



GCSE Biology **Glossary**

Combined Science

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| abiotic factor | A non-living factor that can affect a community, e.g. light intensity and temperature. |
| absorb | To receive or take in. |
| abundance | The number of individuals of a species in a given area. |
| acid | A substance with a pH of less than 7. |
| active site | Part of an enzyme with a unique shape so that it can bind to a specific substrate molecule. |
| active transport | The movement of substances from a more dilute solution to a more concentrated solution (against a concentration gradient). This requires energy from respiration. |
| adaptation | A feature that enables an organism to survive in the conditions in which they normally live. |
| adrenal gland | The gland where the hormone adrenaline is produced. |
| adrenaline (HT only) | A hormone produced by the adrenal glands in times of fear or stress. It increases the heart rate and boosts delivery of oxygen and glucose to the brain and muscles. |
| aerobic | Involving or requiring oxygen. |
| aerobic respiration | Respiration that involves the use of oxygen to transfer energy. It is represented by the equation: glucose + oxygen \longrightarrow carbon dioxide + water |
| agriculture | Relating to farming: cultivating soil, growing crops and rearing livestock. |
| Alexander Fleming | The scientist who discovered penicillin from the <i>Penicillium</i> mould. |
| algae (singular: alga) | A group of mostly aquatic, eukaryotic organisms that take in carbon dioxide and produce oxygen by photosynthesis. |
| alkali | A substance with a pH of more than 7. |
| allele | A different form of a gene. |
| alveoli | Tiny air sacs arranged in clusters throughout the lungs. They provide a large surface area for gas exchange. |
| amino acid | A monomer that is a building block for proteins. |

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| amylase | An enzyme that breaks down starch into simple sugars. |
| anaerobic | Involving or requiring an absence of oxygen. |
| anaerobic respiration | Respiration that takes place without oxygen to transfer energy. In muscles it is represented by the equation: glucose \longrightarrow lactic acid In plant and yeast cells it is represented by the equation: glucose \longrightarrow ethanol + carbon dioxide |
| antibiotic resistance | Changes in the DNA of bacteria, or the acquisition of genes from other bacteria, that make it resistant to antibiotics. |
| antibiotic resistant bacteria | Strains of bacteria that are no longer killed by specific antibiotics. |
| antibiotic | A drug that helps to cure bacterial disease by killing infective bacteria inside the body. |
| antibody | A protein produced by white blood cells that binds to a specific antigen. |
| antitoxin | A chemical produced by white blood cells that neutralises a toxin. |
| aorta | The artery that carries blood from the heart to the rest of the body. |
| archaea | Primitive bacteria usually living in extreme environments. |
| arteries | Blood vessels that carry blood away from the heart. |
| artificial pacemaker | An electrical device used to correct irregularities in the heart rate. |
| artificial selection | See selective breeding. |
| asexual reproduction | Reproduction involving only one parent that produces genetically identical offspring (clones). |
| atmosphere | The layer of gases that surrounds the Earth. |
| atrium (plural: atria) | A chamber at the top of the heart. |
| bacteria | Microscopic single-celled organisms. They may produce toxins that damage tissues and make us feel ill. Examples include <i>Salmonella</i> , which causes food poisoning, and the pathogen that causes gonorrhoea. |
| barrier method | A physical method of contraception that prevents the sperm reaching the egg. |

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| behavioural adaptation | Behaviours which give an organism an advantage, e.g. a hedgehog rolls into a ball when it feels threatened, pointing its spines straight up. |
| Benedict's reagent | A blue solution that turns brick red on heating if some reducing sugar is present. |
| benign tumour | A growth of abnormal cells contained in one area, usually within a membrane. |
| bile | An alkaline liquid made in the liver and stored in the gall bladder. It neutralises the hydrochloric acid from the stomach and emulsifies fats. |
| binomial system | A system of naming living things by their genus and species. |
| biodiversity | The variety of all the different species of organisms on Earth, or within an ecosystem. |
| bioenergetics | The study of energy flow through living systems. |
| biofuel | Any fuel taken from living or recently living organisms. |
| biomass | The mass of living material of an organism. This will include all of the proteins, carbohydrates and lipids that make up that organism. It does not include the water content. |
| biotic factor | A living factor that can affect a community, e.g. availability of food and new predators. |
| Biuret reagent | A blue reagent which turns purple if protein is present. |
| bone marrow | The substance inside bones that contains adult stem cells. |
| breath volume | The amount of air breathed in with each normal breath. Also called tidal volume. |
| breathing rate | The number of breaths taken in one minute. |
| breeding programmes | The planned breeding of animals or plants, usually involving several individuals over several generations. |
| bronchi | The airways that lead from the trachea into the lungs. |
| cancer | A disease caused by changes in cells that lead to uncontrolled growth and division. |
| capillaries | Tiny blood vessels that link the arteries and veins. |
| carbohydrase | An enzyme that breaks down carbohydrates into simple sugars. |
| carbohydrate | A molecule made of simple sugars that is a source of energy in food. |



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| carbon cycle | The exchange of carbon between living organisms and the atmosphere in a continuous cycle. |
| carcinogen | A substance capable of causing cancer. |
| cardiovascular disease (CVD) | A term for diseases that affect the heart or blood vessels. |
| Carl Linnaeus | The scientist who developed the system used for classifying living things into groups depending on their structure and characteristics. |
| Carl Woese | The scientist who used chemical analysis to develop the three-domain classification system. |
| catalyst | A substance that increases the rate of a chemical reaction by lowering the activation energy without being used up in the reaction. In biological systems, enzymes act in this way. |
| cell | The basic building block of all living things. |
| cell cycle | The sequence of stages in which a cell grows and divides. |
| cell division | The process by which a parent cell divides into two or more daughter cells. |
| cell membrane | A partially permeable membrane that surrounds the cytoplasm and controls the movement of substances into and out of the cell. |
| cell sap | The liquid inside the large permanent vacuole of a plant cell that serves as storage of materials and provides mechanical support. |
| cell wall | A rigid structure found in plant cells and bacterial cells that strengthens the cell and provides support. |
| cellulose | The main structural component in the cell walls of plant cells. |
| central nervous system (CNS) | The brain and spinal cord. |
| chemical reaction | A process that involves rearrangement of atoms to produce new substances. |
| chlorophyll | A green pigment found in chloroplasts which absorbs light for photosynthesis. |
| chloroplast | A sub-cellular structure that contains the pigment chlorophyll which absorbs light so the plant can carry out photosynthesis. |
| cholesterol | A fat made by the liver from saturated fat in the diet. Can be deposited in coronary arteries causing blockages. |
| chromosome | A long molecule of DNA found in the nucleus of a cell, which carries genes. |
| circulatory system | The organ system which uses blood to transport substances around the body. |

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| classification | The arrangement of living things into groups according to their similarities. |
| clinical trial | The stage of drug testing in which a drug is tested on healthy volunteers and patients to check that it is safe and to find the optimum dose. Some patients may be given a placebo. |
| clone | An organism or cell produced asexually from one parent, to which they are genetically identical. |
| cloning | The process of making an identical copy of a parent organism. |
| communicable disease | A disease, caused by a pathogen, that can be passed from one person to another. Also known as an infectious disease. |
| community | Two or more populations of organisms occupying the same area. |
| competition | An interaction between organisms or species because of limited supplies of resources. |
| concentrated solution | A solution that contains a large amount of solute. |
| concentration | A measure of the amount of solute in a solution. |
| concentration gradient | The difference in concentration between two solutions on either side of a membrane. |
| consumer | Organisms that get their energy by consuming other organisms. |
| contraception | A method to prevent pregnancy. |
| contract (muscle) | To become shorter. |
| coordination centre | An area that receives and processes information from receptors. Includes the brain, spinal cord and pancreas. |
| coronary artery | An artery that supplies the heart muscle with blood. |
| crop | A plant that is grown on a large scale commercially. |
| cystic fibrosis | An inherited disorder of cell membranes that is caused by a recessive allele. |
| cytoplasm | The jelly-like substance in which sub-cellular structures are found and where most chemical reactions occur. |
| deforestation | The process of clearing a large area of trees. |
| denatured | When the shape of a protein has been lost and it may no longer function. |

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| deoxygenated blood | Blood with a low concentration of oxygen and a high concentration of carbon dioxide. |
| diabetes | A disease that occurs when a person's blood glucose levels are too high. |
| differentiation | The process of an undifferentiated cell becoming adapted to carry out a specific function. |
| diffusion | The spreading out of particles resulting in a net movement from an area of higher concentration to an area of lower concentration. |
| digestion | The process of breaking down large insoluble food molecules into smaller, soluble molecules. |
| digestive system | The organ system where the process of digestion takes place. |
| dilute solution | A solution that contains a small amount of solute. |
| disease resistance | The ability to prevent or reduce disease in otherwise susceptible organisms. |
| distribution | The geographic area where individuals of a species occur. |
| DNA | Deoxyribonucleic acid, the genetic material contained in chromosomes. It is a polymer made up of two strands forming a double helix. |
| domesticated | A tame animal kept as a pet or on a farm. |
| dominant allele | An allele that is always expressed, even if only one copy is present. |
| dose | The quantity of a drug. The optimum quantity required to treat the disease is investigated in clinical trials. |
| double blind trial | A clinical trial in which some patients are given a placebo in the place of the real drug. Neither the volunteers nor the researchers know which group has received the placebo until the end of the trial. |
| double circulatory system | A circulatory system consisting of two separate circuits: one that transports blood from the heart to the lungs, and one that transports blood from the heart to the rest of the body. |
| double helix | A description of the structure of a DNA molecule which consists of two strands that twist around each other and are held together by complementary base pairs. |
| ecologist | A scientist who studies the interrelationships between organisms and their environments. |
| ecology | The study of the interrelationships between organisms and their environments. |
| economic | Relating to trade, industry and money. |

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| ecosystem | The interaction of a community of living organisms (biotic) and the non-living (abiotic) parts of their environment. |
| effector | A muscle or gland that brings about a response to a stimulus. |
| efficacy | The effectiveness of a drug in producing a desired result. |
| electrical impulse | An electrical signal that travels along the axon of the neurone (nerve cell). |
| electron microscope | A microscope that uses a beam of electrons to produce a magnified image of an object. This type of microscope has high magnification and resolution. |
| embryo | An unborn or unhatched offspring in the early stages of development. In humans, up to the end of the second month of development. |
| embryo screening | A procedure to test if embryos carry the gene for certain genetic diseases. |
| emulsify | The action of bile breaking down fat into smaller droplets to increase the surface area. |
| endangered species | A species of animal or plant that is seriously at risk of extinction. |
| endocrine system | The system composed of glands which secrete hormones directly into the bloodstream. |
| endothermic | A reaction that takes in energy from the surroundings. |
| enzyme | A biological catalyst that speeds up the rate of a reaction. |
| epidermal tissue | A single layer of cells that covers a surface to protect it. |
| ethical | Relating to morals, right and wrong. |
| eukaryota | The domain that includes protists, fungi, plants and animals. |
| eukaryotic cell | A cell that contains a membrane-bound nucleus. |
| evaporation | A change of state from liquid to gas. |
| evidence | The available information or facts that either support or counter a scientific theory or hypothesis. |
| evolution | A change in the inherited characteristics of a population over time through a process of natural selection which may result in the formation of a new species. |
| evolutionary tree | A visual representation of evolution. |

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| excess | An amount that is more than is necessary. |
| excretion | The process of eliminating waste. |
| exhalation | The act of breathing out. |
| exothermic | A reaction that transfers energy to the surroundings. |
| extinction | When there are no remaining individuals of a species still alive. |
| extremophile | A microorganism that lives in conditions of extreme temperature, acidity, alkalinity, or chemical concentration. |
| faeces | The waste matter that is egested after food has been digested. |
| family tree | A diagram showing the relationship between people in several generations of a family. |
| farming | The business of growing crops and raising livestock. |
| fermentation | The process of breaking down sugars by anaerobic respiration in bacteria or yeast, important in the manufacture of bread and alcoholic drinks. |
| fertile | Capable of producing offspring. |
| fertilisation | The fusion of male and female gametes. |
| fertiliser | A formulation that contains minerals to promote plant growth. |
| field margin | The area between the crop and the field boundary, usually next to a hedgerow. |
| flagellum | A tail-like structure that enables bacteria and sperm cells to move. |
| follicle stimulating hormone (FSH) | A hormone involved in the menstrual cycle that causes maturation of an egg in the ovary. |
| food chain | A representation of the feeding relationships within a community. |
| fossil | The 'remains' of an organism from millions of years ago, which are found in rocks. |
| functional adaptation | An adaptation related to processes such as reproduction and metabolism. |
| fungi | A group of microorganisms that can be single-celled or multicellular. Rose black spot is an example of a disease caused by this type of microorganism. |

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| fungicide | A chemical that kills fungi. |
| fusion | The process of joining two things together. |
| gamete | Sex cell; sperm and egg cells in mammals and pollen and egg cells in flowering plants. |
| gas exchange | The diffusion of gases from an area of higher concentration to an area of lower concentration. |
| gene | A small section of DNA on a chromosome that codes for a particular sequence of amino acids, to make a specific protein. |
| gene expression | The appearance in a phenotype of a characteristic or effect attributed to a particular gene. |
| genetic cross | The purposeful mating of two individuals to combine genetic information in the offspring. |
| genetic engineering | The process of taking genes from one species and introducing them into the genome of another species. |
| genetic material | Material that is responsible for inheritance (DNA and RNA). |
| genetically modified (GM) crop | A plant that has been modified to include DNA from a different organism and is grown on a large scale commercially. |
| genome | The entire genetic material of an organism. |
| genotype | The alleles present in an organism. |
| geological activity | The movement of tectonic plates beneath the Earth's surface. |
| global warming | The gradual increase in the overall temperature of the Earth's atmosphere. |
| glucagon (HT only) | A hormone that causes glycogen to be converted to glucose and released into the bloodstream. It is produced by the pancreas if the blood glucose concentration is too low. |
| glucose | A simple sugar which is an important energy source in living organisms. |
| glycogen | Glucose is converted into this molecule for storage in liver and muscle cells. |
| gonorrhoea | A sexually transmitted disease (STD) caused by bacteria. Symptoms include a thick yellow or green discharge from the vagina or penis and pain when urinating. |
| guard cell | A cell which controls the opening and closing of the stomata. |
| habitat | The natural home or environment of an organism. |

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| health | The state of physical and mental well-being. |
| heart | The organ that pumps blood around the body in a double circulatory system. |
| heart rate | The speed at which the heart beats, measured in beats per minute (bpm). |
| heterozygous | A genotype that has two different alleles, one dominant and one recessive. |
| HIV | A viral disease spread by sexual contact or exchange of body tissues that initially causes a flu-like illness. The virus attacks the body's immune cells, eventually leading to AIDS unless successfully controlled. |
| homeostasis | The regulation of the internal conditions of a cell or organism to maintain optimum conditions for function in response to internal and external changes. |
| homozygous | A genotype that has two of the same alleles. Either two dominant alleles or two recessive alleles. |
| hormone | A chemical substance secreted by an endocrine gland that regulates the activity of cells. |
| humidity | The amount of water vapour present in the air. |
| hypertonic (solution) | A solution with a higher solute concentration than another solution; a more concentrated solution. |
| hypotonic (solution) | A solution with a lower solute concentration than another solution; a more dilute solution. |
| immune system | The organs and processes of the body that provide defence against infection and toxins. |
| immunisation | The process of making a person or animal immune to infection, usually by vaccination. |
| inbreeding | The mating of individuals that are closely related genetically, which can result in some breeds being particularly prone to disease or inherited defects. |
| incidence | The rate or frequency of a disease. |
| infectious disease | A disease caused by pathogens that can be passed from one organism to another. Also known as a communicable disease. |
| infertility (HT only) | The inability to achieve pregnancy. |
| inheritance | The process by which genetic information is passed from parent to offspring. |
| inherited disorder | A disease caused by faulty genes. |

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| insulin | A hormone that is produced by the pancreas when the blood glucose concentration is too high. |
| interbreed | The mating of individuals with an individual of another species. |
| interdependence | The dependence of each species on other species for food, shelter, pollination, seed dispersal etc. If one species is removed it can affect the whole community. |
| intrauterine device | A device inserted into the uterus that prevents the implantation of an embryo or release of a hormone. |
| inverse proportion (HT only) | A relationship between two variables where one value increases as the other decreases. |
| inverse square law (HT only) | An inversely proportional relationship between a variable and the square of the distance from the source of that variable, i.e. when investigating the rate of photosynthesis, light intensity is inversely proportional to the square of the distance of the light source from the plant. |
| iodine solution | An orange coloured solution that turns blue-black if starch is present. |
| isotonic (solution) | A solution with the same solute concentration as another solution. |
| lactic acid | The waste product of anaerobic respiration in muscles. |
| light intensity | A measure of the amount of light hitting an area in a given time. |
| light microscope | A microscope that uses lenses and visible light to produce a magnified image of an object. This type of microscope has low magnification and resolution. |
| lignin | A polymer present in the cell walls of plant tissue such as xylem to strengthen it. |
| limiting factor (HT only) | A factor that limits the rate of a chemical reaction, or affects the growth, abundance or distribution of organisms. |
| Linnaean system | The system used for classifying living things into groups depending on their structure and characteristics. The groups are kingdom, phylum, class, order, family, genus and species. |
| lipase | An enzyme that breaks down lipids into fatty acids and glycerol. |
| lipid | Fats and oils, made of fatty acids and glycerol. |
| luteinising hormone (LH) | A hormone involved in the menstrual cycle that stimulates the release of an egg. |
| magnification | The degree to which an object is made to appear bigger. |
| malaria | A protist disease that causes recurrent episodes of fever and can be fatal. The protist has a life cycle that includes the mosquito. |



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| measles | A viral disease showing symptoms of fever and a red skin rash. It can be fatal if complications arise. |
| meiosis | A type of cell division that produces four genetically different gametes. |
| menstrual cycle | The monthly cycle of changes in the ovaries and the lining of the uterus to prepare for fertilisation. |
| meristem tissue | Plant tissue found at the tips of roots and shoots made of actively dividing cells that can differentiate. |
| metabolism | The sum of all the reactions in the cell or body. This is controlled by enzymes. |
| methane gas | A greenhouse gas with the chemical formula CH ₄ , produced by cows and other farm animals, as well as landfill waste. |
| microorganism | An organism that can only be seen using a microscope. |
| microscopy | The use of a microscope to view an object, or part of an object, that cannot be seen with the naked eye. |
| migration | The seasonal movement of a population from one region to another. |
| mineral ions | Charged forms of minerals that are required by plants for healthy growth. They usually occur in solution in the soil moisture and move into the roots of plants by active transport. |
| mitochondria | The site of aerobic respiration, a process which releases energy for the cell. |
| mitosis | A type of cell division that produces two identical daughter cells. |
| motor neurone | The neurone that carries electrical impulses from the central nervous system (CNS) to the effector. |
| MRSA | A strain of bacteria that is resistant to antibiotics. |
| multicellular organism | An organism made up of many cells. |
| mutation | A change in a gene or chromosome. |
| natural selection | The theory of evolution that states all species of living things have evolved from simple life forms that first developed more than three billion years ago. |
| negative feedback (HT only) | A type of regulation where the body detects changes and makes adjustments in the opposite direction in order to maintain homeostasis. |
| nerve | A bundle of neurones. |
| nervous system | The organ system that enables organisms to react to their surroundings and coordinate their behaviour. |

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| neurone | A nerve cell, a specialised cell that transmits electrical impulses around the body. |
| neutralise | To make an acidic or alkaline substance chemically neutral (pH 7). |
| nitrate ion | An ion with the formula NO_3^- that is required for protein synthesis. Taken in through the roots by active transport. |
| non-communicable disease | A disease that cannot be passed from one person to another. |
| non-specific defence systems | Defences of the human body that provide protection against infection but do not target specific pathogens. Examples include the skin, nose, trachea, bronchi and stomach. |
| nucleus | A sub-cellular structure that contains genetic material and controls the activities of the cell. |
| obesity | A medical term used to describe a high excess of body fat. |
| oestrogen | The main female reproductive hormone. It is produced by the ovaries. It is involved in thickening and maintaining the uterus lining. |
| offspring | The children or young of an organism. |
| optimum conditions | The most favourable conditions for growth and reproduction of an organism. |
| organ | A collection of tissues that work together to perform a specific function. |
| organelle | A structure found within a cell. Also called a sub-cellular structure. |
| organism | A single living thing. Can be multicellular or single-celled. |
| organ system | A group of organs that work together to perform a specific function. |
| osmosis | The diffusion of water from a dilute solution to a concentrated solution through a partially permeable membrane. |
| ovary | The organ where egg cells mature in females. It also produces the reproductive hormones oestrogen and progesterone. |
| ovulation | The release of a mature egg from the ovary. |
| oxidation | The gain of oxygen by a substance, i.e. the gain of oxygen by glucose during respiration. |
| oxygen debt | The amount of extra oxygen the body needs after exercise to react with the accumulated lactic acid and remove it from the cells. |
| oxygenated blood | Blood with a high concentration of oxygen and low concentration of carbon dioxide. |



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| painkiller | A medicine that is used to treat the symptoms of a disease but does not kill pathogens. |
| palisade mesophyll | A plant tissue that contains lots of chloroplasts to carry out photosynthesis. |
| pancreas | The organ that controls the levels of glucose in the blood. |
| paralysis | The loss of the ability to move some or all of the body. |
| partially permeable membrane | A membrane that allows small molecules (e.g. water and certain solutes) to pass across it but does not allow the passage of large molecules. |
| pathogen | A microorganism that causes infectious disease. |
| peat bog | An area of land from which peat (a deposit of dead plant material) is taken. |
| peer review | The evaluation of scientific research by other scientists working in the same field. |
| penicillin | A type of antibiotic discovered by Alexander Fleming from the <i>Penicillium</i> mould. |
| permanent vacuole | A vacuole found in plant cells that is filled with sap to keep the cell rigid enough to support the plant. |
| permeability | The ability of a substance or structure to allow molecules to pass through it. |
| pH | A measure of the acidity or alkalinity of a substance on a scale of 0 to 14. |
| phagocytosis | The ingestion of pathogens or other particles by white blood cells. |
| phenotype | The characteristic expressed as a result of the combination of alleles. |
| phloem | A plant tissue that transports dissolved sugars from the leaves to other parts of the plant. |
| photosynthesis | An endothermic reaction in which energy is transferred from the environment to chloroplasts by light. It is represented by the equation: $\text{carbon dioxide} + \text{water} \xrightarrow{\text{light}} \text{glucose} + \text{oxygen}$ |
| pituitary gland | The 'master gland' located in the brain that secretes several hormones into the blood in response to body conditions. |
| placebo | An inactive form of a drug. |
| plasma | The liquid component of blood that carries the red blood cells, white blood cells and platelets. |
| plasmid | A small ring of DNA that codes for specific features, such as antibiotic resistance. |

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| platelet | A small fragment of a cell that helps blood to clot at the site of a wound. |
| pollination | The transfer of pollen from the male part of a plant to the female part. |
| pollutant | A substance with undesirable effects that is introduced to the environment. |
| pollution | The introduction of harmful materials into the environment. |
| polydactyly | An inherited disorder caused by a dominant allele that results in a person being born with extra fingers or toes. |
| polymer | A large molecule that consists of many repeating units. |
| population | All the members of a single species that live in a habitat. |
| preclinical testing | The stage of drug testing that happens before clinical trials. The testing is done in a laboratory using cells, tissues and live animals. |
| predator | An organism that kills and eats other animals. |
| prey | An organism that is eaten by a predator. |
| primary consumer | A herbivore that eats producers. |
| producer | An organism at the beginning of a food chain which synthesises molecules. This is usually a green plant or alga which makes glucose by photosynthesis. |
| progesterone | A female reproductive hormone that is involved in maintaining the uterus lining. |
| prokaryotic cell | A cell that does not have a nucleus or other membrane-bound organelles, e.g. bacteria. |
| protease | An enzyme that breaks down proteins into amino acids. |
| protein | A molecule made up of long chains of amino acids, used for building the cells and tissues of the body. |
| protein synthesis | The process of making protein molecules from amino acids using the genetic code from DNA. |
| protists | A group of microorganisms that have features that belong to animals, plants and fungi. The pathogens that cause malaria are an example. |
| puberty | The period when a person becomes sexually mature. It causes physical changes that affect males and females differently. |
| pulmonary artery | A blood vessel that carries deoxygenated blood from the heart to the lungs. |

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| pulmonary vein | A blood vessel that carries oxygenated blood from the lungs to the heart. |
| Punnett square | A genetic diagram showing the possible allele combinations resulting from a genetic cross. |
| quadrat | A square frame used to take a representative sample of plants or slow-moving animals in an area. |
| quarrying | The process of blasting rock out of the ground in huge pits to obtain materials. |
| rate of photosynthesis | The speed at which carbon dioxide and water are converted to glucose and oxygen. |
| rate of reaction | A measure of how quickly a reactant is used up or a product is formed in a chemical reaction. |
| reaction time | The time between the presentation of a stimulus and the onset of a response. |
| receptor | A specialised cell of the nervous or endocrine system that detects a stimulus. |
| recessive allele | An allele which is only expressed if the individual has two copies and does not have the dominant allele of that gene. |
| recycling | The collection and processing of used materials to make new products. |
| red blood cell | A specialised cell containing haemoglobin that transports oxygen around the body. |
| reflex action | An automatic and rapid response to a stimulus that does not involve the conscious part of the brain. |
| reflex arc | The nerve pathway in a reflex action, in which electrical impulses bypass the conscious part of the brain to produce an effect. |
| relay neurone | A neurone that carries electrical impulses from a sensory neurone to a motor neurone. |
| replication | The process of duplicating or producing an identical copy of DNA. |
| reproduction | The production of offspring. |
| resolution | The smallest interval measurable by an instrument. |
| respiration | A chemical reaction that breaks down glucose to release energy. |
| response | The way the body reacts to a stimulus. |
| ribosome | A sub-cellular structure that carries out protein synthesis using the genetic code from DNA. |
| risk factor | A factor that is linked to an increased rate of a disease. |

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| rose black spot | A fungal disease where purple or black spots develop on leaves, which often turn yellow and drop off early. It affects the growth of the plant as photosynthesis is reduced. It is spread by water or wind. |
| <i>Salmonella</i> | A type of bacteria that causes food poisoning when ingested in food. It can be spread when food is prepared in unhygienic conditions. The bacteria and the toxins they secrete cause fever, abdominal cramps, vomiting and diarrhoea. |
| secondary consumer | A carnivore that eats primary consumers (herbivores). |
| secrete | To produce and release a substance. |
| seed dispersal | The spreading of seeds away from the parent plant to reduce competition between the new plants and the parent plant. |
| selective breeding | Selecting parents with particular characteristics to breed together so that the offspring have desirable characteristics. |
| sensory neurone | A neurone that carries electrical impulses from a receptor to the central nervous system. |
| sewage | The waste material carried by sewer drains and pipes. |
| sex chromosomes | Chromosomes which carry the genes that determine sex. In human females the sex chromosomes are the same (XX), in human males the sex chromosomes are different (XY). Biological sex does not necessarily reflect a person's gender identity. |
| sexual reproduction | Reproduction in which male and female gametes fuse at fertilisation to produce offspring that are genetically different to the parents. |
| sexually transmitted disease (STD) | An infection that is passed from one person to another through sexual contact. |
| social | Relating to a community of people. |
| soft-bodied | Animals that lack skeletons. |
| soluble | A substance that will dissolve in a given solvent. |
| solution | A homogenous mixture of two or more substances, formed when a solute dissolves in a solvent. Salt water is an example. |
| specialised cell | A cell that has specific features that allow it to carry out a particular function. |
| species | A group of organisms that can interbreed to produce fertile offspring. |
| spermicidal agent | A chemical which kills or disables sperm. |
| spongy mesophyll | A plant tissue that contains large air spaces and has a large surface area for diffusion. |

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| stable community | A community where all the species and environmental factors are in balance so that population sizes remain fairly constant. Predator and prey numbers rise and fall in cycles in this type of community. |
| starch | An insoluble carbohydrate that is a polymer made of glucose monomers. In most plants this is the storage molecule for glucose. Iodine is used to test for this molecule. |
| statin | A type of drug that reduces blood cholesterol levels to slow down the rate at which fatty material is deposited in the coronary arteries. |
| stem cell | An undifferentiated cell capable of giving rise to many more cells of the same type and from which specialised cells can arise through differentiation. |
| stent | A metal mesh tube placed in an artery to hold it open. |
| stimulus (plural: stimuli) | A change in the internal or external environment. |
| stoma (plural: stomata) | Small openings in the surface of a leaf that allow gases to diffuse into the leaf. |
| structural adaptation | A physical feature that allows organisms to compete in the environment in which they usually live. |
| sub-cellular structure | A structure found within a cell. May also be called an organelle. |
| substrate | A molecule that takes part in a chemical reaction and fits into the active site of an enzyme. |
| surface area | The total area of the surface of an object. |
| surface area to volume ratio | A measure of surface area compared to volume of a substance. |
| sustainable | Able to be maintained at a certain level or rate, or continue over time. |
| sweat | A liquid released through the pores of the skin to regulate body temperature. |
| synapse | A gap between two neurones. Impulses pass across it by diffusion of chemical neurotransmitters. |
| synthesise | To make something by combining parts. |
| temperature | The average kinetic energy of the particles in a substance, measured in degrees Celsius (°C). |
| territory | An area defended by an organism or group of similar organisms for shelter, mating or feeding. |
| tertiary consumer | A carnivore that eats secondary consumers. |

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| testis (plural: testes) | The organ that produces sperm and controls puberty in males. |
| testosterone | The main male reproductive hormone produced by the testes. It stimulates sperm production. |
| theory | A general explanation that applies to a wide range of situations and examples. |
| therapeutic cloning | The production of embryonic stem cells that contain the same genetic information as the patient they are being used to treat. |
| three-domain system | A classification system developed by Carl Woese which divides organisms into archaea, bacteria and eukaryota. |
| thyroid | A gland found in the neck that produces the hormone thyroxine. |
| thyroxine (HT only) | A hormone produced in the thyroid gland that stimulates basal metabolic rate. |
| tissue | A group of cells with a similar structure and function working together. |
| tobacco mosaic virus (TMV) | A virus that affects many species of plants including tomatoes. It causes a distinctive pattern of discolouration on the leaves which affects the growth of the plant due to a lack of photosynthesis. |
| toxicity | A measure of how toxic or poisonous a drug is. In clinical trials, drugs are tested for this to ensure they do not cause harmful side effects. |
| toxin | A poison produced by a plant, animal or microorganism. |
| trace fossil | The preserved trace of an organism, e.g. footprints, burrows and rootlet traces. |
| trachea | The tube through which air travels from the mouth and nose to the lungs. Also known as the windpipe. |
| trait | A characteristic. |
| transect | A line across a habitat or part of a habitat used to sample the number of organisms at regular intervals. |
| translocation | The movement of dissolved sugars from the leaves to the rest of the plant, via the phloem. |
| transpiration | The loss of water vapour through the stomata. |
| transpiration stream | The movement of water through a plant, from the roots to the leaves, via the xylem vessels. |
| transplant | Implant an organ into another person. |
| Type 1 diabetes | A disorder in which the pancreas fails to produce sufficient insulin. |



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| Type 2 diabetes | A disorder in which the body cells no longer respond to insulin produced by the pancreas. |
| urea | A chemical produced in the liver when excess amino acids are broken down. It is the main waste product removed in urine. |
| uterus | The part of the female reproductive system where an embryo develops during pregnancy. Also known as the womb. |
| vaccination | The introduction of small quantities of dead or inactive forms of a pathogen into the body to stimulate the white blood cells to produce antibodies. |
| vacuole | A sub-cellular structure within the cytoplasm of a cell, enclosed by a membrane and typically containing fluid. |
| valve | A structure which prevents the backflow of blood in the heart and veins. |
| variation | Differences in the characteristics of individuals in a population. |
| vector (infectious disease) | An organism that spreads infection by carrying pathogens from one host to another. Mosquitos are an example. |
| vector (genetic engineering) (HT only) | A bacterial plasmid or a virus used to insert a gene into a cell. |
| vein | A blood vessel that carries blood towards the heart. |
| vena cava | A vein that carries deoxygenated blood from the body into the heart. |
| ventricle | A chamber at the bottom of the heart. |
| viruses | Small particles capable of infecting living organisms. They live and reproduce inside cells, causing cell damage. Examples include measles, HIV and TMV. |
| volume | The amount of space that a substance or object occupies. |
| water cycle | The continuous evaporation and precipitation of water which causes water to circulate between the Earth's land, oceans and atmosphere. |
| white blood cells | Specialised cells that form part of the immune system to help defend the body against disease. |
| xylem | A plant tissue that transports water and mineral ions from the roots to the stems and leaves. |
| yield | The amount of a product obtained. |