

Definitions and Concepts for WJEC (Wales) Biology GCSE

## Topic 1.1: Cells and Movement Across Membranes

Definitions in **bold** are for higher tier only

Definitions marked by '\*' are for separate sciences only

Active site - The part of the enzyme which is specific to the substrate and has a complementary shape to it.

Active transport - The movement of particles from an area of low concentration to an area of high concentration, against the concentration gradient. This requires energy.

Amino acids - Small molecules that link together to make up a protein.

Cell differentiation - The production of specialised cells with specific functions.

**Cell membrane** - A selectively permeable barrier which controls the movement of substances into and out of the cell. It also has receptor molecules on the surface for cell-to-cell signalling.

**Cell wall** - An outer layer made of cellulose fibres in plant cells. It provides the plant cell with strength and support.

**Chloroplasts** - The organelles that are the site of photosynthesis. They contain chlorophyll (a green pigment) which absorbs light energy and important enzymes which are needed for photosynthesis.

Concentration gradient - The difference in concentration between two areas.

**Cytoplasm** - Contains dissolved nutrients and salts and the organelles. It is also the site of many chemical reactions.

**Denaturation** - The permanent change in the shape of an enzyme's active site that stops the enzyme functioning normally.

**Diffusion** - The net spreading out of particles from a high concentration to a lower concentration (down their concentration gradient). Energy is not required, so it is a passive process.

Enzymes - Biological catalysts that increase the rate of chemical reactions.

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**Enzyme specificity** - Enzymes will only act on specific substrates that have a complementary shape to the active site of the enzyme.

Light microscope - A microscope that uses light to produce an image of a specimen.

**Lock and key hypothesis** - A theory that describes how substrates must be the correct shape to fit the active site of an enzyme.

Magnification - How many times larger the image appears relative to the original object.

Magnification = image size / actual size

**Mitochondria** - The organelle which is the site of aerobic respiration. It contains enzymes required for cellular respiration.

**Nucleus** - An organelle found in most eukaryotic cells that contains the cell's genetic material and controls the activities of the cell.

Organ - A group of tissues that work together performing specific functions.

Organ system - A group of organs that work together performing specific functions.

Organism - An animal or plant that can function on its own.

**Osmosis** - The net movement of water molecules from a region of high concentration to a region of low concentration through a partially permeable membrane.

Protein - A large molecule synthesised from amino acid monomers.

Resolution - The ability to see two cells as two separate entities (measured in dpi).

Specialised cells - Cells that are adapted to perform a specific function.

Tissue - Groups of similar cells with a similar function. +

Vacuole - An organelle that stores cell sap.

**Visking tubing** - An artificial membrane that is partially permeable. It is used as a model of living material to investigate the movement of water and solutes.

✤ Definition taken from: <u>WJEC (Wales) GCSE in BIOLOGY Specification V.2 January 2019</u>

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