Life Processes

Chapter Flowchart

The Chapter Flowcharts give you the gist of the chapter flow in a single glance.

Life processes

Nutrition

Mode of nutrition

Autotrophic

Organisms which make their own food using CO_2 and H_2O

Photoautotrophic

Food is prepared by the process of photosynthesis in chloroplasts

Chemosynthetic

Nutrition in animals (humans)

Food is crushed with teeth and wetted by saliva in the mouth (secreted by salivary gland)

↓

The enzyme salivary amylase in saliva breaks down starch into sugar

↓

Food is transferred to stomach through food pipe or oesophagus by rhythmic contractions (peristaltic movements)

↓

Gastric glands in stomach wall release hydrochloric acid, pepsin and mucus for digesting food

↓

Food is completely digested in small intestine.
The liver release bile juice, pancreas release pancreatic juice containing trypsin and intestinal glands secrete intestinal juices

Respiration

External/Physiological Respiration

Taking up of oxygen from the environment and getting rid of carbon dioxide from the body

In aquatic organisms

- Most animals have gills but some even have lungs
- In fishes, water enters gills through mouth and dissolved oxygen is taken up by blood

In terrestrial organism

- Different organs are used by different animals In organisms like earthworms, air diffuses through skin
- In insects, trachea are the respiratory organs

In human beings

Air enters the nostrils and is filtered by fine hairs lining the passage

↓

On breathing in. ribs lift up, diaphragm flattens, chest cavity becomes larger and air moves in

↓

Air enters the lungs through throat and bronchii

↓

In lungs air enters alveoli where exchange of gases takes place

↓

Internal/Cellular Respiration

Chemical reactions occurring in cells resulting In release of energy from food in form of ATP

Aerobic respiration

- Occurs in presence of oxygen
- Occurs both In animals and plants
- Glucose Is broken down to pyruvate in cytoplasm which further breaks down into CO_2,H_2O and energy in mitochondria

Heterotrophic

Organisms which obtain their food from other organisms

↓

Villi on intestinal wall absorb digested food from where it is taken to everybody cell

↓

In the large intestine, water Is absorbed from the unabsorbed food→ Waste material Is removed via the anus

Oxygen in alveolar air diffuses into capillaries lining the alveoli and carbon dioxide **from** the blood diffuses into alveoli

↓

While breathing out, ribs relax, diaphragm contracts, Chest cavity reduces and air moves out

Anaerobic respiration

Oxygen not involved Occurs in yeasts, bacteria and fatigued muscle cells In muscle cells, pyruvate forms lactic acid and energy In released

In yeast, pyruvate forms ethanol and CO_2 with release of energy

Saprophytic

Absorb organic nutrition from dead and decaying organisms. E.g., fungi, bacteria, etc.

Holozoic

Ingest complex organic food, materials, e.g., man, frog etc..

Parasitic

Organism lives In or on other nutrition synthesizing organism.

Total parasite

Get food from host organism,e.g.,Ascaris, Cuscuta etc

Partial or semi parasites

Synthesise their own food but get water and minerals fromhost, e.g., plasmodium

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