

Transportation

- All organisms need continuous supply of food, water and oxygen for survival. They need to transport all these to various parts of their body.
- Also, animals need to transport wastes to parts from where they can be removed.
- In human beings' the organs of the circulatory system are heart, blood and blood vessels. The heart acts as a pump to push out blood, the blood vessels (arteries, veins and capillaries) act as pipes through which flows in the whole body.

Circulatory System

Blood

- Blood is a red coloured fluid which flows in the blood vessels. It is red because it contains red pigment called haemoglobin.
- Its function is to transport substance like digested food from the small intestine to the other parts of the body.
- It also carries oxygen from the lungs to different cells of the body.
- It also transports waste for removal from the body.
- Blood contains different type of cells having different functions,
- Blood contains four components mainly plasma, red blood cells, white blood cells and platelets.
- Plasma is a liquid in which RBCs, WBCs and platelets keep floating.
- Haemoglobin binds with the oxygen and transports it to all the parts of the body and finally to the cells.
- The white blood cells fight against germs that may enter into our body.
- Platelets are responsible for clotting of blood.

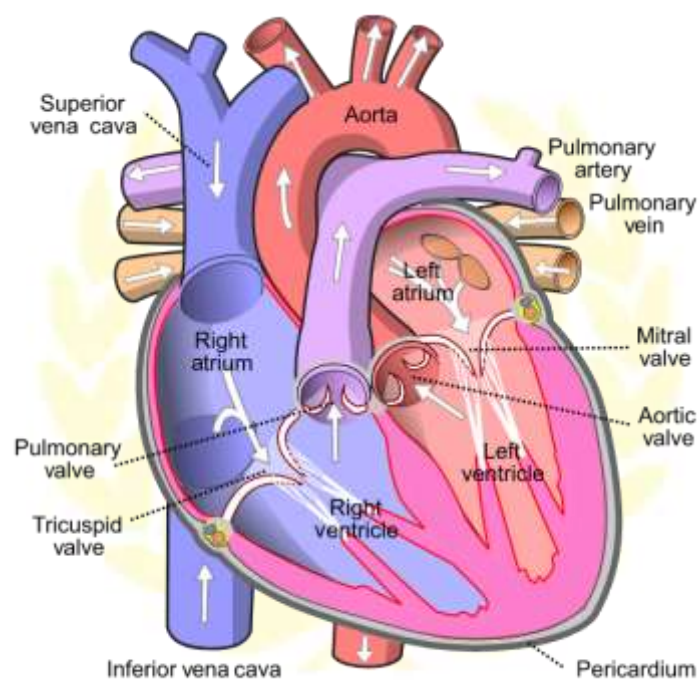
Blood Vessels

- Blood contains two types of blood vessels, arteries and veins.
- The function of the arteries is to carry oxygen rich blood from the heart to all the parts of the body.
- The arteries have thick walls because the blood flows through them at high pressure.
- Veins are the blood vessels that carry carbon – dioxide rich blood from all parts of the body back to the heart.
- The veins are thin walled and contains valves which allow the blood to flow only towards the heart.
- On reaching the tissues, Arteries divide further into extremely thin tubes called capillaries. The capillaries join again to form veins which empty into the heart.

Heart

- The heart is an organ which act as a pump for the transport of blood to all parts of our body. It beats continuously throughout our life.

- The heart lies in the chest cavity and its lower tip is slightly tilted towards the left.
- The size of your heart is roughly the size of your fist.
- Heart contains four compartments. The upper two chambers are known as **atria** and the two lower chambers are known as **Ventricles**.
- The partition between the chambers does not allow mixing of oxygen rich blood with blood rich in carbon dioxide.
- Oxygenated blood enters left atrium and moves to left ventricle from where it is transported to all the parts of the body.
- Deoxygenated blood enters right atrium and passes to right ventricle and from here the blood carries carbon di- oxide to the lungs.

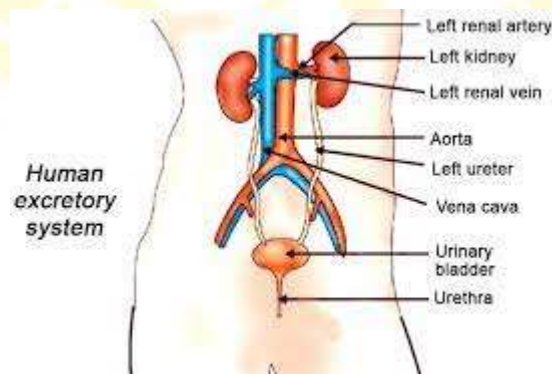


Heartbeat

- The rhythmic contraction and relaxation of muscles of the heart constitutes heartbeat.
- We can feel our heartbeat by placing our hand on the left side of the chest.
- The doctor uses an instrument called stethoscope for checking the heartbeat.
- It constitutes of a chest piece carrying a sensitive diaphragm, two ear pieces and a tube is there to join the parts.

Excretion in Animals

- The process of removal of toxic wastes produced as a result of cellular activities is called excretion.
- The removal of toxic waste products from the body is necessary.
- The body parts involved in the process of excretion together forms the excretory system.
- The excretory system of humans consists of a pair of kidneys, ureter, urinary bladder and urethra.
- **Kidney:**
 - Two Bean shaped organs called kidney are present.
 - When blood reaches kidney it contains both useful and harmful substance.
 - The useful substances are absorbed back into the blood and harmful substances are passed on to the urinary bladder as urine.
- **Ureter:**
 - Tube like organ.
 - Connects kidney two urinary bladder.
- **Urinary bladder:**
 - The urine passes from the kidney to the urinary bladder and is stored here.
- **Urethra:**
 - It is a muscular tube with a small opening.
 - Urine is excreted out through the small opening of the urethra.



Transportation in plants

- The leaves prepare food for plants by photosynthesis using water and carbon dioxide.
- This food is the source of energy for all the cells; hence food should reach all parts of plants.
- Plants absorb water and nutrients from the soil through roots.
- The group of cells performing a specialised function in an organism is called a tissue.
- The tissues responsible for transporting water and minerals from the soil to different parts of a plant are known as vascular tissues.

- The vascular tissues responsible for transporting water and nutrients are called Xylem.
- The vascular tissues responsible for transporting food to all parts of the plant are called phloem.

Transpiration

- Plants absorb water and mineral from the soil through roots.
- Some water is lost by evaporation through stomata present on the surface of leaves by transpiration.
- This evaporation of water generates a type of suction pull which is capable of pulling water to great heights in tall trees.
- Transpiration also helps plants in cooling.

