

Biology A Level Bridging Work for Summer Term

Following on from your work from "Head start to A level Biology," I would like you to carry out some additional research and work on 2 extended projects, as follows.

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, including the name of the 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, *eg 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.

The following sites will help:

<http://brilliantbiologystudent.weebly.com/food-tests.html>

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 structures (eg, microscopy, ultracentrifugation)
- How differentiated cells are specialised to do their function, *eg muscle cells contain many mitochondria to release energy by aerobic respiration for contraction.*

The following sites will help:

https://www.youtube.com/watch?v=eaNeyq4iEkw&list=PLkocNW0BSuEEMyVUCyaRPVj_ca hCvjxAr&index=1

https://www.youtube.com/watch?v=dLjDRs5w4u4&list=PLkocNW0BSuEEMyVUCyaRPVj_ca hCvjxAr&index=27

<https://biology-animations.blogspot.com/2011/12/cell-structure-and-organelles.html>

Presentation - this can be as a poster, a booklet, a Powerpoint, a model or any other medium as long as you are able to submit so that we can have a look at your work. 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, eg, the role of white blood cells, then go ahead and do some research on that.

Make sure that you reference any websites or books that you have used at the end of each project and the date that you accessed. If your project starts to get very long, then a contents page and page numbering would be useful.

Best from Presdales Biology Dept

Ms Walsh (Head of Biology)

Mr Britton

Miss Lee