Science Glossary

Biology - B1

Science Glossary

Biology Unit 1.1 - Keeping Healthy

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| Key Word | Definition |
| Agar | A nutrient rich jelly used for growing microbes. |
| Antibody | A chemical compound produced by white blood cells when the immune system detects the presence of a pathogen. |
| Antibiotics | A protein molecule made by white blood cells that destroys bacteria. |
| Antigens | Protein on the outside of a cell that can cause an immune response. |
| Bacteria | A single celled microorganism that has no nucleus (but circular DNA that floats in cytoplasm). This causes disease by reproducing and producing toxins. |
| Balanced Diet | A diet made up of a variety of different foods in their correct amounts to provide the energy and all the nutrients needed to stay healthy. |
| Cholesterol | A fatty substance made in the liver and used in cell membranes. |
| Culture Medium | A solution or jelly made of agar containing nutrients for the growth of organisms. |
| Epidemic | The widespread outbreak of infectious disease within a country. |
| Immune System | The organs and mechanisms that protect an organism against pathogens and disease. |
| Immunisation | Administration of a vaccine to provide immunity against disease or diseases. It causes white blood cells to produce antibodies so in future if re-infected the antibody production is much faster. |
| Incubation | Gentle warming to grow microbes or hatch eggs in an incubator. |
| Inherit(ed) | To receive a genetic characteristic from a parent. |
| Malnutrition | The result of eating an unbalanced diet. |
| Metabolic Rate | The rate of chemical reactions in the body. |
| Microorganism | An organism that is too small to be seen without a microscope. |
| Mutation | A change in a gene that may result in different characteristics. |
| Natural Selection | A natural process whereby the organisms with genetic characteristics best suited to their environment survive to reproduce and pass on their genes to the next generation.  The stages are:   * variation (between organisms within species) * those most suited / fittest survive * genes / alleles passed on (to offspring / next generation) |
| Obese | A condition in which excess body fat has accumulated to the extent that it may have an adverse effect on health. |
| Pandemic | A disease that is spread rapidly across many countries. |
| Pathogen | A microorganism that causes illness or disease. |
| Vaccination | The administration of a vaccine in order to stimulate the body to develop immunity to a particular pathogen |
| Vaccine | A preparation of dead or inactive pathogens injected to stimulate white blood cells to make antibodies and memory cells, so in future if infected with live pathogens of that type they will be destroyed without suffering from disease. |
| Virus | A microbe much smaller than a bacterium, which causes disease by reproducing inside cells. It consists of a protein coat and DNA. Viruses are not susceptible to antibiotics. |
| White Blood Cells | A cell that circulates in the blood and is an important part of the immune system. They are the main line of defence against disease. |

Biology Unit 1.2 - Coordination and Control

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| Key Word | Definition |
| Auxin | A plant hormone that affects growth, rooting and flower and fruit formation. |
| Central Nervous System (CNS) | The brain and spinal cord |
| Co-ordinator | Brain and spinal cord - organs in the body coordinates information. |
| Effector | A muscle or a gland that brings about a response to a stimulus. |
| Enzyme | A protein molecule that acts as biological catalyst to speed up the rate of a reaction taking place within or outside a cell. |
| Follicle Stimulating Hormone (FSH) | The hormone, that in women, stimulates follicles in the ovaries to release an egg. |
| Gland | Organ that produces a hormone |
| Gravitropism (Geotropism) | Growth response of a plant in response to gravity. |
| Homeostasis | The process that keeps variations of some factors, such as temperature, water, mineral ions and blood sugar concentration, within limits in the body. |
| Hormone | Chemical messenger / substance produced by a gland and transported to a target organ where it has an effect. |
| Impulse(s) | An electrical message carried by neurones from a receptor to an effector. |
| Menstruation | A monthly event where the womb lining is shed from the womb in females if there has been no fertilisation. |
| Menstrual cycle | A monthly cycle controlled by hormones. |
| Motor Neurone(s) | A nerve cell that carries information to an effector organ, such as a skeletal muscle from the central nervous system. |
| Nerve(s) | A bundle of nerves joined by connective tissue. |
| Neurone(s) | A nerve cell that transmits electrical nerve impulses, carrying information from one part of the body to another. |
| Oestrogen | A sex hormone produced in the ovary that is responsible for thickening the womb lining and for female secondary sexual characteristics. |
| Oral contraceptive Pill | Tablets that contains oestrogen and/or progesterone. They prevent fertilisation by preventing ovulation (releasing of eggs) in females. |
| Ovary or Ovaries | Female reproductive organ in humans and other animals. Ovaries produce eggs. |
| Key Word | Definitions |
| Ovulation | The release of an egg. Once a month in humans. |
| Pancreas | An organ that produces digestive enzymes and controls blood sugar concentration by producing insulin. |
| Period | See menstruation. |
| Photosynthesis | The process by which green plant cells produce sugars and oxygen out of carbon dioxide from the air, water from the soil and using energy from the sunlight. This takes place in chloroplasts. |
| Phototropism | Growth response of a plant in response to light. |
| Pituitary Gland | Gland in the brain that produces FSH and LH |
| Progesterone | Female hormone involved in the control o the menstrual cycle. |
| Receptor(s) | An organ or a cell that is sensitive to external stimuli. |
| Reflex Arc | When the body responds to stimuli without any impiulses reaching the brain. The impulse travels from the receptor to the sensory neurone, relay neurone in the spinal cord to the motor neurone and then the effector. |
| Reflex(es) | When the body responds to stimuli without conscious thought (an automatic response). |
| Secreting | When a cell (e.g. glandular cell) releases a substance such as enzymes, mucus or hydrochloric acid. |
| Sense Organs | Organs that contain receptors and so can detect stimuli (eyes, ears, skin, tongue, nose). |
| Sensory Neurons | A nerve cell that carries information to the brain or spinal cord from receptors. |
| Stimuli | A change in the surroundings e.g. light, sound, temperature. |
| Synapse(s) | Junction / gap / space between two neurones (nerve cells). |

Biology Unit 1.3 – Medicine and Drugs

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| Key Word | Definition |
| Depressive drugs | These are drugs that slow the nervous system. |
| Double Blind Trial | A clinical trial in which neither the subjects nor the experimenters know which substance is the test substance and which is the control. |
| Drug | A substance / chemical that affects body chemistry / chemical reactions in the body. |
| Placebo | Tablet / injection with no drug that looks identical to the real thing, given to people in the control group in clinical trials to ensure that the people receiving the drug and the control group are treated exactly the same in all other ways. |
| Statins | A drug that reduces levels of cholesterol in the blood. |
| Steroid(s) | A member of a group of chemicals that include hormones such as oestrogen and medical drugs. Some athletes take anabolic steroids to build muscle. |
| Withdrawal Symptoms | Symptoms that drug addicts experience when they stop taking a drug. They may include stomach cramps, vomiting, hallucinations. |

Biology Unit 1.4 - Adaptation for Survival

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| Key Word | Definition |
| Adaptations | Adaptations are **special features** or **behaviours** that make an organism particularly suited to its environment. Adaptations are a part of the **evolutionary process. Adaptations increase an organism’s chance of survival and so increase its chance of reproducing.** |
| Competition | The struggle between individual organisms for a share of limited resources, such as water or food; for example, competition between two predators hunting the same prey. |
| Denature | To alter the shape of an enzyme and its active site usually by heating it above 40oC. The active site can no longer fit the substrate and so the enzyme cannot function. |
| Extremophile(s) | An organism that is adapted to an extreme condition of the environment, e.g. bacteria that live in salt water. |
| Guard Cells | Cells that surround stomata on the underside of a leaf. They can open the stomata at day and close them at night. |
| Herbivore(s) | An animal that only eats plants. |
| Stomata | A tiny hole in the surface of leaves for the exchange of gases between the airspaces inside the leaf and the air outside. |
| Surface Area : Volume Ratio | The amount of surface area an organism or object has in relation to its size. The larger an organism gets, the smaller its Surface Area : Volume Ratio. |
| Territory | An area defined by an animal against other animals. Animals compete for this. |
| Waxy Cuticle | Present on the surface of leaves to reduce water loss from plants. |

Biology Unit 1.5 - Energy in Biomass

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| Key Word | Definition |
| Biomass | Biological material; in particular , the total mass of living material at a specified level in a food chain or in a specified area. |
| Carbon Cycle | The way in which carbon atoms circulate between living organisms and the physical environment. |
| Decomposers | Organisms that decay dead matter. They usually need plenty of oxygen, warm temperatures and moist conditions. |
| Detritus Feeder(s) | An organism that feeds on detritus (decomposing organic waste). |
| Fossil Fuels | Fuel formed millions of years ago from the remains of ancient animals and/or plants, such as coal, crude oil and natural gas. They are non-renewable (once they are used they cannot be replaced) |
| Greenhouse Gas | Gases that cause global warming – carbon dioxide, water vapour and methane are examples. |
| Pyramid of Biomass | A diagram that shows the mass of living organisms at each stage in a food chain. |
| Urea | A waste product formed in the liver from the breakdown of excess amino acids that the body does not need, and excreted from the blood through the kidneys. |

Biology Unit 1.6 - Variation, Reproduction and New Technology

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| Key Word | Definition |
| Adult Cell Cloning | A process in which the nucleus of an adult cell is inserted into an unfertilised egg cell from which the nucleus has been removed, and the cell divides and develops into a new individual. |
| Asexual reproduction | Reproduction involving one parent, without fertilisation of gametes, that is, without fusion of male and female cells.  Therefore there is no mixing of genetic material, offspring have no variation and are genetically identical to the parent. |
| Chromosomes | An immensely long molecule of DNA containing many regions called genes, each of which carries the genetic information that influences a characteristic of the organism. Chromosomes are found in the nuclei of cells. |
| Clone(s) | An individual that is genetically identical to the parent because it is produced by mitosis. |
| DNA  (Deoxyribonucleic Acid) | The genetic material found in the nucleus of living cells. Chromosomes are made up of DNA, and a gene is a section of a chromosome. |
| Gametes | A specialised sex cell, such as sperm or eggs, involved in sexual reproduction in plants and animals. |
| Genes | Small section of DNA in a chromosome. Each gene contains the code for a particular inherited characteristic, that is, to make a particular chromosome. |
| Genetically Modified | An organism that has had its DNA altered in some way (usually DNA or genes have been inserted). |
| Herbicide | A chemical that kills plants, used to treat weeds in crops. |
| Pesticide | A chemical used to kill pests such as insects or crop diseases. |
| Sexual Reproduction | Production of offspring by the fusion of male and female sex cells (gametes). |
| Tissue Culture | Growth of cells and/or tissues outside the animal or plant. Whole plants can be grown from plant cells using tissue culture. |

Biology Unit 1.7 - Evolution

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| Key Word | Definition |
| Charles Darwin | He propsed the theory of evolution by natural selection (the currently accepted theory). |
| Evolution | Changes in the characteristics of species over time. |
| Evolutionary Relationships | The existence of similar characteristics in different organisms because they evolved from a common ancestor. |
| Evolutionary Trees | A diagram that shows how a group of organisms evolved from earlier organisms. |
| Extinct | Species that no longer exist/ no more left /died out / all died. |
| Inheritance of Acquired Characteristics | Theory of evolution proposed by Jean-Baptiste Lamarck….where characteristics acquired by individuals are passed onto offspring…. This is not currently accepted. |
| Jean-Baptiste Lamarck | See above. |
| Kingdom(s) | There are 5 main kingdoms that all iving things are split into. These include plants, animals, fungi, bacteria and protoscists. |
| Mutation | A change in a gene that may result in different characteristics. |
| Natural selection | A natural process whereby the organisms with genetic characteristics best suited to their environment survive to reproduce and pass on their genes to the next generation.  The stages are:   * variation (between organisms within species) * those most suited / fittest survive * genes / alleles passed on (to offspring / next generation). |
| Species | A group of organisms that have many characteristics in common and are able to breed together and produce fertile offspring. |