GES IGCSE BIOLOGY Term 1 (Sept-Oct, 2019-20)

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| TOPIC: TRANSPORT AROUND THE BODY |

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| Theme: Identify and explain transport systems and the roles of blood in the human body.  | Level: Year 12 |
| Objectives: To understand how organic molecules are involved in living things. |

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| Focussing Questions | Key Words |
| **1.Transport systems*** What is the importance of water as a solvent in transport, including its dipole nature?
* What is the difference between monosaccharides, disaccharides and polysaccharides, including glycogen and starch (amylose and amylopectin)?

2. **Organic molecules in Living things** * How do monosaccharides (glucose, fructose and galactose) join together to form disaccharides (maltose, sucrose and lactose) and polysaccharides (glycogen, amylose and amylopectin) through condensation reactions forming glycosidic bonds, and how these can be split through hydrolysis reactions?
* How is atriglyceride is synthesised by the formation of ester bonds during condensation reactions between glycerol and three fatty acids?
* What are the differences between saturated and unsaturated lipids?

**3+4 The role of blood*** Why do many animals have a heart and circulation? (mass transport to overcome the limitations of diffusion in meeting the requirements of organisms)
* What is the cardiac cycle? (atrial systole, ventricular systole and cardiac diastole)
* How does the structure and operation of the mammalian heart, including the major blood vessels, allow it to carry out its function?
* How do the structures of blood vessels (capillaries, arteries and veins) relate to their functions?

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| * the role of haemoglobin in the transport of oxygen and carbon dioxide?
* How is the oxygen dissociation curve of haemoglobin, the Bohr effect and the significance of the oxygen affinity of fetal haemoglobin compared with adult haemoglobin?
* What is the blood clotting process and what is its role in cardiovascular disease (CVD) ?
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 | SolventCohesionMass transport systemSA/Vol. RatioCarbohydrateMonosaccharideDisaccharidePolysaccharideGlycosidic bondCondensationHydrolysisTriglyceridesSaturatedUnsaturatedCardiac cycleDiastoleCystoleThromboplastinPlateletsPlagueAnithypertensivesStainsCoagulants | Explaining words:What is…Importance of water…Difference between…Condensation reactions……hydrolysisSynthesis by ester bonds……the difference between…Why do……structure and operation…Relates to function……significance of… Affinity with… |