

Nutrition in Living Organisms

Chapter 5: Life Processes · Topic 1

Key Concept

Photosynthesis occurs in chloroplasts using chlorophyll to capture light energy, converting carbon dioxide and water into glucose and oxygen ($6\text{CO}_2 + 6\text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$). Heterotrophic nutrition in humans involves the digestive system breaking down complex food into simpler, absorbable molecules through mechanical and chemical digestion, with enzymes like amylase, pepsin, and lipase breaking down carbohydrates, proteins, and fats respectively at different stages of the digestive tract.

Quick Revision Notes

- Autotrophic nutrition: organisms make their own food (photosynthesis in plants).
- Heterotrophic nutrition: organisms depend on others for food (animals, fungi).
- Photosynthesis: $6\text{CO}_2 + 6\text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$, using chlorophyll and sunlight.
- Human digestion: ingestion, digestion (mechanical/chemical), absorption, assimilation, egestion.

Practice Questions

- 1 List the five steps involved in human nutrition.
- 2 Write the balanced equation for photosynthesis.
- 3 Name the enzymes responsible for digesting carbohydrates, proteins, and fats respectively.