

Access to Higher Education Unit

This unit forms part of an Access to HE Diploma. If delivering the graded version of this unit, please refer to the Provider Handbook for details on grading descriptors and the application of these across units within your programme.

Unit Title: Biological Molecules

Graded Unit Reference Number: GA33BIO52

Ungraded Unit Reference Number: UA33BIO52

Module: Human Biology, Biology

Level: Three (3)

Credit Value: Three (3)

Minimum Guided Learning Hours: 30

Learning Outcome (The Learner will):	Assessment Criterion (The Learner can):
1. Recognise the building blocks for carbohydrates, lipids, proteins and nucleic acids and understand how these are combined to form larger organic molecules	1.1 Illustrate or construct molecular models of an example of the following types of biological molecules: a. Monosaccharide b. Disaccharide c. A chiral amino acid d. Saturated fatty acid e. Unsaturated fatty acid f. Glycerol g. DNA nucleotide h. RNA nucleotide.
	1.2 Write the molecular formulae and the full structural formulae of: a. α-glucose b. a named chiral amino acid c. glycerol d. a named fatty acid e. a named nucleotide.
	1.3 Explain condensation reactions in the formation of a range of larger biological molecules.

	1.4 Explain how the structure of these molecules is beneficial to its biological functions a. Glucose Details of carbohydrates and fats have not been assessed at all. b. b. Starch c. Glycogen d. Cellulose e. Triglyceride.
2. Understand how the function of proteins is related to their structure	2.1 Describe the four levels of structure in proteins.
	2.2 Explain the roles of: a. hydrogen bonding b. ionic bonding c. disulfide bridges d. hydrophobic interactions in maintaining protein structure.
	2.3 For a named globular protein and a named fibrous protein, explain how their structures are beneficial to their biological functions.
3. Understand how the function of DNA is related to its structure	3.1 Describe the levels of structure in DNA and explain why DNA molecules are so stable.
	3.2 Explain how the self-replicating ability of the DNA molecule is related to its structure.
	3.3 Describe the Meselson–Stahl experiment and explain its results and conclusions.
	3.4 Deduce the products of the transcription and translation of two different sequences of DNA of minimum 24 bases in length.