

## A2 Biology Unit 4 Key Terms and Definitions

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

### Chapter 1 – Populations

<b>Book Ref</b>	<b>Key Term</b>	<b>Definition</b>
1.1	Ecosystem	Self-contained unit made up of the biotic and abiotic factors in an area
1.1	Population	A group of individuals of the same species in a habitat
1.1	Community	The organisms of all species that live in the same area
1.1	Habitat	The place where an organism normally lives
1.1	Niche	All the conditions and resources required for an organism to survive and reproduce (its 'role')
1.2	Random Sampling	Sampling a population to eliminate bias e.g. grid square and co-ordinates
1.2	Systematic Sampling	Regular sampling across an area e.g. along a straight line transect
1.2	Mark-Release-Recapture	Method of estimating population size of animals (number in first sample x number in second sample) / marked animals in second sample
1.3	Abiotic Factors	Concerned with the non-living part of the environment
1.3	Biotic Factors	Concerned with the living organisms in the environment
1.4	Interspecific Competition	Competition between organisms of different species
1.4	Intraspecific Competition	Competition between organisms of the same species

### Chapter 2 – ATP

<b>Book Ref</b>	<b>Key Term</b>	<b>Definition</b>
2.1	Energy	The ability to do work
2.1	Phosphorylation	The process of adding a phosphate group (e.g. ADP → ATP)

### Chapter 3 – Photosynthesis

<b>Book Ref</b>	<b>Key Term</b>	<b>Definition</b>
3.1	Light Dependent Reaction	Stage of photosynthesis in which light energy is required to produce ATP and reduced NADP
3.1	Light	Stage of photosynthesis which does not require light

	Independent Reaction	energy directly, but does need the products of the light dependent reaction to reduce CO <sub>2</sub> and form carbohydrate
3.2	Oxidation	Loss of electrons, combining oxygen with a substance
3.2	Reduction	Gain of electrons, loss of oxygen from a substance
3.2	Electron Carrier Molecules	A chain of carrier molecules along which electrons pass, releasing energy in the form of ATP as they do so
3.2	Photolysis of Water	Light energy splits water molecules, yielding electrons, hydrogen ions and oxygen (light-dependent reaction)
3.3	Calvin Cycle	A biochemical pathway (part of the light-independent reaction) where CO <sub>2</sub> is reduced to form carbohydrate CO <sub>2</sub> + RuBP → GP → TP → Glucose or RuBP
3.4	Limiting Factor	A variable that limits the rate of a chemical reaction

## Chapter 4 – Respiration

Book Ref	Key Term	Definition
4.1	Glycolysis	First part of cellular respiration in which glucose is broken down (in the cytoplasm) to 2 molecules of pyruvate
4.2	Link Reaction	Process linking Glycolysis to the Krebs Cycle (in the matrix of the mitochondria), where the 2 molecules of pyruvate are converted to CO <sub>2</sub> and acetylcoenzyme A
4.2	Krebs Cycle	Introducing acetylcoenzyme A into a cycle of oxidation-reduction reactions (in the matrix of the mitochondria) that yield some ATP and a large number of electrons
4.3	Electron Transport Chain	Use of electrons from the Krebs Cycle to synthesise ATP via a series of oxidation-reduction reactions
4.4	Anaerobic Respiration	Releasing energy from glucose without oxygen (produces lactate in animals and ethanol in plants and some micro-organisms)

## Chapter 5 – Energy and Ecosystems

Book Ref	Key Term	Definition
5.1	Trophic Level	Each stage in a food chain
5.1	Consumers	An organism that obtains its energy by feeding on other organisms
5.2	Gross Production	Total quantity of energy that the plants in a community convert to organic matter
5.2	Net Production	Gross production – respiratory losses

5.2	Energy Transfer	(Energy available after the transfer / energy available before the transfer) x 100
5.3	Pyramid of Number	A pyramid drawn with bar lengths proportional to the numbers of organisms present
5.3	Pyramid of Biomass	A pyramid drawn with bar lengths proportional to the mass of plants/animals
5.3	Pyramid of Energy	A pyramid drawn with bar lengths proportional to the energy stored in organisms
5.5	Biological Control	Controlling pests by introducing predators
5.6	Selective Breeding	Breeding of organisms by human selection of parents for certain characteristics

## Chapter 6 – Nutrient Cycles

<b>Book Ref</b>	<b>Key Term</b>	<b>Definition</b>
6.1	Saprobiotic Micro-organism	(Saprophyte) An organisms that gets its food from the dead or decaying remains of other organisms
6.2	Greenhouse Gases	Gases such as methane and CO <sub>2</sub> which trap more heat energy, raising the Earth
6.3	Ammonification	Production of ammonia from e.g. urea and proteins
6.3	Nitrification	Converting ammonia into nitrites and then nitrates
6.3	Nitrogen Fixation	Conversion of nitrogen gas into nitrogen-containing compounds
6.3	Denitrification	Conversion of soil nitrates into nitrogen gas
6.5	Leaching	Process by which nutrients are washed from the soil into watercourses
6.5	Eutrophication	Consequence of an increase in nutrients in watercourses that leads to a decrease in biodiversity

## Chapter 7 – Ecological Succession

<b>Book Ref</b>	<b>Key Term</b>	<b>Definition</b>
7.1	Succession	The changes in an ecosystem, over time, of the species that occupy it
7.1	Pioneer Species	A species that can colonise bare rock or ground
7.1	Climax Community	The stable, final, community that exists in a balanced equilibrium
7.2	Conservation	Management of the Earth's natural resources in such a way that maximum use can be made of them in the future

## Chapter 8 – Inheritance and Selection

<b>Book Ref</b>	<b>Key Term</b>	<b>Definition</b>
8.1	Genotype	The genetic composition of an organism
8.1	Phenotype	The characteristics of an organism (often visible), resulting from its genotype and the environment
8.1	Gene	A length of DNA that codes for a polypeptide
8.1	Allele	One form of a gene
8.1	Homologous Chromosomes	A pair of chromosomes that have the same gene loci and determine the same features
8.1	Dominant	An allele that is always expressed in the phenotype
8.1	Recessive	An allele that is only expressed in the phenotype when there is another identical allele
8.1	Heterozygous	When the alleles are different for a particular gene
8.1	Homozygous	When the alleles are the same for a particular gene
8.3	Sex Linkage	Any gene that is carried on the X or Y chromosome
8.4	Co-dominance	Both alleles are equally dominant and are both expressed in a phenotype
8.4	Multiple Alleles	More than 2 possible alleles for a particular gene
8.5	Gene Pool	All the alleles of all the genes of all the individuals in a population at any one time
8.5	Allelic Frequency	The number of times the allele occurs within a gene pool
8.6	Stabilising Selection	Selection that favours average individuals
8.6	Directional Selection	Selection that favours individuals at one extreme
8.7	Speciation	The evolution of new species from existing species
8.7	Geographical Isolation	When a physical barrier prevents two populations from breeding with one another