

## **Transpiration in living Beings**

### **Synopsis**

- Transport system for carrying food materials and waste is must for an organism to survive. Mode of transportation could be either diffusion, osmosis, absorption or circulation of blood through blood vessels in the higher organisms.
- Human circulatory system consists of blood, blood vessels and the heart.
- Blood is a fluid connective tissue which consists of plasma, red blood cells, white blood cells and blood platelets. Red colour of the blood is due to the presence of the pigment hemoglobin, white blood cell protects the body from harmful microorganisms and infections.
- Arteries carry pure blood from the heart to the other organs of the body and veins coiled impure blood from different parts of the body and carry to the heart.
- Pulmonary artery carries impure (deoxygenated) blood from the heart to the lungs and pulmonary vein carries oxygenated blood or pure blood from lung to the heart.
- The heart has four chambers which are divided into two auricles and two ventricles. The blood flows from right auricle → right ventricle → lungs. Lungs → left auricle → left ventricle to the rest of the body.
- Arteries divide into smaller vessels on reaching tissues they divide further to form thin tubes called capillaries. These capillaries join to form veins.
- At wrist we hear throbbing sound. This movement is called pulse.
- The muscles of the heart contract and relax rhythmically. This is called heart beat

- Each heartbeat generates one pulse in the arteries and the pulse rate per minute indicates the rate of heart beat.
- The doctor feels the rate of heart beat with the help of an instrument called stethoscope.
- The process of waste disposal or removal of waste is called excretion.
- In human beings lungs, skin and the organs of urinary tract form excretory system. Human excretory system consists of kidneys, ureter, urinary bladder and urethra. Each kidney has tiny filters called nephrons which filter out wastes from the blood.
- In plants, water and salts absorbed by the roots are carried by the xylem. Food material synthesised by the leaves is transported to various parts of the plant through phloem in the form of a solution called sap.
- In plants, waste gases diffuse out through the stomata and lenticels. Excess water evaporates (transpiration) mostly from the stomata and other wastes are stored in old leaves, barks and special cells. Some wastes like tannins, oils, latex, gums, resins and some alkaloids are useful to us.