** A level Year 1 Core Concepts** Eduqas

Chemical Elements and Biological Compounds

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| 1 | the key elements present as inorganic ions in living organisms: Mg2+, Fe2+, Ca2+,PO43– |  |  |  |
| 2 | the importance of water in terms of its polarity, ability to form hydrogen bonds, surface tension, as a solvent, thermal properties, as a metabolite |  |  |  |
| 3 | the structure, properties and functions of carbohydrates:   * monosaccharides (triose, pentose, hexose sugars) * disaccharides (sucrose, lactose, maltose) * polysaccharides (starch, glycogen, cellulose, chitin) |  |  |  |
| 4 | alpha and beta structural isomerism in glucose and its polymerisation into  storage and structural carbohydrates, illustrated by starch, cellulose and chitin |  |  |  |
| 5 | the chemical and physical properties which enable the use of starch and  glycogen for storage and cellulose and chitin as structural compounds |  |  |  |
| 6 | the structure, properties and functions of lipids as illustrated by triglycerides and phospholipids |  |  |  |
| 7 | the implications of saturated and unsaturated fat on human health |  |  |  |
| 8 | the structure and role of amino acids and proteins |  |  |  |
| 9 | the primary, secondary, tertiary and quaternary structure of proteins |  |  |  |
| 10 | the relationship of the fibrous and globular structure of proteins to their function |  |  |  |

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| Learners should be able to use given structural formulae (proteins, triglycerides and carbohydrates)  to show how bonds are formed and broken by condensation and hydrolysis, including peptide,  glycosidic and ester bonds. (Learners should be able to recognise and understand but not reproduce the  structural formulae of the above molecules).  **SPECIFIED PRACTICAL WORK**  Food tests to include: iodine-potassium iodide test for starch; Benedict's test for reducing and  non-reducing sugars; biuret test for protein; emulsion test for fats and oils. |