**AS Biology Unit 2 Key Terms and Definitions**

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

Chapter 7 – Variation

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| **Book Ref** | **Key Term** | **Definition** |
| 7.1 | Random Sampling | Sampling a population to eliminate bias e.g. grid square and co-ordinates |
| 7.1 | Interspecific Variation | Differences between different species |
| 7.1 | Intraspecfic Variation | Differences between members of the same species |
| 7.2 | Standard Deviation | A measure of the width of the curve – indicates the variation around the mean value |
| 7.2 | Normal Distribution Curve | Bell-shaped curve, graph is symmetrical |

Chapter 8 – DNA and Meiosis

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| **Book Ref** | **Key Term** | **Definition** |
| 8.1 | Nucleotide | Section of DNA made up of sugar, phosphate and a base |
| 8.1 | Complementary  | A always bonds to T and C always bonds to G (they are complementary to each other) |
| 8.2 | Gene | A section of DNA that codes for making a polypeptide |
| 8.2 | Triplet Code | 3 bases code for an amino acid |
| 8.3 | Chromosome | Thread-like structure made of protein and DNA, passes hereditary information on |
| 8.3 | Homologous Chromosomes | 2 chromosomes determining the same characteristics (one from mother, one from father) |
| 8.3 | Allele | One of the different forms of a gene |
| 8.4 | Meiosis | Cell division that produces 4 haploid (half the chromosomes), genetically different, daughter cells |
| 8.4 | Locus | Position of a gene on a chromosome |
| 8.4 | Independent Segregation | Homologous pairs randomly separate during meiosis 1, into separate cells |
| 8.4 | Crossing Over | The process where chromatids break and rejoin with their homologous chromosome to exchange alleles |

Chapter 9 – Genetic Diversity

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| **Book Ref** | **Key Term** | **Definition** |
| 9.1 | Selective Breeding | Breeding individuals with desired characteristics together and selecting the offspring that show the desired characteristics |
| 9.1 | Founder Effect | A few individuals colonise a new region, carrying a small amount of the alleles of the larger population |
| 9.1 | Genetic Bottleneck | A drop in allele variety due to a large decrease in population size |

Chapter 10 – The Variety of Life

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| **Book Ref** | **Key Term** | **Definition** |
| 10.1 | Affinity for Oxygen | Haemoglobin (Hb) with a high affinity takes up oxygen easily and releases in less readily. Hb with a low affinity takes up oxygen less easily, but releases it more readily. |
| 10.1 | Associating | The process by which Hb combines with oxygen (in the lungs) |
| 10.1 | Dissociating | The process by which Hb releases oxygen (in the tissues) |
| 10.2 | Oxygen Dissociation Curve | The s-shaped curve shown by how Hb binds oxygen (first molecule is hard to load, next 3 load easily) |
| 10.3 | Starch | Storage molecule in plants, it is coiled, insoluble and can by hydrolysed to form α-glucose |
| 10.3 | Glycogen | Storage molecule in animals, which has short chains so it can be readily hydrolysed to α-glucose |
| 10.3 | Cellulose | Parallel chains of β-glucose joined by hydrogen bonds, forms microfibrils for strength |
| 10.4 | Chloroplasts | Organelle in plant cells containing grana, thylakoids and stroma. Photosynthesis occurs here. |

Chapter 11 – The Cell Cycle

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| **Book Ref** | **Key Term** | **Definition** |
| 11.1 | Semi-conservative Replication | The way DNA makes exact copies of itself by unwinding the double helix. Each chain acts as a template for the new strands. |
| 11.2 | Mitosis | Cell division where 2 daughter cells are produced that have the same number of chromosomes as the parent |
| 11.2 | Haploid | Cells have half the number of chromosomes |
| 11.2  | Diploid | Cells have a full set of chromosomes |
| 11.2 | Prophase | Chromosomes become visible, nuclear envelope disappears |
| 11.2 | Metaphase | Chromosomes align along equator of cell |
| 11.2 | Anaphase | Chromatids move to opposite poles |
| 11.2 | Telophase | Nuclear envelope reforms |
| 11.3 | Cell Cycle | A cell’s regular cycle of division, followed by periods of growth |

Chapter 12 – Cellular Organisation

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| **Book Ref** | **Key Term** | **Definition** |
| 12.1 | Cell Differentiation | Cells become specialised in their structure to suit their roles |
| 12.1 | Tissue | A collection of similar cells that perform a specific function |
| 12.1 | Organ | A combination of tissues, co-ordinated to perform a variety of functions |
| 12.1 | Organ Systems | Organs working together as a single unit |

Chapter 13 – Exchange and Transport

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| **Book Ref** | **Key Term** | **Definition** |
| 13.1 | Surface area to volume ratio | For exchange to be efficient, an organism needs a large surface area to volume ratio (bigger animals have a smaller ratio) |
| 13.2 | Spiracles | Pores on the body surface of insects that open and close to allow gases to diffuse in and out |
| 13.3 | Gill Lamellae | Parts of fish gills that increase the surface area and where the blood flows through for gas exchange |
| 13.3 | Countercurrent Exchange | Blood and water flow in opposite directions to maintain a diffusion gradient |
| 13.4 | Stomata | Pores in the underside of a leaf that can be opened and closed by guard cells |
| 13.5 | Double Circulatory System | Blood passes through the heart twice on a full circuit of the body |
| 13.6 | Arteries | Blood vessels that carry blood away from the heart (small lumens, thick muscle and elastic layers) |
| 13.6 | Veins | Blood vessels that carry blood back to the heart (large lumens, thin muscle and elastic layers, have valves) |
| 13.6 | Tissue Fluid | Fluid that surrounds the cells of the body, it supplies nutrients to the cells and removes waste products |
| 13.6 | Ultrafiltration | Filtration assisted by blood pressure |
| 13.7 | Apoplastic Pathway | Route through the cell walls by which water and minerals are transported into the plant |
| 13.7 | Symplastic Pathway | Route through the cytoplasm and plasmodesmata of plant cells by which water and minerals are transported |
| 13.8 | Cohesion | Water molecules stick together by hydrogen bonds |
| 13.8 | Cohesion-Tension | Transpiration pull on the water puts the xylem under pressure |
| 13.9 | Transpiration | Evaporation of water from a plant |
| 13.10 | Xerophytes | Plants adapted to living in dry conditions |

Chapter 14 – Classification

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| **Book Ref** | **Key Term** | **Definition** |
| 14.1 | Species | A group of similar organisms that can breed together to produce fertile offspring |
| 14.1 | Classification | Grouping of organisms |
| 14.1 | Taxonomy | Theory and practice of biological classification |
| 14.1 | Phylogeny | The evolutionary relationships between organisms |

Chapter 15 – Evidence for Relationships Between Organisms

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| **Book Ref** | **Key Term** | **Definition** |
| 15.1 | DNA Hybridisation | A technique used to determine the similarities between the DNA of different organisms  |
| 15.1 | Hybridisation | Double strands form with one strand from each species, closely related organisms will share complementary bases |
| 15.2 | Courtship Behaviour | Signals and displays between males and females of the same species to enable successful mating to occur |

Chapter 16 – Adaptation and Selection

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| **Book Ref** | **Key Term** | **Definition** |
| 16.1 | Adaptation | Organisms adjust to suit the changing environment where they live |
| 16.1 | Mutations | A change in the base sequence of DNA |
| 16.1 | Conjugation | One bacterial cell transfers DNA to another bacterial cell |
| 16.2 | Antibiotics | Substances that can destroy or inhibit the growth of micro-organisms |
| 16.2 | Antibiotic Resistance | Antibiotics have a reduced effectiveness at killing bacteria due to chance mutations |
| 16.2 | Plasmids | Circular loops of DNA in bacteria |

Chapter 17 – Biodiversity

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| **Book Ref** | **Key Term** | **Definition** |
| 17.1 | Biodiversity | The variety in the living world (including number of different species, variety of genes and the range of habitats) |