotes,**

Your revision guide should include: Key words and definitions

## **Task 2 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 these websites (you could make more Cornell notes if you wish):

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

<http://www.bbc.co.uk/education/guides/zb739j6/revision>

And take a look at these videos:

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

<http://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 letter to a GP or a sufferer to explain what an enzyme is.**

Your letter should:

Describe the structure of an enzyme

Explain what enzymes do inside the body

## **Task 3 Plasma Membranes**

Membranes are structures that separate the contents of cells from their environment. They also separate different areas within cells. The function of membranes is to control the passage of substances into and out of cells and organelles. There are several factors that affect a membranes structure and therefore its permeability. Molecules move across membranes by diffusion, facilitated diffusion and active transport. Water moves by osmosis.

Read the information on these websites (you could make more Cornell notes if you wish):

<https://www.s-cool.co.uk/a-level/biology/cells-and-organelles/revise-it/the-cell-membrane>

And take a look at these videos:

<http://ed.ted.com/lessons/insights-into-cell-membranes-via-dish-detergent-ethan-perlstein>

### **Task:**

**Create a poster on Plasma membranes to go in your classroom in September. Your poster should**

The structure and function of plasma membranes

Reference to diffusion, osmosis and active transport

## **Task 4 Mathematical, Scientific and investigative skills**

**Read Bridging unit GCSE to A Level – make sure you are secure on the mathematical content and the command words.**

As part of your A level you will complete a practical assessment. This will require you to carry out a series of practical activities as well as planning how to do them, analysing the results and evaluating the methods. This will require you to: use appropriate apparatus to record a range of quantitative measurements (to include mass, time, volume, temperature, length and pH),

- use appropriate instrumentation to record quantitative measurements, such as a colorimeter or photometer,
- use laboratory glassware apparatus for a variety of experimental techniques to include serial dilutions,
- use of light microscope at high power and low power, including use of a graticule, produce scientific drawing from observation with annotations,
- use qualitative reagents to identify biological molecules, separate biological compounds using thin layer/paper chromatography or electrophoresis, safely and ethically use organisms,
- use microbiological aseptic techniques, including the use of agar plates and broth, safely use instruments for dissection of an animal organ, or plant organ,
- use sampling techniques in fieldwork.

### **Task:**

**Produce a glossary for the following key words to go into your Practical assessment groups (PAG) folder.**

accuracy, anomaly, calibration, causal link, chance, , control experiment, control group, control variable, correlation, dependent variable, errors, error bars evidence, fair test, hypothesis, independent variable, limitation, null hypothesis, precision, probability, protocol, random distribution, random error, range bars, raw data, reliability, systematic error, true value, validity,

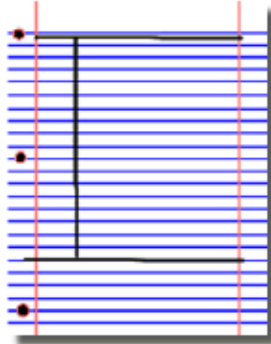
**These tasks will prepare you for a 50 min Transition baseline assessment test in your first lessons.**

**Please submit the 4 task to your teacher on the first lesson in September. Feel free to do multiple summer tasks if you are unsure on what subjects to study.**

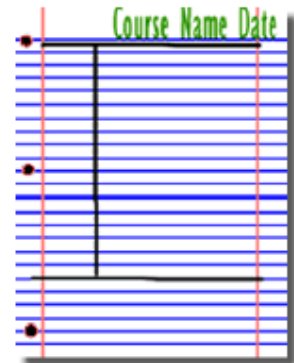
## Taking Cornell notes

Research, reading and note making are essential skills for A level Biology study. For the following task you are going to produce 'Cornell Notes' to summarise your reading.

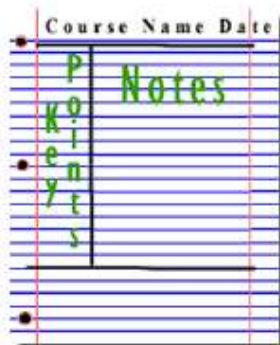
1. Divide your page into three sections like this



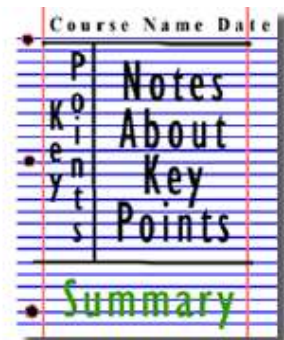
2. Write the name, date and topic at the top of the page



3. Use the large box to make notes. Leave a space between separate idea. Abbreviate where possible.



4. Review and identify the key points in the left hand box



5. Write a summary of the main ideas in the bottom space

