Science Glossary

**Biology - B2**

Science Glossary

Biology Unit 2.1 – **Cells, Tissues and Organs**

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| **Key Word** | **Definition** |
| Aerobic Respiration | Respiration that requires the presence of oxygen to release energy from glucose, producing carbon dioxide and water. |
| Amino Acid(S) | A simple compound which, when combined with other amino acids in chains, makes proteins. There are 20 types of amino acids commonly found in living cells. |
| Asexual Budding | Reproduction of some unicellular organisms (such as yeasts) by growth and specialization followed by the separation by constriction of a part of the parent. |
| Bacterial Colony | A cluster of identical bacterial cells on the surface of (or within) a solid medium, usually derived from a single parent cell. |
| Cell Membrane | A thin outer layer of a cell that controls what goes into and comes out of a cell. |
| Cell Wall | The outermost layer of a plant cell. It provides shape and support for the cell. |
| Cellulose | A carbohydrate that forms tiny fibres from which plants and algae build cell walls. |
| Chlorophyll | A green pigment found in the chloroplasts of plant cells. It captures light energy for photosynthesis. |
| Chloroplasts | An organelle in plant cells that contains chlorophyll for photosynthesis. |
| Concentration Gradient | A difference in the concentration of a substance in two different areas, for example two different solutions of the same solute on opposite sides of a partially permeable membrane. |
| Cytoplasm | The substance outside the nuclei in cells, in which many of the chemical reactions take place. These reactions are catalysed by enzymes. |
| Diffusion | Movement of a substance by random motion from a region of high concentration to a region of lower concentration. |
| Epidermal Tissue | The outermost layer of cells. |
| Epithelial Tissue | Membranous tissue covering internal organs and other internal surfaces of the body. |
| Fermentation | One kind of anaerobic respiration by microorganisms. |
| Genetic Material | A gene, a part of a gene, a group of genes, a DNA molecule, a fragment of DNA, a group of DNA molecules, or the entire genome of an organism. |
| Glandular Tissue | A group of epithelial secreting cells composing a definitive glandular organ. |
| Insoluble Molecules | A molecule incapable of dissolving. |
| Light Microscope | A microscope consisting of an optical instrument that magnifies the image of an object. |
| Mesophyll Tissues | The inner tissue of a leaf, containing many chloroplasts. |
| Mitochondria | An organelle (structure) within a cell in which aerobic respiration takes place. |
| Muscular tissue | Extremely elastic, vascular connective tissue that can shorten or elongate to effect movement. |
| Net Movement | The overall movement of particles from an area of high concentration to one of lower concentration. |
| Nucleus | The large, membrane-bound organelle inside a cell that contains genetic material. |
| Organ Systems | A group of organs that work together to carry out a particular task. |
| Organs | A body structure that has a specific function and is made up of several different types of tissue. |
| Permanent Vacuole | A membrane bound organelle containing cell sap. |
| Phloem | A plant tissue made up of sieve tubes and companion cells that transport sugar. |
| Plasmids | A loop of genetic material outside the main chromosome in a bacterium. |
| Protein Synthesis | The process by which the genetic code puts together proteins in the cell. |
| Ribosomes | Tiny organelles inside a cell where protein synthesis occurs. |
| Tissue | A mass of similar cells, for example muscle tissue. |
| Xylem | A plant tissue made up of long hollow tubes that act as vessels for the transport of water. |

Biology Unit 2.2 – **Organisms in the Environment**

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| **Key Word** | **Definition** |
| Glucose | A simple sugar (carbohydrate) produced in plants by photosynthesis and from starch by digestion, broken down in respiration to release energy |
| Limiting Factors | An environmental variable, such as light intensity, that limits the rate of a process, such as a chemical reaction. |
| Mean | The arithmetical average of a set of data. |
| Median | The middle value of a set of values arranged in number order. The median of the values 3, 4, 4, 6, 7, 7, 9 is 6. |
| Mineral Ions | Small charged particle, such as a sodium ion or a chloride ion that must be balanced in cells for healthy functioning. Animals obtain minerals from food; plants absorb them from the soil. |
| Mode | The value that occurs most in a set of data. |
| Nitrate Ions | A mineral used for building proteins and growth in plants |
| Photosynthesis | A process by which green plant cells produce sugars and oxygen out of carbon monoxide from the air, water from the soil and energy from sunlight. |
| Quadrat | A frame used for sampling the distribution of species in an area. |
| Quantitative Sampling | Taking a sample from an area to provide quantitative results about the whole area |
| Range | The spread between maximum and minimum values in a set of experimental results. |
| Reproducible | If another person repeats the experiment with the same equipment they would get the same results |
| Sample Size | Number of a population in a sample |
| Transect | A line across an area along which the species are sampled in a field study. |
| Tubers | Various types of modified plant structures that are enlarged to store nutrients |
| Valid | Valid measurements are those which give the required information by an  acceptable method |
| Variables | What you change or keep the same during an investigation |

Biology Unit 2.3 – **Enzymes**

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| **Key Word** | **Definition** |
| Active Site | Small port in an enzyme where substrate molecules bind and undergo a chemical reaction |
| Amylase | A type of digestive enzyme that catalyses the breakdown of starch into glucose. |
| Bile | A mixture of chemicals produced in the pancreas that emulsifies fats, and so helps digest them. |
| Biological Detergents | A detergent that contains enzymes to help break down stains |
| Carbohydrase(s) | An enzyme that catalyses the breakdown of starch to sugars. |
| Catalyst | A chemical compound that speeds a reaction but is not itself used up. |
| Denatured | To alter the shape of an enzyme (a protein molecule) usually by heating it, in such a way that it no longer performs its function. |
| Digested | To be broken down into small parts |
| Emulsifiers | Molecules that have two different ends:  a hydrophilic end - water-loving - that forms chemical bonds with water but not with oils  a hydrophobic end - water-hating - that forms chemical bonds with oils but not with water |
| Enzymes | A protein molecule that acts as a biological catalyst to speed up the rate of a reaction taking place within or outside a cell. |
| Fatty Acid(s) | The tail of a lipid molecule. The lipid is broken down into glycerol and fatty acids by lipase |
| Glycerol | A molecule of CHO atoms that joins with three fatty molecules to make a lipid. Lipids are broken down into glycerol and fatty acids by lipase |
| Isomerase | A general class of enzymes which convert a molecule from one isomer to another |
| Lipase | An enzyme that catalyses the digestion of lipids (fats or oils) into fatty acids and glycerol. |
| Lipid(s) | A fat or oil. |
| Protease | A digestive enzyme that catalyses the breakdown of proteins into amino acids. |
| Substrate | The molecule upon which an enzyme acts. |

Biology Unit 2.4 – **Energy from Respiration.**

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| **Key Word** | **Definition** |
| Aerobic Respiration | Respiration that requires the presence of oxygen to release energy from glucose, producing carbon dioxide and water. |
| Anaerobic Respiration | Respiration which doesn’t need oxygen – the release of energy from glucose without oxygen. In muscle cells this produces lactic acid as a waste product. The process releases less energy than aerobic respiration. |
| Glycogen | A form of carbohydrate made from glucose in animals. It is stored in muscle and liver cells, then broken down when glucose levels in the blood are low, for example during vigorous exercise. |
| Lactic Acid | A breakdown of anaerobic respiration in muscle cells. |
| Oxygen Debt | The extra oxygen that the body needs after vigorous exercise. |

Biology Unit 2.5 – **Simple inheritance in plants and animals.**

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| **Key Word** | **Definition** |
| Allele | One form of a gene. Different alleles of the same gene produce slightly different characteristics, such as different eye colours. |
| Carriers | A person carrying one allele for a recessive disorder, so they do not have the disorder themselves but could pass it on to their children. |
| Cystic Fibrosis | An inherited disorder caused by a recessive allele that result in the production of thick, sticky mucus, affecting the lungs and other parts of the body. |
| DNA Fingerprints (profiling) | A process that produces an image of variable sections of DNA, used to identify individuals. |
| Dominant | In genetics, an allele is dominant if it produces its form of the characteristic in the organism even if only one chromosome of the pair carries the allele (that is, whether the organism is homozygous or heterozygous). |
| Genetic Disorder | A disease/disorder that can be inherited due to a mutation of DNA |
| Meiosis | A type of cell division to produce gametes. Two divisions of the original cell produce four cells with half the normal number of chromosomes. |
| Mitosis | A form of cell division that produces two cells genetically identical to the parent cell. |
| Ova | (Egg) female reproductive cell/gamete |
| Polydactyly | An inherited condition that causes a person to have more fingers, thumbs or toes than usual, in some cases caused by a dominant allele. |
| Recessive | In genetics, an allele is recessive if it produces its form of the characteristic in the organism only if both chromosomes of the pair carry that allele (that is, the organism is homozygous). |
| Sex Chromosomes | A chromosome that determines the sex of the individual: human females have two X chromosomes , human males have one X chromosome and one Y chromosome. |
| Stem Cell(s) | A cell that, unlike most body cells, can divide and differentiate into other cell types. |
| Therapeutic Cloning | Cloning designed as therapy for a disease by inserting the nucleus of a cell into a fertilised egg, they replicate and the cells are transplanted into the patient. |

Biology Unit 2.6 – **Old and New Species.**

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| **Key Word** | **Definition** |
| Endemic | A plant or animal native or restricted to a certain place |
| Extinct | (A species) having no individuals still living. |
| Fossils | The remains of an organism that lived in the past found preserved in rock, or evidence of organisms having been there (such as footprints). |
| Geographical isolation | When a geographical change e.g. river forming causes a species to become separated |
| Predators | Organisms who hunt other organisms for food |
| Prey | Organisms who are hunted by predators for food |
| Speciation | The evolution of new species from one original species. |