

		R	A	G
1	the structure of nucleotides (pentose sugar, phosphate, organic base)			
2	the structure of ATP			
3	the importance of chemical energy in biological processes			
4	the central role of ATP as an energy carrier and its use in the liberation of energy for cellular activity			
5	How ATP is formed in an endergonic reaction			
6	the structure of nucleic acids: DNA bases: purines and pyrimidines (Know the difference when given structural formulae); complementary base pair rule; hydrogen bonding and the double helix; antiparallel strands;			
7	the similarities and differences in the structure of mRNA, tRNA and rRNA			
8	the structure, properties and functions of carbohydrates:  monosaccharides (triose, pentose, hexose sugars); disaccharides (sucrose, lactose, maltose); polysaccharides (starch, glycogen);			
9	Recognise examples of lipids such as: triglycerides and phospholipids and give the structural formula for glycerol and the general formula for saturated fatty acid; Saturated fatty acids have only single carbon-to-carbon bonds; Mono-unsaturated fatty acids have one carbon-to carbon double bond and poly-unsaturated fatty acids contain two or more carbon-to-carbon double bonds.			
10	understand how the functions of lipids and phospholipids in cells and organisms are related to their hydrophilic and hydrophobic properties			
11	recognise examples of steroids as four ring structures and hormones are steroids including oestrogen and testosterone, which are made from cholesterol. Cholesterol is a vital component of cell membranes.			
12	Other functions of lipids should include insulation, energy storage and protection.			
13	Draw general formula of amino acids.			
14	identify amino acids if given a structural formula and a suitable table showing R groups.			
15	identify peptide, disulphide, ionic, hydrogen bonds and hydrophobic interactions between R groups at the various levels of protein structure.			

16	Be familiar with different ways of representing protein structures, including ribbon diagrams and recognise regions of molecules as having a primary structure			
17	Learners should understand the principle features of enzyme reactions to include: the collision theory; the lock and key model; the induced fit model.			
18	factors affecting enzyme reactions: Temperature; pH; substrate concentration; enzyme concentration; inhibitors; (distinguish between competitive and non-competitive inhibition, including explaining the effect of increasing substrate concentration on both. Candidates should understand that inhibition can be reversible or irreversible)			