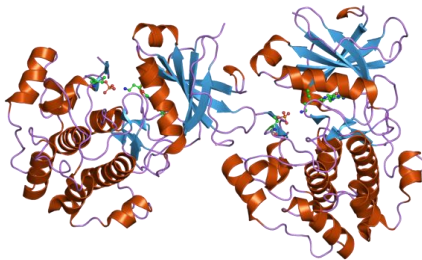


1. Classes of biological macromolecules: Solutions

Classes

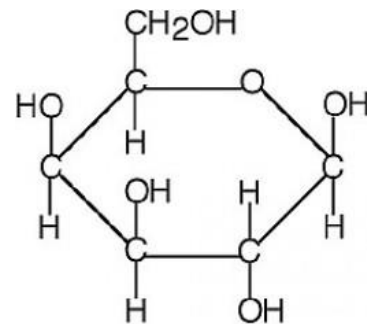
As you know, there are four major classes of biomolecules: nucleic acids, lipids, carbohydrates and proteins. *Which classes are represented in the structures below?*

1. PROTEINS

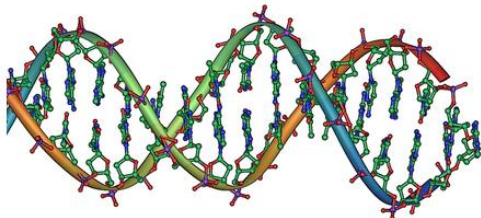


https://commons.wikimedia.org/wiki/File:PDB_3e8d_EBI.png Credit: Jawahar Swaminathan and EBI <https://www.ebi.ac.uk/>

2. CARBOHYDRATES

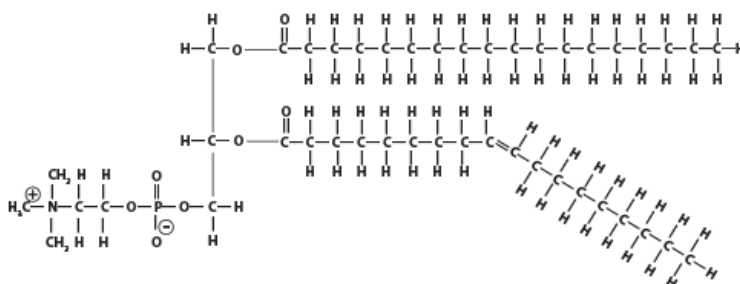


3. NUCLEIC ACIDS



https://commons.wikimedia.org/wiki/File:DNA_double_helix_horizontal.png Credit: Jerome Walker

4. LIPIDS



Functions

Tick as appropriate. For proteins, also provide examples from the list below (feel free to look up their functions if you don't know). Several examples per function and several functions for a certain protein are possible.

Example proteins: collagen, keratin, dopamine receptor, somatotropin, haemoglobin, microtubules, DNA polymerase, antibodies

	Carbohydrates	Proteins	Lipids	Nucleic acids
Source of energy	✓	(only as a last resort)	✓	
Energy storage	✓		✓	✓
Part of cell membrane	(actually could be too, often attached to proteins or lipids in the membrane)	✓ e.g. dopamine receptor	✓	
Codes for proteins				✓ RNA
Stores hereditary genetic information				✓ DNA
Mechanical protection		✓ e.g. collagen, keratin	✓	
Immune protection		✓ e.g. antibodies		
Thermoregulation			✓	
Biochemical reaction catalysis		✓ e.g. DNA polymerase		
Signal transduction (hormonal and others)		✓ e.g. somatotropin, dopamine receptor		

Activity 1. Classes of biological macromolecules

Transport (on systemic and cellular level)		V e.g. microtubules (on cellular level), haemoglobin (on systemic level)		
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