AS Biology Unit 2 Key Terms and Definitions

Make sure you use these terms when answering exam questions!

Chapter 7 – Variation

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

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

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

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

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

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

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

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

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

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

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)