

Definitions and Concepts for CAIE Biology IGCSE

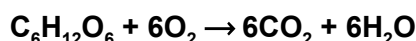
Topic 12: Respiration

Definitions in **bold** are for supplement only

Active transport - The movement of substances from a low concentration to a higher concentration (against the concentration gradient) across a membrane, with the use of energy from respiration.

Aerobic respiration - Respiration in the presence of oxygen that releases energy from the breakdown of glucose:

glucose + oxygen → carbon dioxide + water

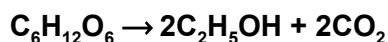


Anaerobic respiration - Respiration which takes place without oxygen and forms energy from the breakdown of glucose. In muscles, lactic acid is produced. In yeast, alcohol and carbon dioxide are produced. Less energy is released than in aerobic respiration.

Enzyme - A biological catalyst that increases the rate of reactions in living organisms.

Fermentation - The chemical breakdown of a substance (normally under anaerobic conditions) by microorganisms or enzymes. For example, glucose is converted to alcohol and carbon dioxide by the action of yeast.

glucose → alcohol + carbon dioxide



Lactic acid - The product of anaerobic respiration in muscle cells. **Lactic acid build-up inhibits anaerobic respiration and results in cramp and fatigue. After exercise, lactic acid is transported to the liver where it is oxidised or converted to glucose.**

Oxygen debt - The amount of extra oxygen required by the body after exercise to remove the accumulated lactic acid and replace the body's reserves of oxygen.

Respiration - A chemical reaction that takes place in cells and produces energy from nutrient molecules. It involves the action of enzymes. The energy may be used in protein synthesis, growth, cell division, active transport, muscle contraction, homeostasis or the conduction of impulses by nerve cells.

Respirometer - A device used to measure respiration rate in living organisms.

Soda-lime - A chemical that absorbs carbon dioxide.

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