**Revision Notes**

**Chapter – 10**

**Respiration in Organisms**

- Respiration is essential for survival of living organisms. It releases energy from the food.
- The oxygen we inhale is used to breakdown glucose into carbon dioxide and water. Energy is released in the process.
- The breakdown of glucose occurs in the cells of an organism **(cellular respiration).**
- During heavy exercise when the supply of oxygen to our muscle cells is insufficient, food breakdown is by anaerobic respiration (without oxygen)

**Types of Respiration** :

1. **External respiration** also known as breathing refers to a process of inhaling oxygen from the air into the lungs and expelling carbon dioxide from the lungs to the air. Exchange of gases both in and out of the blood occurs simultaneously.

2. **Internal Respiration:** Process in which food is broken down in body cells through various chemical reactions.

   Internal respiration are further classified into two parts:
   (a) **Aerobic Respiration:** Aerobic respiration takes place in the presence of oxygen. Carbon dioxide and water are the end products of aerobic respiration. Aerobic respiration happens in most of the organisms.

   (b) **Anaerobic Respiration**: Anaerobic respiration takes place in the absence of oxygen. Anaerobic respiration usually happens in most of the microbes. Alcohol and carbon dioxide are formed at the end of anaerobic respiration. In some cases, lactic acid is formed at the end of anaerobic respiration.

- **Respiration in Plants:** Leaves have pores called stomata for gaseous exchange by diffusion. Stems have openings called lenticels for gaseous exchange by diffusion. Roots have stomatal pores for gaseous exchange of oxygen dissolved in soil water.

- **Respiration in Animals:** Respiration in animals are vary according to their character like:
  **Earthworm**: through their skin
  **Insect**: through entire body surface
  **Fish**: respire through their gills
  **Frogs**: through its thin, moist and smooth skin when in water and by lungs when in land.

- **Respiration in Humans:** Inhaled air passes through nostrils into nasal cavity and then into lungs through windpipe.

- Breathing is a part of the process of respiration during which an organism takes in the oxygen-rich air and gives out air rich in carbon dioxide. The respiratory organs for the exchange of gases vary in different organisms.

- During inhalation, our lungs expand and then come back to the original state as the air moves out during exhalation.

- Increased physical activity enhances the rate of breathing.

- In animals like cow, buffalo, dog and cat the respiratory organs and the process of breathing are similar to those in humans.·