the food.

- The walls of the stomach secrete hydrochloric acid. Hydrochloric acid kills the germs which may be present in food.
- Moreover, it makes the medium inside the stomach as acidic. The acidic medium is necessary for gastric enzymes to work.
- The enzyme pepsin, secreted in the stomach, does partial digestion of protein.
- The mucus, secreted by the walls of the stomach saves the inner lining of the stomach from getting damaged from hydrochloric acid.



**Small Intestine:** It is a highly coiled tube-like structure. The small intestine is longer than the large intestine but its lumen is smaller than that of the large intestine. The small intestine is divided into three parts, like duodenum, jejunum and ileum.

**Liver:** Liver is the largest organ in the human body. The liver manufactures bile, which gets stored in the gall bladder. From the gall bladder, bile is released as and when required.

**Pancreas:** Pancreas is situated below the stomach. It secretes pancreatic juice which contains many digestive enzymes.



breaks down fat into smaller particles. This process is called emulsification of fat. After that, the enzyme lipase digests fat into fatty acids and glycerol. Trypsin and chymotrypsin are enzymes which digest protein into amino acids. Complex carbohydrates are digested into glucose. The major part of digestion takes place in the duodenum.

No digestion takes place in the jejunum: The inner wall in the ileum is projected into

numerous finger-like structures, called villi. Villi increase the surface area inside the ileum so that optimum absorption can take place. Moreover, villi also reduce the lumen of the ileum so that food can stay for a longer duration in it, for optimum absorption. Digested food is absorbed by villi.

## Large Intestine:

- Large intestine is smaller than the small intestine.
- Undigested food goes into the large intestine.
- Some water and salt are absorbed by the walls of the large intestine. After that, the undigested food goes to the rectum, from where it is expelled out through the anus.
- Large Intestine bbsorb excess of water. The rest of the material is removed from the body via the anus. (Egestion).

## Respiration – Life Processes Class 10 Notes

Types of respiration, aerobic and anaerobic respiration, human respiratory system, respiration in plants.

**Respiration:** The process by which a living being utilises the food to get energy, is called respiration. Respiration is an oxidation reaction in which carbohydrate is oxidized to produce energy. Mitochondria is the site of respiration and the energy released is stored in the form of ATP (adenosine triphosphate). ATP is stored in mitochondria and is released as per need.

## Steps of respiration:

- Breaking down of glucose into pyruvate: This step happens in the evolutions. Glucose molecule is broken down into pyruvic acid. Glucose pol C le composed of 6 carbon atoms, while pyruvic acid is contreleded 3 carbon atoms.
- Fate of Pyruvic Acid: Further breaking down of you we acid takes place in mitochondria and the molecules formed to trad on the type of respiration in a particular organism. Respiration is outwo types, viz. aerobic respiration and apacrobic respiration anaerobic respirator.
- Respiration involves
  Solution of the second secon  $CO_2 \rightarrow Breath D$ 
  - $\circ$  Breakdown of simple food in order to release energy inside the cell  $\rightarrow$  Cellular respiration

## Types of Respiration – Life Processes Class 10 Notes

- Aerobic respiration: This type of respiration happens in the presence of oxygen. Pyruvic acid is converted into carbon dioxide. Energy is released and water molecule is also formed at the end of this process.
- Anaerobic respiration: This type of respiration happens in the absence of oxygen. Pyruvic acid is either converted into ethyl alcohol or lactic acid. Ethyl alcohol is usually formed in case of anaerobic respiration in microbes, like yeast or bacteria. Lactic acid is formed in some microbes as well as in the muscle cells.
  - Glucose (6 carbon molecule)  $\rightarrow$  Pyruvate (3 carbon molecules) + Energy
  - Pyruvate (In yeast, lack of O<sub>2</sub>)  $\rightarrow$  Ethyl alcohol + Carbon dioxide + Energy
  - Pyruvate (In muscles, lack of O<sub>2</sub>)  $\rightarrow$  Lactic Acid + Energy
  - Pyruvate (In mitochondria; the presence of O<sub>2</sub>)  $\rightarrow$  Carbon dioxide + Water + Energy

The equations for the above reactions can be written as follows:

$$C_6H_{12}O_6 \xrightarrow{\text{presence of } O_2} 6CO_2 + 6H_2O + Energy$$
  
Glucose