

Biology Transition tasks for A-level

Thank you for showing an interest in continuing with your Biology studies. To make the transition from GCSE to A level smoother, there are specific topics which are the foundation for all Biological processes, which we recommend that you make notes on and learn the specific molecules and structures. The foundation of biology is split into biological molecules which are carbon based. These include:

Carbohydrates which are commonly used by cells as respiratory substrates. They also form structural components in plasma membranes and cell walls.

Lipids have many uses, including the bilayer of plasma membranes, certain hormones and as respiratory substrates.

Proteins form many cell structures. They are also important as enzymes, chemical messengers and components of the blood.

Nucleic acids carry the genetic code for the production of proteins. The genetic code is common to viruses and to all living organisms, providing evidence for evolution.

The second part of the foundation is understanding the role of the cell components in both **Eukaryotic** and **prokaryotic** cells.

To support your studies there are various websites, you tube videos and online books you can access (only use Alevel standard resources):

1. [Mr Pollock's biology videos](#)
2. Head start BIOLOGY. You can access a free kindle version from Amazon
3. [seneca](#)
4. [Khan Academy -Biology](#)

I will also be posting power points and related questions to support you on Teams in Office 265. If you are not already in the group please email me on : kotwals@turton.uk.com and I will add you to the group.

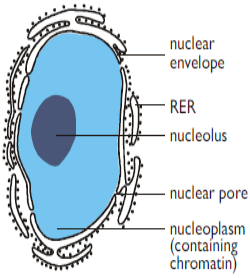
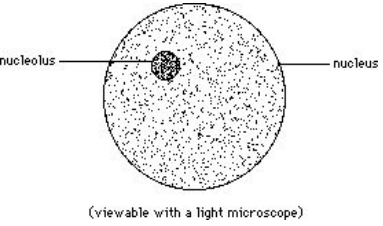
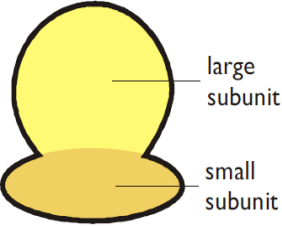
By answering the questions and filling in the tables, you should be in an excellent position to start the course in September. The extension work is for those that want to go deeper with their knowledge !!

Monomer and Polymers (6 points)

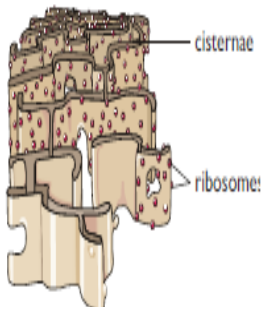
1. What is a monomer ?
2. What is a polymer ?
3. What is condensation reaction and when is it used ?
4. What is a hydrolysis reaction and when is it used ?

<p>1. Carbohydrates</p>	<ol style="list-style-type: none"> 1. What 3 elements are carbohydrates made up of? 2. Carbohydrates are split into monosaccharides, disaccharides and polysaccharides, explain the differences between each molecule. 3. Name 2 monosaccharides. 4. Which 2 monosaccharides make up maltose, sucrose and lactose? 5. Draw a diagram of both α and β Glucose molecules. Highlighting their differences. 6. Draw a diagram to show two glucose molecules joining together, to form a glycosidic bond. 7. Describe the Benedict's test for both reducing and non-reducing sugars. <p>EXTENSION WORK</p> <ol style="list-style-type: none"> 8. <i>Glycogen is carbohydrate storage molecules in animals; Explain how the molecule is formed and how its structure enables it function.</i> 9. <i>Starch is a storage molecule in plants and is made up of amylose and amylopectin. Describe both structures and explain how each is suitable for its function.</i> 10. <i>Describe the structure of cellulose and explain how its structure enables it to function as a support material in plants.</i>
<p>2. Lipids</p>	<ol style="list-style-type: none"> 1. Triglycerides and phospholipids are types of lipids. Draw and label a structure of a triglyceride and a phospholipid 2. What is a triglyceride made up of? 3. What is the name of the bond that forms a triglyceride and which reaction takes place? 4. The fatty acid chain can be saturated or unsaturated. Explain the difference between these structures 5. Where are phospholipids found in a cell and what are their role? 6. Describe the Emulsion test. <p>EXTENSION TASK</p> <ol style="list-style-type: none"> 7. <i>Explain the difference between the properties of triglycerides and phospholipids.</i>
<p>3. Proteins</p>	<ol style="list-style-type: none"> 1. Proteins are made up of amino acids. Draw and label the basic structure of an amino acid. The R group just means that a different chemical molecule is attached for each amino acid 2. Draw two amino acids, joining up together to form a peptide bond. Long chains of amino acids are arranged in proteins and these are called the primary structure. 3. The secondary structure allows the chains of amino acids to either coil up or fold. Name these structures. 4. Describe the Biuret test. <p>EXTENSION TASK</p> <ol style="list-style-type: none"> 5. <i>Proteins such as enzymes also have a tertiary structure, which chemical bonds are involved in the tertiary structure? how are these bonds affected by temperature and pH?</i>
<p>4. Nucleic Acid</p>	<ol style="list-style-type: none"> 1. DNA and RNA are polymers of nucleic acid. Draw and label a nucleic acid. 2. Name the four nitrogen bases in a DNA molecule. 3. Name the bond that forms between two nucleotides 4. Name the bond that forms between two strands of DNA 5. Explain the difference between a DNA and RNA molecule. <p>EXTENSION TASK</p> <ol style="list-style-type: none"> 6. <i>Describe the process of semi-conservative replication.</i>

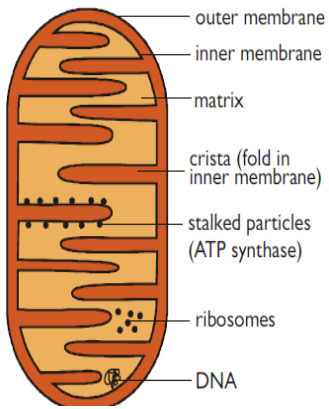
Cell structure and function

Structure	Description	Role
<p>Cytoplasm</p>		
<p>Nucleus</p> 		
<p>Nucleolus</p> 		
<p>Ribosomes</p> 		

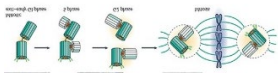
Rough and smooth endoplasmic reticulum



Mitochondria



centrioles



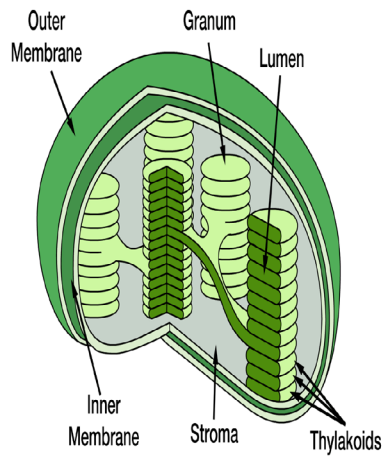
Lysosomes



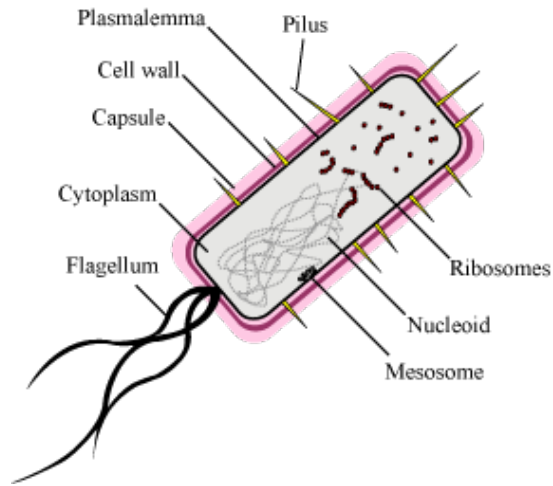
Golgi Apparatus



Chloroplast



Prokaryotic Cell



<u>Structure</u>	<u>description</u>	<u>Function</u>
Cell wall		
Capsule		
Plasmid		
flagellum		
ribosomes		
Circular DNA		

