AS BIOLOGY SUMMER WORK

Biological Molecules

What are some uses of lipids?

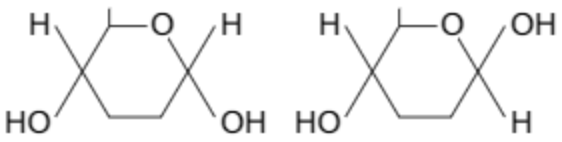
What are some uses of carbohydrates?

What are some uses of proteins?

Disaccharides are formed by the condensation of two monosaccharides:

- ★ maltose is a disaccharide formed by condensation of two glucose molecules
- ★ sucrose is a disaccharide formed by condensation of a glucose molecule and a fructose molecule
- ★ lactose is a disaccharide formed by condensation of a glucose molecule and a galactose molecule

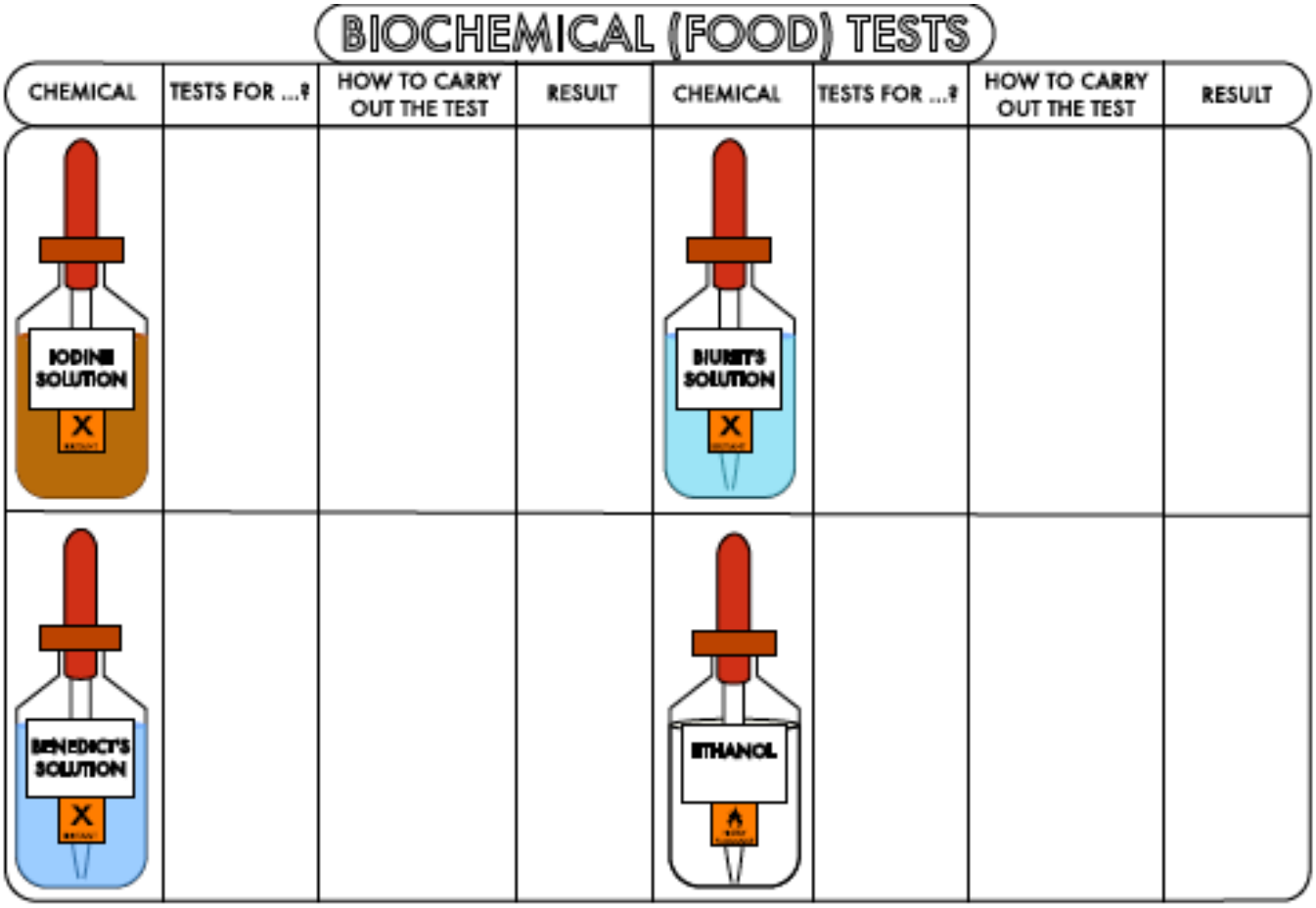
What type of bond is formed in these condensation reactions?



Which one of these molecules is an alpha glucose?

Which molecules are formed by the condensation of alpha glucose?

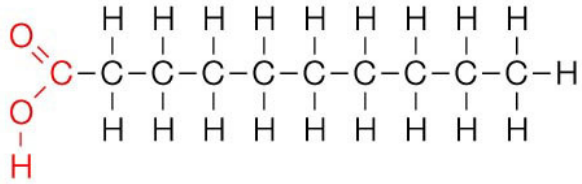
How about beta glucose?



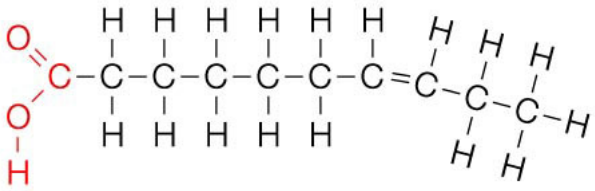
A substance was tested in a lab for the presence of multiple biological molecules, in one test the results showed a colour change from blue to purple, what does this mean?

This was then tested for another biological molecule and HCL was used, this test showed a positive result, what does this indicate?

Saturated



Unsaturated



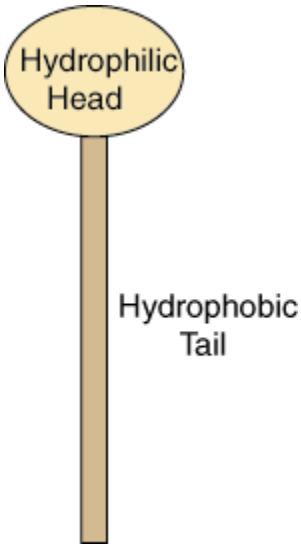
Label the groups in the fatty acids above.

How do they differ?

Is the unsaturated fatty acid cis or trans? What is the difference?

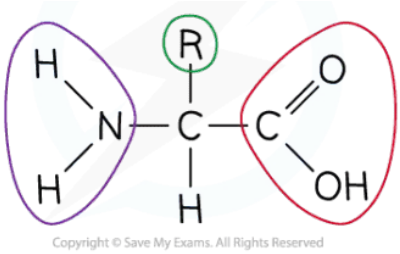
What type of bond is formed when a glycerol and three fatty acids join together? How much water is released in this reaction?

What is the difference between a triglyceride and phospholipid?



What does it mean that the head is hydrophilic?

How does the addition of these phospholipids help movement through the membrane?



What is the name of each of the circled groups?

When two amino acids are joined together, they form a _____. A _____ bond is formed during this _____ reaction.

Protein Structure	***Bonds Present***
Primary	
Secondary	
Tertiary	
Quaternary	

Compare globular and fibrous proteins in the table below.

	Globular	*Fibrous*
Shape		
Example		
Role		

How do enzymes speed up reactions?

What does the lock and key model state?

What factors limit enzyme action? How does each one limit?

What components make up DNA?

How does the sugar in DNA and RNA differ?

How many hydrogen bonds are there between Cytosine and Guanine?

How is a phosphodiester bond formed?

What is the function of RNA?

How is DNA replication semi-conservative?

What enzymes are involved in replication?

What did Meselson and Stahl's experiment show?

What makes up ATP?

What uses does ATP have?

Why is water considered polar?

What are three properties of water that make it useful for living organisms?

How does each one make it useful?

What is the use of phosphate ions?

Cells

What are the three things stated by the cell theory?

How are sperm cells adapted to their function?

What are some structures that a prokaryotic cell has that a eukaryotic cell does not have?

What is the formula to calculate magnification?

Put these in order:

Cytokinesis

Anaphase

Telophase

Prophase

Metaphase

How can you tell that a cell has entered prophase?

How does cytokinesis in animal and plant cells differ?

By which process do prokaryotes replicate?

What is present in a phospholipid bilayer?

What is the role of cholesterol in the membrane?

How does facilitated diffusion differ from passive diffusion?

How are some cells specialised for diffusion?

How do macrophages differ from neutrophils?

Outline the humoral response.

What is passive immunity?

What is the role of reverse transcriptase in HIV?

Exchange and Transport

How is the alveoli adapted for its function?

What happens during exhalation?

How does smoking affect the alveoli?

What is the name of the enzyme that breaks down the following. What is each of the following also broken down into?

Starch

Proteins

Lipids

What is the role of hemoglobin?

Does CO2 increase or lower the pH?What does this cause in terms of the oxygen?

How is an artery adapted for its function?

How are the xylem and phloem different?

Genetic Variation

What is a codon?

How do MRNA and DNA differ?

Outline transcription.

What is splicing?

What are three different types of mutation?

How many daughter cells does meiosis produce? Are they diploid or haploid?

What is stabilising selection?

What are the three domains of life?