**AS Biology Unit 1 Key Terms and Definitions**

**Make sure you use these terms when answering exam questions!**

Chapter 1 – Causes of Disease

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| **Book Ref** | **Key Term** | **Definition** |
| 1.1 | Pathogen | A micro-organism that causes disease |
| 1.1 | Transmission | Passing a pathogen from one individual to another |
| 1.2 | Correlation | A change in one variable is reflected by a change in another e.g. incidence of cancer increases as number of cigarettes increases |
| 1.2 | Cause | There is experimental evidence to prove that one factor causes another |
| 1.3 | Risk | A measure of the probability that damage to health will occur as a result of a given hazard |
| 1.3 | Lifestyle Factors | Factors to do with how we live that contribute to suffering a disease. These are in our power to change. |

Chapter 2 – Enzymes and the Digestive System

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| **Book Ref** | **Key Term** | **Definition** |
| 2.1 | Digestion | Physical and chemical breakdown of food |
| 2.1 | Hydrolysis | Splitting up of molecules by adding water to them. Enzymes do this to help break down molecules. |
| 2.1 | Assimilation | Incorporating broken down molecules into body tissues/using them in processes |
| 2.2 | Monomer | One of many small molecules that combine to form a larger one |
| 2.2 | Polymer | Larger molecule made up of repeating smaller molecules |
| 2.3 | Condensation Reaction | When 2 monosaccharides combine, water is removed |
| 2.3 | Glycosidic Bond | The bond in a disaccharide |
| 2.5 | Peptide Bond | The bond between 2 amino acids in a protein, formed by a condensation reaction |
| 2.5 | Polypeptide | A long chain of amino acids |
| 2.5 | Hydrogen Bonds | Weak bonds between oxygen and hydrogen holding the secondary structure of a protein in a coil |
| 2.6 | Activation Energy | The minimum amount of energy needed to bring about a reaction |
| 2.6 | Active site | The region on an enzyme where the substrate fits |
| 2.6 | Substrate | The molecule on which the enzyme acts |
| 2.6 | Enzyme-Substrate Complex | Formed when an enzyme and a substrate fit together and form temporary bonds |
| 2.7 | Denaturation | Permanent changes in the structure of a protein; enzyme’s active site changes shape so the substrate no longer fits |
| 2.8 | Competitive Inhibitor | Molecule that binds to the active site of an enzyme |
| 2.8 | Non-competitive inhibitor | Bind to the enzyme at a position other than the active site |

Chapter 3 – Cells and Movement in and out of them

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| **Book Ref** | **Key Term** | **Definition** |
| 3.1 | Resolution | The minimum distance apart 2 objects are, so that they look like separate objects under the microscope |
| 3.1 | Cell Fractionation | The process by which cells are broken up and the organelles separated out |
| 3.1 | Prokaryotic Cells | Cells that lack a nucleus and any membrane-bound organelles |
| 3.1 | Eukaryotic Cells | Cells that have a nucleus, chromosomes and other membrane-bound organelles |
| 3.4 | Saturated Lipids | Fatty acids with only C-C single bonds |
| 3.4 | Unsaturated Lipids | Fatty acids with one or more C=C double bonds |
| 3.4 | Hydrophilic | Attracted to water |
| 3.4 | Hydrophobic | Attracted to fat |
| 3.5 | Fluid-mosaic model | The structure of a cell surface membrane and its various molecules |
| 3.5 | Extrinsic Proteins | Proteins on the surface of the bilayer |
| 3.5 | Intrinsic Proteins | Proteins spanning the bilayer |
| 3.6 | Diffusion | The net movement of molecules or ions from a region of high concentration to a region of low concentration |
| 3.7 | Osmosis | The passage of water from a region of high water potential to a region of low water potential, across a partially permeable membrane |
| 3.8 | Active Transport | The movement of molecules or ions into or out of a cell from a region of lower concentration to a region of higher concentration using energy and carrier molecules |

Chapter 4 – Lungs and Lung Disease

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| **Book Ref** | **Key Term** | **Definition** |
| 4.2 | Ventilation | Breathing of air in and out of the lungs |
| 4.2 | Pulmonary Ventilation | Tidal Volume x Ventilation Rate |
| 4.3 | Short Diffusion Pathway | Thin alveoli walls allow materials to cross quickly as the path is short |
| 4.3 | Diffusion Gradient | Movement of air and blood help to maintain diffusion gradients – keep Oxygen moving in and CO2 out |
| 4.4 | Course of infection of TB | The path the disease follows when a person is infected, including the primary and secondary infection |
| 4.5 | Pulmonary Fibrosis | Thickening of lung epithelia due to scarring |
| 4.5 | Asthma | An allergic reaction where histamine is released and the airway linings become inflamed |
| 4.5 | Emphysema | Destruction of the elastic tissue in the lungs due to smoking |

Chapter 5 – The Heart and Heart Disease

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| **Book Ref** | **Key Term** | **Definition** |
| 5.2 | Atrial Systole | Contraction of the atria |
| 5.2 | Ventricular Systole | Contraction of the ventricles |
| 5.2 | Diastole | Relaxation of the heart |
| 5.2 | Cardiac Output | The volume of blood pumped by one ventricle of the heart in one minute |
| 5.2 | Myogenic | Contraction of the heart is initiated from within the muscle itself |
| 5.2 | Sino-atrial node | SAN, sends out the initial wave of electrical activity to make the atria contract |
| 5.2 | Atrio-ventricular node | AVN, sends a wave of electrical activity down the bundle of His, making the ventricles contract from the base upwards |
| 5.3 | Atheroma | A fatty deposit in the wall of an artery |
| 5.3 | Thrombosis | When an atheroma breaks and a blood clot forms |
| 5.3 | Aneurysm | Weakened artery walls swell and may burst |
| 5.3 | Myocardial Infarction | A heart attack |
| 5.3 | Low-density lipoproteins | Transport cholesterol to tissues that may get deposited |
| 5.3 | High-density lipoproteins | Remove cholesterol from tissues |

Chapter 6 – Immunity

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| **Book Ref** | **Key Term** | **Definition** |
| 6.1 | Non-Specific Defences | Mechanisms that don’t distinguish between one type of pathogen or another e.g. skin |
| 6.1 | Specific Defences | Mechanisms that do distinguish between different pathogens e.g. lymphocytes |
| 6.2 | Phagocytosis | Pathogens are engulfed into vesicles (called phagosomes) and broken down by enzymes |
| 6.3 | Antigens | Part of an organism that is recognised as non-self and triggers an immune response (usually they are proteins) |
| 6.3 | Cell-mediated Immunity | T lymphocytes recognise antigen-presenting cells that have been invaded and undergo mitosis to respond |
| 6.4 | Humoral Immunity | Immunity involving B cells and antibodies |
| 6.4 | Antigenic Variability | Viruses such as flu have many different strains with different antigens on them |
| 6.5 | Antibodies | Proteins synthesised by B cells, consisting of heavy and light chains and variable and constant regions |
| 6.5 | Antigen-Antibody Complex | Formed when antigens bind to a specific site on the antibody |
| 6.5 | Complementary Shape | Antigens have a shape that means they fit into their specific antibody |
| 6.5 | Monoclonal Antibodies | Isolation and cloning of a single type of antibody |
| 6.6 | Passive Immunity | The introduction of antibodies from an outside source |
| 6.6 | Active Immunity | Stimulation of antibody production by the individual’s own immune system |
| 6.6 | Vaccination | The introduction of a substance into the body with the purpose of stimulating active immunity against a particular disease |
| 6.6 | Herd Immunity | Vaccinating most of a population so that no-one has the disease and transmission is stopped |