

Intermediate 2 Biology Unit 1 - Living Cells**Glossary****Cell structure, diffusion and osmosis.**

Antibiotics
Antibacterial chemicals
抗細菌的化學製劑
Cell membrane
A very thin barrier surrounding the cell to control entry or exit of certain substances.
一個圍繞在細胞週圍的非常稀薄的屏障，用來控制某些物質的進出。
Cell Wall
Thick outer layer made of tough cellulose to provide support (plant cells).
由堅韌纖維素組成的厚實外層，以支撐(植物細胞)。
Chloroplasts
Contain substances such as green chlorophyll which traps light energy for use in making food (plant cells).
含有例如綠色葉綠素等物質，葉綠素捕獲光能用於製造養料(植物細胞)。
Concentration gradient
The difference in concentration of two solutions.
二種不同溶液的濃度差別。
Cytoplasm
Complex mixture of substances in which all the chemical reactions needed in a cell are carried out.
不同物質的複雜混合物，所有在細胞中需要的化學反應都在其中進行。
Diffusion
Movement of molecules in a liquid or gas from high concentration to low concentration until they are evenly spread.
分子在液體或氣體中從高濃度向低濃度的運動，直到分子均勻地散開。
Fermentation
Biological process in which yeast cells convert sugar into alcohol and carbon dioxide. (Fermentation is a type of anaerobic respiration)
酵母細胞將白糖轉化為酒精和二氧化碳的生物學過程。(發酵是一種厭氧呼吸)
Flaccid
Plant tissue that has lost water by osmosis and become soft.
植物組織因滲透作用失水而變軟。
Hypertonic
Solution has a lower water concentration than the water concentration within the cells.
溶液的水濃度低於細胞內的水濃度。

Hypotonic
Solution has a higher water concentration than the water concentration within the cells.
溶液的水濃度高於細胞內的水濃度。
Isotonic
Solution has a water concentration which is equal to the water concentration within the cells.
溶液的水濃度等於細胞內的水濃度。
Microbe
A word used to describe microscopic unicellular organisms such as bacteria.
用於描述譬如細菌等的微觀單細胞有機體的詞。
Nucleus
Contains information which is used to control all the activities within the cell.
含有用於控制細胞內所有活動的信息。
Osmosis
Special diffusion of water from high water concentration to low water concentration through a selectively permeable membrane.
通過一個有選擇性的滲透膜由高水濃度到低水濃度的特別水滲透。
Plasmolysis
Shrinkage of plant cell contents away from cell walls as a result of excessive water loss.
由於過份失水植物細胞含量收縮而與細胞壁分離。
Selectively permeable membrane
A membrane that allows certain molecules to pass through it but not others.
允許某些分子通過而阻擋其它分子通過的膜。
Turgid
Plant tissue that has gained water by osmosis and become firm.
由滲透作用獲取了水並變結實的植物組織。
Vacuole
Fluid-filled sac with its own membrane to store water and minerals.
以自己的膜存放水和礦物的充滿液體的泡。

Enzymes

Active Site
The place on the surface of an enzyme which is complementary in shape to its substrate.
酶的外表上在形狀上與其酶底物互補的地方。

Breakdown (degradation) Reaction
Reaction in which the enzyme breaks down its substrate into smaller molecules.
酶將其酶底物分解為更小的分子的反應。
Catalyst
Substance which speeds up a chemical reaction without itself being changed by the reaction.
加速化學反應而自身卻不被化學反應改變的物質。
Control
An experiment that allows a comparison within an investigation to ensure that the conclusions drawn from the results are valid.
通過一個實驗調查比較以保證從實驗結果得出的結論是有效的。
Denatured enzyme
Enzyme which has lost its structure permanently and so no longer works.
永久地失去了其結構並不再起作用的酶。
Enzyme
Biological catalyst.
生物催化劑。
Optimum pH
pH at which an enzyme works fastest.
以最快速度起作用的酶的 pH 值。
Optimum temperature
Temperature at which an enzyme works fastest.
以最快速度起作用的酶的溫度。
Product
Substance formed by the action of an enzyme on its substrate.
由酶對其酶底物起作用而形成的物質。
Specific
Only one enzyme can work on one substrate.
一個酶只能對一個酶底物起作用。
Substrate
A substance on which an enzyme works.
酶能對其起作用的物質。
Synthesis reaction
Reaction in which the enzyme joins substrate molecules together to make a larger molecule.
酶加入酶底物分子以形成一個更大的分子的反應。

Respiration

Aerobic respiration
Process of releasing energy from food in cells using oxygen.
使用氧氣把能量從細胞裡的養料中釋放出來的過程。
Anaerobic respiration
Breakdown of glucose in cells in the absence of oxygen.
在無氧情況下分解細胞中的葡萄糖。
ATP (Adenosine tri-phosphate)
High energy compound from which cells gain energy to carry out different processes.
細胞從其中獲取能量以執行不同過程的高能化合物。
Ethanol
Type of alcohol formed during anaerobic respiration in plant and yeast cells.
厭氧呼吸在植物和酵母細胞裡作用時形成的一種醇。
Glycolysis
Breakdown of glucose resulting in the formation of pyruvic acid (first stage of respiration).
葡萄糖分解形成丙酮酸(呼吸作用的第一階段)。
Lactic Acid
Chemical formed during anaerobic respiration in animal cells.
在動物細胞中的厭氧呼吸過程中形成的化學製劑。
Muscle fatigue
Ache and lack of power in muscles due to the build up of lactic acid in the muscle cells.
由於在肌肉細胞中積累乳酸而引起的肌肉疼痛和肌肉乏力。
Oxygen debt
The volume of oxygen required to convert lactic acid back to pyruvic acid during the recovery period after exercise.
在鍛煉以後的恢復期間將乳酸轉換回丙酮酸所需的氧氣量。
Respiration
Chemical process in which energy is released from food molecules in cells.
能量從細胞中的養料分子裡釋放出來的化學過程。

Photosynthesis

Carbohydrates
Molecules containing carbon, hydrogen and oxygen made by photosynthesis.
由光合作用而形成的含有碳、氫和氧的分子。

Carbon fixation
Process in which carbon dioxide is combined with hydrogen to make glucose.
二氧化碳與氫結合製造葡萄糖的過程。
Cellulose
Carbohydrate used that makes up cell walls.
組成細胞壁的碳水化合物。
Chlorophyll
Green pigment found in the chloroplasts which traps the light required for photosynthesis.
在葉綠體中的為光合作用攝取光的綠色素。
Limiting Factor
Anything which, when in short supply, reduces or limits the rate of photosynthesis taking place.
因其短缺而減慢或限制光合作用速度的任何物質。
Photolysis
The process by which energy from sunlight is used to split water molecules into hydrogen and oxygen.
使用陽光中的能量把水分子分裂成氫和氧的過程。
Photosynthesis
Process in which green plants make food from raw materials using energy from the sunlight.
通過使用陽光中的能量，綠色植物從原材料中製造養料的過程。
Producers
Green plants which make food by photosynthesis.
通過光合作用製造養料的綠色植物。
Starch
Storage carbohydrate in plants.
在植物中儲存的碳水化合物。

Intermediate 2 Biology Unit 2 – Environmental Biology and Genetics

Glossary

Ecosystems

Adaptation
Feature of an organism which enables it to survive successfully in its habitat.
能使有機體在其生存環境裡成功生存的特徵。

Behavioural Response
Reaction by an organism to an environmental stimulus.
有機體對環境刺激的反應。
Biodiversity
Variety of species which exists in an ecosystem.
存在於生態體系中的不同物種。
Carnivore
An organism that eats meat.
吃肉的有機體。
Community
All the living organisms in an area.
所有生活在一個區域裡的有機體。
Competition
Struggle between members of a community for the same limited resource.
一個群落成員間為同一有限資源而進行的爭鬥。
Consumer
An organism that eats other organisms to gain energy.
一個通過吃其它有機體來取得能量的有機體。
Decomposer
An organism that gains energy by breaking down dead matter.
一個通過分解死亡物質來取得能量的有機體。
Ecosystem
Natural unit made up of one or more habitats and the communities of plants and animals living there.
由一個或多個生存環境以及生活在其中的動植物群落組成的自然單位。
Environmental Stimulus
A change in an organism's surroundings to which the organism is sensitive.
使有機體敏感的環境變化。
Food chain
Feeding relationship which shows the flow of energy through a series of organisms.
能顯示能量在一續列有機體中流動的哺養關係。
Food web
Diagram which shows how all the food chains in a community are linked together.
顯示群落中的所有食物鏈是如何連接起來的圖解。
Habitat
Place where an organism lives.
有機體生活的地方。
Herbivore
An organism that eats plants.
吃植物的有機體。
Niche
Species role in its habitat
在其生存環境中的物種角色。
Omnivore
An organism that eats plants and / or meat.

既吃植物又吃動物的有機體。
Population
The number of living organisms of one type living in an area.
在一個區域中生存的一種有機體的數量。
Primary Consumer
An organism that is the first consumer in a food chain.
食物鏈中的第一等級消費有機體。
Producer
An organism that makes its own food (e.g. by photosynthesis) to gain energy.
一個自己生產食物（例如通過光合作用）來取得能量的有機體。
Pyramid of biomass
Diagram which represents the total mass of organisms at each stage in the food chain.
體現食物鏈中每一階段有機體總量的圖解。
Pyramid of energy
Diagram which represents the quantity of energy at each stage in a food chain.
體現食物鏈中每一階段能量數量的圖解。
Pyramid of numbers
Diagram which represents the number of organisms at each stage in the food chain.
體現食物鏈中每一階段有機體數量的圖解。
Secondary Consumer
An organism that is the second consumer in a food chain.
食物鏈中的第二等級消費有機體。
Species
Group of organisms that can interbreed to produce fertile offspring.
可以通過互相交配而產生眾多后代的有機體群。

Factors Affecting the Variety in a Species

Allele
Different form of a gene.
一個基因的不同形態。
Amino acid
A molecule which makes up a protein.
組成蛋白質的分子。
Anther
Part of a flowering plant that produces pollen.
開花植物中製造花粉的部份。
Base
Part of the DNA structure.
DNA結構中的部份。
Centromere
Holds two chromatids together.
把兩種染色單體合在一起。
Chromatid
Name given to a single strand of a chromosome that has doubled up as it is in the process of cell division.

為在細胞分裂過程中一個染色體單串變成兩串而起的名稱。
Chromosome
Threadlike structure which carries genetic information (DNA).
帶有基因信息 (DNA) 的線狀結構。
Codominance
A pattern of inheritance where both alleles are expressed equally.
兩等位基因平等表現的遺傳模式。
Continuous variation
Characteristics which show a range of differences.
表現一系列差異的特徵。
Discontinuous variation
Characteristics which fall into distinct categories.
被歸入不同範疇的特徵。
Dominant
Allele (and trait) that always shows up in the appearance of an organism.
總由有機體的外表表現出來的等位基因 (和特性)。
Evolution
Appearance of a new species as a result of natural selection.
因自然選擇新物種的外表。
Fertilisation
Process by which male and female gametes join together.
雄雌性配子結合的過程。
First generation (F1)
In a monohybrid cross the offspring of the parental generation.
通過親代的后代的單基因雜交而產生。
Gamete
Sex cell e.g. egg, sperm, pollen grain.
性細胞, 例如卵子、精子、花粉粒。
Gamete mother cell
Cell that produces the gametes.
產生配子的細胞。
Gene
A section of a chromosome that contains a separate piece of genetic information.
染色體中含有單獨的基因信息的部份。
Genetic engineering
Transfer of DNA from one type of organism to a different organism.
把DNA從一種有機體轉變為另一種有機體。
Genetically modified organism
An organism which has had genes inserted from another organism.
插入了另一個有機體的基因的有機體。
Genotype
The alleles it carries for a particular characteristic.
載有特定特徵的等基因。
Heterozygous
Organism has two different alleles of a gene.
有兩個不同等基因的有機體。

Homozygous
Organism has two identical alleles of a gene.
有兩個完全相同的等基因的有機體。
Meiosis
Cells division which results in the formation of gametes.
形成配子的細胞分裂。
Monohybrid Cross
A breeding experiment which follows the inheritance of one characteristic.
繼承一種遺傳特性的交配實驗。
Natural Selection
Process by which individuals which are better adapted to their environment survive and breed, while those less adapted fail to do so.
是一個自然過程，即對生存環境適應得更好的個體生存並繁衍，然而對生存環境適應得不好而不能生存繁衍的個體。
Ovary
Part of a flowering plant that produces ovules (egg cells).
開花植物中產生原卵（如卵細胞）的部份。
Parental Generation (P)
In a monohybrid cross the original parents selected.
通過初始雙親選擇的單基因雜交而產生。
Phenotype
The appearance of an organism.
有機體的外表。
Plasmid
Small circular structure in bacteria used to transfer genes from one organism to another.
在細菌中用來把基因從一種有機體轉變成另一種有機體的小環狀結構。
Polygenic inheritance
Inheritance of a characteristic that is controlled by more than one gene.
由多個基因控制的對一種特徵的遺傳。
Random Assortment
Production of different combinations of matching pairs of chromosomes by 'shuffling' during meiosis.
在分裂成熟期通過‘攪混’而使染色體配對組成不同組合。
Recessive
Allele (and trait) that only shows up in the appearance of an organism if it has inherited two of them.
只有繼承了兩個等基因，等基因（和特性）才在機體的外表表現出來。
Second generation (F2)
In a monohybrid cross the offspring of the First generation.
通過第一子代的后代單基因雜交而產生。
Segregation of alleles
Process by which two alleles of a gene move into separate gametes.
兩個等基因進入不同配子的過程。
Selective breeding
Selection of individuals which possess desirable characteristics and breeding them to produce the next generation.
選出有合乎需要的特徵的個體，並將其繁衍育出下一代。

Sex chromosomes
Chromosomes that determine the gender of an individual.
決定個體性別的染色體。
Test cross
A breeding experiment crossing a heterozygous recessive individual with an individual of unknown genotype to establish the unknown genotype.
為了確立一個未知基因型而將一個有混合隱性的個體與一個有未知基因型的個體進行交配的實驗。
True breeding
Organisms which pass on the same characteristic to their offspring over many generations.
將相同的特徵代代相傳的有機體。
Zygote
Fertilised egg cell.
受精的卵細胞。

Intermediate Biology 2 Unit 3 – Animal Physiology Glossary

Mammalian Nutrition

Absorption
The passage of small food molecules through the wall of the gut into vessels.
小食物分子通過腸壁進入血管的通道。
Alimentary Canal
Tube running from the mouth to the anus in which food passes and is processed.
從嘴到肛門之間有食物通過並對其進行處理的管。
Digestion
Breakdown of foods into small soluble molecules.
把食物分解成可溶小分子的過程。

Elimination
Removal of faeces from the alimentary canal.
把糞便從消化道排出。
Gastric gland
Structure found in the stomach that secretes mucus, acid and protein-digesting enzyme.
在胃中藏着粘液、酸和蛋白質消化酶的結構。
Lacteal
Tiny lymphatic vessel that absorbs the end products of fat digestion in the small intestine.
在小腸中吸收脂肪消化成品的微小淋巴管。
Peristalsis
Rhythmic movement of muscles that moves food along the alimentary canal.
肌肉有節律的運動使食物在消化道中移動。
Salivary gland
Structure in the mouth that secretes mucus and starch digesting enzyme.
嘴中藏着粘液和澱粉消化酶的結構。
Villus
Tiny blood vessel that absorbs glucose and amino acids from the small intestine.
從小腸中吸收葡萄糖和氨基酸的微小血管。

Control of the internal environment

Antidiuretic hormone
Controls the extent to which water is reabsorbed from kidney tubules and collecting ducts back into the blood.
控制水被腎小管和集合管再吸收回血液的程度。
Bowman's Capsule
Cup shaped part of the nephron that holds the glomerulus and collects the products of filtration from it.
腎單位中含有腎小球並集合腎小球濾液的杯狀部份。
Effectors
Cells or organs that respond to messages from receptors.
對感受器發出的信息作出反應的細胞或器官。
Excretion
The removal of waste that has been made in the body.
把身體中的廢棄物排出。
Glomerular filtrate
Liquid removed from the blood by filtration in the kidney.
通過腎過濾從血液中排出的液體。
Glomerulus
Dense mass of fine capillaries at the nephron that act as a filter.
在腎單位中起過濾作用的濃密大量的細小毛細血管。

Hypothalamus
Part of the brain containing receptor cells.
大腦中含有感受器細胞的部份。
Metabolic water
Water that is a product of metabolic reactions such as aerobic respiration.
水作為新陳代謝反應如有氧呼吸等的產物。
Metabolism
All the chemical reactions in the cells of the body.
身體細胞中的所有化學反應。
Negative feedback control
A process by which changes to conditions in the internal environment are returned to normal.
通過體內環境情況的改變而回到正常狀態的過程。
Nephron
Structure in the kidney that acts as a microscopic filtering unit.
在腎裡作微小過濾單位的結構。
Osmoreceptors
Specialised receptor cells in the hypothalamus that detect changes in the water concentration of the blood.
在下丘腦中專門察覺血液水濃度變化的感受器細胞。
Osmoregulation
The process by which the water content of the body is kept steady.
保持體內水含量平衡的過程。
Pituitary Gland
Gland in the brain which releases antidiuretic hormone in response to messages from the brain.
對大腦傳出的信息做出反應，釋放出制尿激素的腦中的腺體。
Reabsorption
Process by which useful molecules are returned from kidney tubules to the bloodstream.
有用的分子從腎小管中回到血流裡的過程。
Receptors
Specialised cells that detect changes in the internal environment.
專門察覺體內環境變化的細胞。
Urea
Poisonous waste formed by the breakdown of amino acids.
通過分解氨基酸而形成的有毒廢物。

Circulation and Gas Exchange

Antibody
A protein which can combine with and destroy a specific antigen.
一種能與特種抗原組合並破壞抗原的蛋白質。
Antigen
Substance that is able to stimulate the production of an antibody.
一種能刺激抗體生成的物質。
Artery
Blood vessel that carries blood away from the heart.
輸出心臟中血液的血管。
Atrium

Chamber found in the top of the heart for receiving blood.
在心臟頂部接收血液的腔。
Capillary
Blood vessel that connects arteries to veins and which allows the exchange of materials between the blood and cells of the body.
連接動脈與靜脈的血管，並且這些血管允許物質在血液與身體細胞間進行交換。
Lymphocytes
White blood cells which produce antibodies.
產生抗體的白血球。
Macrophage
Special type of white blood cell which can engulf and digest bacteria.
能吞噬並消化細菌的一種特殊的白血球。
Pathogen
Organism that can cause disease in the body.
在體內引起疾病的有機體。
Phagocytosis
Process by which white blood cells engulf and breakdown bacteria and other unwanted matter.
白血球吞噬並分解細菌及其它有害物質的過程。
Valve
Device that allows blood to flow through it in one direction only.
只允許血液單方向流過的裝置。
Vein
Blood vessel that returns blood towards the heart.
使血液流回心臟的血管。
Ventricle
Chamber found in the bottom of the heart for pumping blood.
在心臟底部壓出血液的腔。

Sensory mechanisms and processing information

Cerebellum
Part of the brain responsible for the coordination of movement.
大腦中負責協調運動的部份。
Cerebrum
Part of the brain responsible for conscious thought and reasoning.
大腦中負責有意識的思考及推理的部份。
Medulla
Region of the brain responsible for heart rate.
大腦中負責心速的部份。
Neurone
Term used to describe a nerve cell.
形容神經細胞的詞。
Reflex action
A very rapid response made by the nervous system without processing information through the brain.
信息不經大腦處理，而由神經系統做出的一個非常迅速的反應。
Reflex arc

An arrangement of neurons (usually three), that allows a reflect action to take place.
使反射動作發生的神經元(通常為三個)的排列。
Synapse
A microscopically small gap between the end of a neuron fibre and the next cell.
在神經元纖維與下一個細胞間用顯微鏡能觀察到的極小的裂隙。
Vasoconstriction
Narrowing of the blood vessels near the skin, restricting the amount of blood flow to the skin.
在靠近皮膚處血管變窄，限制流向皮膚的血流量。
Vasodilation
Widening of the blood vessels near the skin, increasing the amount of blood flow to the skin.
在靠近皮膚處血管變寬，增加流向皮膚的血流量。