Biology LC HL

Definitions

Biology Defintions
LC HL

Leaving Certificate Biology Definitions

- Definitions are worth on average about **20% of the total marks available** so they should be **learned precisely**
- They can help you to **answer many other** questions as well.
    - e.g. What is the chemical nature of enzymes? Protein
- A definition may involve **more than one point** of information.
    - In these definitions each point is separated from the next by a solidus (/)
- Sometimes **a particular word is required** – these words are **underlined**
  e.g. Relationship between (different) species / in which at least one benefits
- Unacceptable answers are in brackets with **NOT** in front of the answer
- Other things in brackets are either
    - alternative words e.g. **Blastocyst:** fluid filled (or hollow) ball of cells or
    - words to put the answer in context e.g. **Control**: (set up for) comparison

1.1 Scientific Method

Control	***(Setup for) comparison***
Data	***Measurements or observations or information gathered***
Experiment	***Test of hypothesis***
Hypothesis	***Educated guess***
Law	***Theory that has withstood long term testing***
Replicate(s)	***Repeat(s) / of an experiment***
Theory	***A supported (tested) / hypothesis***

1.2 Nutrition and biomolecules

Saprophytic	***Living on / dead organisms (organic matter)***
Decomposers	***Microorganisms or organisms / that return nutrients to the environment / by decay***
Disaccharide	***Made up of two sugar units***
Fat	***Lipid solid at room temperature***
Heterotrophic	***Obtains food from other organisms or does not make its own food***
Lipid	***Glycerol + 3 fatty acids***
Monosaccharide	***Made up of single sugar units***
Oil	***Lipid liquid at room temperature***

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Phospholipid	***2 fatty acids and a phosphate attached to glycerol***
Polysaccharide	***Made up of many / sugar units***
Symbiosis	***Relationship between (different) species / in which at least one benefits***
Trace Element	***Small amount needed***
Triglyceride	***Fat unit or glycerol and three fatty acids***

1.3 Ecology

Abiotic (factors)	***Non-living (factors)***
Adaptations	***Features that help an organism to survive in its environment***
Adverse external environment	***Surroundings that are harmful to an organism***
Autotrophic	***Make their own food***
Biosphere	***Parts of earth that support life (NOT global ecosystem)***
Biotic Factor	***Living (organism's influence on another organism) (NOT examples)***
Climatic Factor	***Relating to weather***
Community	***All the organisms living in an area***
Competition	***Struggle between organisms for resource / in short supply***
Conservation	***The management of / the environment or of organisms***
Contest (competition)	***One organism loses (or gets) / all the resource***
Data	***Measurements or observations or information gathered***
Decomposers	***Microorganisms or organisms / that return nutrients to the environment / by decay***
Ecology	***Study of the inter-relationships of plants, animals and their environment***
Ecosystem	***Organisms [or plants + animals NOT singular] / and their interactions with the environment***
Edaphic	***To do with soil***
Edaphic factor	***Soil factor***
Eutrophication	***Excess plant growth caused by excess nutrients***
Fauna	***Animals*** *(NOT examples)*
Flora	***Plants*** *(NOT examples)*
Food Chain	***One species at each trophic level***
Food Web	***Interconnected food chains or more than one species at each trophic level***
Germination	***Growth of seed or embryo***
Habitat	***Place where a species (or an organism) / lives [NOT plants or animals by themselves]***
Heterotrophic	***Obtains food from other organisms or does not make its own food***

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Heterotrophic	***Obtains food from other organisms or does not make its own food***
Key	***A guide to / identification***
Mutualism	***Close relationship between two species where both benefit***
Niche	***Role of organism / in an ecosystem***
Nitrification	***Ammonia to nitrites (or to nitrates) or nitrites to nitrates***
Nitrogen fixation	***Atmospheric N_2 / converted to compound***
Nutrient recycling	***Returning elements to the environment so they can be reused***
Omnivore	***Eats plants and animals***
Parasitic	***Living in or on another species / causing harm***
Percentage cover	***Percentage of quadrat covered by a species***
Percentage frequency	***Percentage of quadrats in which a species is present***
Pollution	***Any harmful addition / to the environment***
Population	***All the members of a species living in an area***
Predation	***Killing (or catching) / and eating / another animal***
Predator	***Animal that kills / and eats / other animals***
Prey	***Animal that is killed / and eaten***
Producer	***Organism that makes its own food (from inorganic materials)***
Pyramid of Numbers	***Diagram that shows numbers of organisms at each trophic level***
Qualitative (Survey)	***Types (or Species) of organisms present***
Quantitative	***Numbers of individuals (of a species) present***
Saprophytic	***Living on / dead organisms (organic matter)***
Scramble Competition	***Each organism gets / some of resource***
Symbiosis	***Relationship between (different) species / in which at least one benefits***
Trophic level	***Feeding level or energy level or position in food chain***

2.1 Cells Structure and Function

Cancer	***Group of disorders / in which body loses control of normal regulation / of mitosis***
Cell continuity	***All cells are derived by the division of other cells***
Cytoplasm	***All of the cell except nucleus,/ cell wall / and large vacuole***
Cytosol	***Cytoplasm / minus organelles (or structures or particles) or liquid part / of cytoplasm***
Diffusion	***Movement of molecules / from area of high concentration / to area of low concentration (NOT examples)***
Eukaryotic	***Have nuclear membrane or membrane bound cell organelles***
Meiosis	***Division of a cell to give to give four non-identical cell with half the number of chromosomes as the parent cell***

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Metabolism	***All the chemical reactions / in a living cell or body***
Mitosis	***Division of a cell to give two identical cells with the same number of chromosomes***
Organ	***Group of tissues carrying out a common function***
Organ system	***Group of organs carrying out a common function***
Osmosis	***Movement of water / from an area of high water concentration (hypotonic solution) to an area of low water concentration (hypertonic solution) / across a selectively permeable membrane***
Passive Transport	***Movement across a semi-permeable membrane / no (added) energy required***
Prokaryotic	***Have NO nuclear membrane or membrane bound cell organelles***
Selective Permeability	***Allowing some substances / to pass through***
Tissue	***Group of similar cells with common function***
Tissue Culture	***Cells (NOT tissue) / grown on or in a medium / outside organism***
Turgor	***Pressure against the cell wall caused by the cell membrane pushing against the cell wall due to it being full of water***

2.2 Enzymes

Active site	***Place where substrate fits onto enzyme***
Bioreactor	***Vessel in which cells or their products produce useful substances***
Denatured (Enzyme)	***Loss of / enzyme function or activity***
Enzyme	***Protein / biological / catalyst***
Immobilised	***Trapped in a calcium alginate gel***
Optimum	***Temperature or pH at which the enzyme works <u>best</u>***
Protease Enzyme	***Breaks down or acts on / protein***
Specificity	***(Enzyme) acts on only / a particular (specific OK here) substrate***
Substrate	***Substance the enzyme acts on***

2.3 Photosynthesis

Photosynthesis	***Conversion of light energy into chemical energy using CO2, H2O and chlorophyll***

2.4 Respiration

Aerobic	***(Respiration that) requires / oxygen***
Anabolic reactions	***Reactions synthesising more complex substances***
Anaerobic	***(respiration that) does <u>not</u> require / oxygen***
Catabolic	***Breaking down complex molecules into simpler molecules***
Fermentation	***Anaerobic / respiration or respiration / that produces alcohol or lactic acid***

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Metabolism	***All the chemical reactions / in a living cell or body***

2.5 DNA and Protein Synthesis

Anti-codon	***Group of three bases on tRNA***
Codon	***Group of three bases on mRNA***
DNA Replication	***Making a copy / of DNA***
Gene	***Unit of inheritance or length of DNA that code for a protein***
Gene expression	***When a gene is switched on and produces its characteristic or protein***
Genetic Engineering	***Manipulation or alteration / of genes or of genotypes***
Genetic Screening	***Testing (people) for the presence or absence / of a specific gene***
Heredity	***Passing of genetically controlled characteristics from parents to offspring***
mRNA	***Messenger RNA carries information from gene to ribosome***
Protease	***An enzyme that digests proteins***
Transcription	***Making of mRNA / using the DNA template***
Translation	***Making a protein using mRNA code***
Triplet	***Group of three bases on DNA which code for an amino acid***
tRNA	***Transfer RNA brings specific amino acids to the ribosomes***

2.6 Genetics Inheritance and Crosses

Alleles	***Different forms / of a gene***
Artificially Fertilised Cell	***Diploid nucleus / into ovum without nucleus***
Diploid	***A nucleus having two sets / of chromosomes (NOT having pairs)***
Dominant	***An allele / that masks its (recessive) partner or that is always expressed if present***
Dominant	
Evolution	***Inheritable change in a population (or species) / in response to a change in the environment / by natural selection / over time***
Fertilisation	***Fusion of male and female gametes to form a diploid zygote***
Gamete	***Haploid male or female sex cell***
Gene	***Unit of inheritance or length of DNA that code for a protein***
Genotype	***Genetic make-up***
Haploid	***A nucleus / having one set of chromosomes***
Heterozygous	***Alleles / different***
Homologous chromosomes	***Chromosomes which are the same size and shape containing the same genes***
Homologous structures	***Same basic structure modified for different functions***

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Homozygous	*Identical / alleles [accept identical genes]*
Incomplete dominance	*Phenotype of heterozygous individual is intermediate between the two characteristics*
Independent Assortment (Law of)	*Either member of a pair of alleles / can combine with / either member of another pair of alleles / in gamete formation*
Junk DNA	*Non-coding DNA*
Linkage	*Genes / on the same chromosome*
Locus	*Point on a chromosome where a gene is found*
Mutation	*Change in / genetic makeup or in DNA*
Phenotype	*Physical appearance or expression of genotype or result of genotype + environment*
Recessive	*Allele / whose expression is masked by / dominant allele*
Segregation (Law of)	*Only one member / of a pair of alleles / enters a gamete*
Sex Linkage	*Gene located on a sex (or X or Y) chromosome*
Species	*Interbreeding results in / fertile offspring*
Variation	*Difference between / members of species or population*

3.1 Microbiology

Anaerobic (Respiration)	*(respiration that) does not require / oxygen*
Antibiotic	*Substance produced by micro-organisms (or bacteria or fungi) / that kills micro-organisms (or bacteria or fungi)*
Antibiotic resistance	*Not killed by antibiotics*
Asepsis	*Prevention of contamination*
Batch process	*Reactants added, allowed to react, products removed , bioreactor cleaned, start again*
Bioreactor	*Vessel / in which products are made / by cells (or organisms)*
Chemosynthetic (Bacteria)	*Make food or obtain energy / using chemical reactions*
Continuous process	*Reactants added to bioreactor over a period of time and products removed over a period of time*
Cytoplasm	*All of the cell except nucleus,/ cell wall / and large vacuole*
Cytosol	*Cytoplasm / minus organelles (or structures or particles) or liquid part / of cytoplasm*
Eukaryotic	*Possesses / nucleus or membrane-bound organelles*
Expression	*The activation of the inserted gene or the production of product*
Fermentation	*Anaerobic / respiration or respiration / that produces alcohol or lactic acid*
Hypha	*A filament (single strand of fungus)*
Immobilisation	*Attached to an inert substance or fixed to each other or trapped*
Introduction of base	*(the order of bases in) the host DNA is now different*

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sequence changes	
In-vitro Fertilisation	***Sperm and egg fuse / outside the body***
Isolation	***Removal of a gene or piece of DNA or plasmid***
Ligation	***Joining of DNA (or plasmid or gene)***
Mutualistic	***Close association between two species where both benefit*** *e.g. bacteria in large intestine get food and shelter and give vitamins B and K*
Mycelium	***A mass of / hyphae***
Nutrient Agar Plates	***Jelly / with additives (food) to provide a medium for growth***
Nutrient Medium	***Material [or described] / supplying food or material / allowing growth***
Optimum pH	***pH at which enzyme works best***
Parasitic	***Living in or on another species / causing harm***
Pathogenic	***Disease-causing***
Photosynthetic (Bacteria)	***Using light / to make food or obtain energy***
Prokaryotic	***Have NO nuclear membrane or membrane bound cell organelles***
Restriction (or cutting)	***Cutting the DNA or plasmid (NOT gene) with a restriction enzyme***
Saprophytic	***Living on / dead organisms (organic matter)***
Sterile	***No unwanted micro-organisms present***
Symbiotic Bacteria	***Bacteria that live in or on another organism / involving benefit***
Transformation	***Uptake of DNA (or plasmid or gene)***

3.2 Flowering Plant Structure and Function

Autotrophic	***Make their own food***
Adhesion	***Force of attraction between water molecules and xylem walls***
Cohesion	***Force of attraction between water molecules***
Dicot(yledon)	***Two / embryonic leaves or two / seed leaves***
Meristem	***Area of rapid cell division***
Monocot(yledon)	***Having one seed leaf***
Stain	***Sunstance that makes cell structures easier to see*** *e.g. iodine for plants and methylene blue for animal cells*

3.3 Flowering Plant Reproduction

Adaptations	***Features that help an organism to survive in its environment***
Bulb	***Leaf*** *(or bud)* ***storage / and perennating organ***
Carpel	***Female part of the flower that consists of stigma, style and ovary***
Cross pollination	***Pollen from one plant goes to another***

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Dicot(yledon)	***Two / embryonic leaves or two / seed leaves***
Dormancy	***Period of reduced / metabolism or period of no growth. (Not rest)***
Double fertilisation	***In plants one male gamete fuses with the egg cell to form a diploid zygote; the other fuses with the polar nuclei to form the triploid endosperm***
Fertilisation	***Fusion of / gametes / to form zygote***
Germination	***Growth of seed or embryo***
Monocot(yledon)	***Having one seed leaf***
Pollination	***Transfer of pollen / from anther to stigma***
Self pollination	***Pollen from on plant is transferred to a stigma on the same plant***
Stamen	***Male part of the flower consists of filament and anther***
Tuber	***Stem storage / and perennating organ***
Vegetative Propagation	***Production of new plant / from root (or stem or leaf) or plant asexual reproduction***

3.3 Flowering Plant Responses

Protoplasm	***All of cell including membrane / except large vacuole in plants***
Thigmotropism	***A growth response / to touch***
Tropism	***Growth of a plant / in response to a stimulus***
Plant Growth Regulator	***Substance that controls the growth of a plant*** *[promotes, inhibits, stimulates OK but NOT regulates]*
Auxin	***A growth regulator / in plants***
Chemotropism	***A growth response / to a chemical (or substances)***
Hormone	***Chemical messenger produced by an endocrine gland***
Negatively (geotropic)	***Grows away from (gravity)***
Hydrotropism	***Plant growth response to water***
Geotropism	***Plant growth response to gravity***
Phototropism	***Plant growth response to light***
Positively (phototropic)	***Grows towards (light)***

4.1 Blood Lymphatic and Immune Systems

Active (Induced) Immunity	***Protection gained by the detection of antigens and the production of specific antibodies that neutralise the antibody***
Active Immunity	***Body produces / antibodies***

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Antibiotic	*Substance produced by micro-organisms (or bacteria or fungi) / that kills micro-organisms (or bacteria or fungi)*
Antibiotic	*Substance produced by micro-organisms (or bacteria or fungi) / that kills micro-organisms (or bacteria or fungi)*
Antibody	*Produced in response to antigen or destroys antigen or defence protein or produced by lymphocytes*
Antigen	*Substance on cell membrane / that causes antibody production*
Blood pressure	*Force exerted by blood (or by heart) [accept relevant medical reference]*
Diastole	*Period of relaxation when heart fills*
Immunisation	*Protecting a population (patient) against a specific pathogen by vaccination or injection of a particular antibody*
Immunity	*Resistance to / infection or antigens [allow disease]*
Passive Immunity	*Antibodies / introduced to body*
Pathogenic	*Disease-causing*
Plasma	*Liquid part of blood*
Pulse	*Expansion of artery or due to pumping of heart or rate at which heart beats*
Systole	*Period of contraction when heart empties*
Vaccination	*The act of administering a substance that produces (artificial) immunity*

4.2 Breathing System

No definitions for this section

4.3 Digestive System

Autotrophic	*Make their own food*
Balanced diet	*Contains all the nutrient types in the correct proportions*
Carnivore	*Eats animals*
Deficiency disease	*Disease associated with the lack of a particular vitamin*
Digestion	*The breakdown of food / into smaller particles / that can be absorbed*
Enzyme	*Protein, biological catalyst*
Herbivore	*Eats plants*
Heterotrophic	*Gets food from other organisms*
Lipase	*An enzyme that digests fats*
Omnivore	*Eats plants and animals*
Peristalsis	*Muscular activity or description e.g. contractions to move food*
Protease	*An enzyme that digests proteins*

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4.4 Excretory System and Homeostasis

Active Transport	Movement across a semi-permeable membrane / against the concentration gradient / requires energy
Ectotherm	Body temperature varies / with environmental temperature
Endotherm	Animal that produces its own heat and maintains a steady body temperature
Excretion	Removal of metabolic waste from the body
Glomerular Filtrate	Plasma that has entered Bowman's capsule or has left the glomerulus or plasma less proteins
Homeostasis	Maintenance of / a constant internal environment
Poikilothermic	Animal whose body temperature varies / with that of the environment
Ureter	Tube from kidney / to bladder
Urethra	Tube from bladder / to outside

4.5 Nervous and Endocrine Systems

Central Nervous System	CNS: consists of brain and spinal cord
Endocrine gland	Ductless or hormone producing
Exocrine Gland	Has a duct
Feedback(Negative)	When the level of one hormone inhibits the production of another (or itself)
Feedback(Positive)	When the level of one hormone increases the production of another
Grey Matter	Consists mostly of cell bodies and dendrites
Hormone	Chemical messenger produced by an endocrine gland
Interneuron	Connects sensory / and motor neuron
Motor Neuron	Carries impulse / from CNS to effector
Neuron	Nerve cell
Neurotransmitter	Carries impulse / across synaptic cleft / triggers impulse in next neuron
Peripheral Nervous System	PNS: consists of sensory receptors, sensory and motor neurons and end-plates
Reflex Action	Automatic / response to a stimulus / not controlled by brain
Sensory Neuron	Carries impulse / to CNS
White Matter	Much myelin or few cell bodies

4.6 Musculo-skeletal System

Contractile	It can shorten (or contract)
Axial Skeleton	Consists of skull, vertebrae, ribs and sternum
Appendicular Skeleton	Consists of pelvic and pectoral girdles and limbs

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Antagonistic pair	***Two muscles that work against each other*** *e.g. biceps and triceps*

4.7 Human Reproduction

Afterbirth	***The passing of the placenta after the baby***
Amnion	***A membrane (or sac) that surrounds the embryo***
Blastocyst	***Fluid-filled (or hollow) / ball of cells***
Contraception	***Prevention of / fertilisation or conception or implantation or pregnancy***
Copulation	***The depositing of sperm in the vagina using the penis***
Feedback(Negative)	***When the level of one hormone (inhibits the production of another)***
Feedback(Positive)	***When the level of one hormone (increases the production of another)***
Fertilisation	***Fusion of / gametes / to form zygote***
Germ Layer	***Layer of cells / in the blastula / with potential to give rise to specific tissues or organs***
Hormone	***Chemical messenger produced by an endocrine gland***
Implanted	***Attached to or embedded in / the endometrium***
Infertility	***Inability to conceive***
In-vitro Fertilisation	***Fusion of gametes outside the body***
Morula	***Solid / ball of cells***
Ovulation	***The release of the egg from the ovary***
Placenta	***Tissue formed from the mother's and embryo's tissue***
Secondary Sexual Characteristics	***Anatomical features that develop at puberty under the influence of sex hormones***
Semen	***Sperm cells /plus seminal fluid***
Urethra	***Tube from bladder / to outside / carries urine and sperm***