



Summer Bridging Tasks Biology

To prepare for A Level Biology your understanding of principles in biology must be secure. One of the first units you learn about is called **biological molecules**, in which you discover in more detail the molecules and compounds that are found throughout your body to help you function. The other unit you study in your first term is **cells**, in which you delve deeper into microscopic life by learning not only more structures but how each structure works in conjunction with each other to produce biological molecules. You will also need to maintain your maths skills throughout A Level Biology.

Task 1: Biological molecules

- Research the differences between monomers and polymers used in biology and how reactions are used to convert between the two types.
- Read and make notes on the key biological molecules, carbohydrates, proteins, lipids, nucleotides and water.
- Recap the four food tests studied at GCSE using Benedict's, Biuret's, the emulsion test, and using iodine.
- Create a table of similarities and differences between the lock and key theory and the induced fit model of enzyme activity.

Task 2: Cells

- Research the structures that are found in the cell and create a table summarising the differences and similarities between the organelles you need to know at GCSE compared to the A level version.
- Recap the required practical needed to visualise cells using a light microscope.
- Recap the magnification calculation and practice some questions
- Identify similarities and differences between two different types of electron microscope – the SEM and the TEM.

Task 3: Maths

- A bacterial population increases from 2,000 to 2,600 in 3 hours.
 - What is the percentage increase?
 - What is the average rate of increase per hour?
- An enzyme reaction rate decreases from 0.8 to 0.5 $\mu\text{mol/min}$.
What is the percentage decrease?
- Convert the following into standard form:
 - The diameter of a red blood cell is 0.0000075 m.
 - A typical human cell contains about 1000000000 protein molecules.
- Write the following in ordinary numbers:
 - 3.2×10^6
 - 7.5×10^{-4}

Use the QR code for a link to the A Level Biology Padlet
Suggested book/reading list:

- CGP Head Start to A Level Biology (available on amazon)
- CGP A Level Biology : Essential Maths Skills (available on amazon)

