B3.1 Glossary

Active transport	The movement of molecules from a dilute to a more concentrated solution against a concentration gradient using energy from respiration. *Mineral ions move into root hair cells using **active transport**.*
Adaptation	Something (e.g. a structure or a shape) that enables a specialised cell to carry out its function. *One **adaptation** that a sperm cell has to its function, is having a tail which allows it to swim.*
Agar medium	A jelly like substance containing all the nutrients needed to culture microorganisms. *Students cultured bacteria in the lab using **agar medium.***
Aseptic	Free from contamination of microorganisms. *The **aseptic** technique is used to prevent contamination of agar plates.*
Antibiotic	A drug that is used to treat bacterial infections. *The doctor prescribed an **antibiotic** for the patient's bacterial infection.*
Benign	A 'safe' tumour where the mass of cells is contained to one area. *The tumour was **benign** because it could not spread around the body.*
Bone marrow	The spongy centre of long bones, where blood cells are produced. *Adult stem cells can be extracted from bone marrow.*
Cancer	When cell division happens uncontrollably so cell numbers increase rapidly and can form tumours. ***Cancer** is a disease that is affected by lifestyle and genetic risk factors.*
Chromosome	A structure found in the nucleus made of DNA. *Human body cells contain 23 pairs of **chromosomes.***

Concentration gradient	The difference in concentrations of a substance between two areas. *The larger the **concentration gradient** the faster the rate of diffusion.*
Culture	The growing of microorganisms (such as bacteria) for scientific study. *We can grow a **culture** of bacteria on an agar plate.*
Differentiate / differentiation	When cells acquire the specific structures needed for that cell type. *Most animal cells **differentiate** in the early stages of embryo development.*
Diffusion	The movement of particles from a high concentration to a low concentration. *Oxygen travels from the alveoli into the blood via **diffusion.***
Embryonic	From an embryo or developing baby. ***Embryonic** stem cells can develop into all human cell types.*
Eukaryotic	A cell that contains membrane bound organelles. *Plant and animal cells are both types of **eukaryotic** cells or **eukaryotes**.*
Flagellum	A whip-like structure found in some prokaryotic cells. *The bacteria have **flagella** to enable them to move.*
Hypertonic solution	A solution in which the external solution has a higher concentration of solute than the cell. *When a cell is placed in a **hypertonic solution** water will move out of the cell by osmosis.*
Hypotonic solution	A solution in which the external solution has a lower concentration of solute than the cell. *When a cell is placed in a **hypotonic solution** water will move into the cell by osmosis.*
Inoculating loop	A piece of apparatus used to transfer a sample of microorganism to an agar plate.

	*The **inoculating loop** must be sterilised before use to prevent contamination.*
Isotonic solution	A solution in which the external solution has the same concentration of solute as the cell. *If a cell is placed in an **isotonic solution** there will be no net movement of water.*
Magnify / magnification	The process of enlarging the image of an object. *Microscopes are used to **magnify** objects.*
Malignant	Tumours that have the potential to spread around the body and invade other tissues. *The tumour was **malignant** as it spread to other organs.*
Meristem	Stem cells found in plants that can develop into all plant cells. ***Meristems** are found at the very tips of root and shoots in plants.*
Mitochondria	A membrane bound structure in a cell that is the site of aerobic respiration. *Muscle cells contain many **mitochondria** because they require a high amount of energy.*
Mitosis	The phase of cell division when one cell divides into two. *After DNA is replicated in the cell cycle, **mitosis** occurs.*
Nucleus	A membrane bound structure in a cell that contains DNA and controls the cell's activities. *The **nucleus** is one of the largest organelles in the cell.*
Organelle	A sub-cellular structure that has a specific function inside the cell. *Mitochondria are the **organelles** where aerobic respiration takes place.*
Partially permeable membrane	A membrane that lets particular substances through it (either in or out). *Cell membranes are examples of **partially permeable membranes.***

Passive	A process that does not require energy. *Diffusion and osmosis are **passive** processes.*
Plasmid	A small piece of circular DNA located in a prokaryotic cell. *Prokaryotes do not have a nucleus, instead their DNA can be found in **plasmids.***
Prokaryotic	A cell which does not contain membrane bound organelles. *Bacteria are **prokaryotic** cells or **prokaryotes.***
Risk factor	A lifestyle or genetic factor that increases an individual's risk of developing a disease. *Smoking is a **risk factor** for lung cancer.*
Resolution	The ability to distinguish between two points in an image. *The image was blurry because it had a low **resolution.***
Specialised	Adapted to a specific function or job. ***Specialised** cells have different adaptations to carry out specific functions.*
Specimen	An individual sample of an organism for scientific study. *Living and dead **specimens** can be viewed under a microscope.*
Stem cell	An undifferentiated cell that can form other cell types. ***Stem cells** could be used to treat paralysis.*
Sub-cellular	Structures found within a cell. *The nucleus is a **sub-cellular structure.***
Surface area	The outside surface of an object. *The **surface area** of the leaf was large so it could absorb lots of sunlight.*

Surface area to volume ratio	Can be calculates by dividing the surface area by the volume of an object. *Small objects have a larger **surface area to volume ratio** than larger objects.*