

Welcome to Bilborough College Biology Department

Step-Up work to complete over the next few weeks:

When you begin studying A-Level Biology in September, we expect a certain level of knowledge from GCSE. We have put together a pack of work which we would like you to complete over summer. The aim of this is to get you up to speed before the start of your course.

Please ensure it is completed to the best of your ability.

As you work through each of the sections below please reference your work. Here is a guide to referencing which is our preferred way of giving references for researched work:

Books:

General reference format:

Authors (year), Title, edition (if relevant), publisher's location, publisher

For example:

Hirst, K and Jones, M (2008), A2 Biology for AQA, London, Collins

For books that have editors include (ed.) or (eds) after their name

If a book does not have named authors or editors, the reference begins with the title, e.g.:

CLEAPPS Laboratory Handbook (2001), Uxbridge, CLEAPPS School Science Service

Websites:

General reference format:

Authors (year), Title, [online] Last accessed date: URL

However, webpages often do not have individual authors in which case the name of the organisation is given.

For example:

Britannica, The Editors of Encyclopaedia. "skeletal muscle". *Encyclopedia Britannica*, [online] Accessed 03/05/2023

<https://www.britannica.com/science/skeletal-muscle>

If no author or organisation can be found reference the website by title however, consideration should be given as to if the website is a trustworthy source.

Journals:

General reference format:

Authors (year), ArticleTitle, Journal Title, volume number, issue number, pp xxx - xxx

For example:

Dillingham, M.S., Spies, M., and Kowalczykowski, S.C., 2003. RecBCD enzyme is a bipolar DNA helicase. *Nature*. 423, pp 893–897.

You will find space for your references at the end of each section

YOU NEED TO BRING THIS WORK TO YOUR FIRST BIOLOGY LESSON. You can print off the remainder of this document from page 2 below and do it on here or alternatively complete it neatly on lined paper.

Enjoy your summer!

Biology Department at Bilborough

Biological Molecules

In Topic 1, you will learn about the biological molecules that form important structures within living organisms. Please complete the following tasks to strengthen your base knowledge of this subject.

Carbohydrates

	Made up of...	Found in (plants/animals)	Uses	How do we test for the presence of this particular carbohydrate?
Glucose				These are reducing sugars:
Fructose				
Galactose				
Maltose				
Sucrose				These are non-reducing sugars
Lactose				
Glycogen				
Starch				
Cellulose				

References:

Lipids

	Made up of...	Found in (structures)	Uses	How do we test for the presence of lipids?
Triglycerides				
Phospholipids				

What is the difference between a saturated fatty acid and an unsaturated fatty acid?

References:

Proteins

What molecules are proteins made up of?

State some uses of proteins within organisms. Can you give examples for both plants and animals?

How do we test for the presence of proteins?

References:

Enzymes

Name of the type of enzyme that digests:

Carbohydrates

Lipids

Proteins

Give definitions for the following key words:

Enzyme	
Active site	
Substrate	
Enzyme-substrate complex	
Product	
Inhibitor	

Describe, using labelled diagrams, the lock and key model.

There are various factors that affect the rate of enzyme controlled reactions. Name them and describe how the rate of reaction is affected. There are 5 factors in total.

1.

2.

3.

4.

5.

References:

Cell structure

In Topic 2, you will learn about the different cells that make up living organisms and the organelles that they are made up of. Please complete the following tasks to strengthen your base knowledge of this subject.

Animal cells

Draw the general structure of an animal cell at the top of the next page. Label the cytoplasm, nucleus, ribosomes, mitochondrion and cell membrane and say what each of these structures does within the cell.

Animal cell:

References:

Plant cells

Draw the general structure of a plant cell. Label the following structures: cytoplasm, nucleus, ribosomes, mitochondrion, cell membrane, cell wall, vacuole, chloroplast and say what each of these structures does within the cell.

References:

Prokaryotic cells

Draw and label a prokaryotic cell, then complete the table to compare it with a eukaryotic (plant or animal) cell.

	Eukaryotic	Prokaryotic
Size		
Outer layers of cell		
Cell contents		
Genetic material		
Type of cell division		

References:

Viruses

Draw and label a virus particle.

Why aren't viruses considered to be living things?



References: