



Presdales A-Level Biology Summer Bridging Work

Choose either one of the topics below and produce a presentation – this can be a poster, a booklet, a PowerPoint, a model, or any other medium (as long as you are able to submit it). Rather than copy from a textbook or website, please put into your own words (this is to help your understanding) and include lots of pictures and diagrams (hand-drawn is fine!). If you find a particular part of the project that interests you, e.g. the role of white blood cells, then go ahead and do some research on that.

Make sure that you reference any websites or book that you have used at the end of each project and the date that you accessed.

1. Biological molecules – all living things contain carbohydrates, lipids, proteins, and nucleic acids

Cover each of these points for each of the 4 biological molecules:

- The monomers and polymers involved.
- The name of the bond joining the monomers together and the type of bond joining the monomers together and the type of reaction involved in making or breaking these bonds.
- Uses in organisms.
- Properties and how these link to the function of the molecule, e.g. starch is insoluble so doesn't cause water to move into cells by osmosis.
- Details of the food test that would show its presence or absence.
- Any other interesting fact that you have found in your research.

2. Cells – all life on Earth exists as cells which have basic features in common

- Definition of prokaryotic and eukaryotic cells and the differences between them.
- A large labelled diagram of a prokaryotic and eukaryotic cell (aim to give approximate magnification). This should be done in pencil.
- A description of each sub-cellular structure plus its role within the cell.
- Techniques used by biologists to isolate and examine these structure (e.g. microscopy, ultracentrifugation).
- How differentiated cells (choose 6) are specialised to do their function, e.g. muscle cells contain many mitochondria to release energy by aerobic respiration for contraction.

Useful sites:

- <http://brilliantbiologystudent.weebly.com/food-tests.html>
- https://www.youtube.com/watch?v=eaNeyq4iEkw&list=PLkocNW0BSuEEMyVUCyaRPVj_cahCvixAr&index=2 then choose the relevant videos
- <https://biology-animations.blogspot.com/2011/12/cell-structure-and-organelles.html>