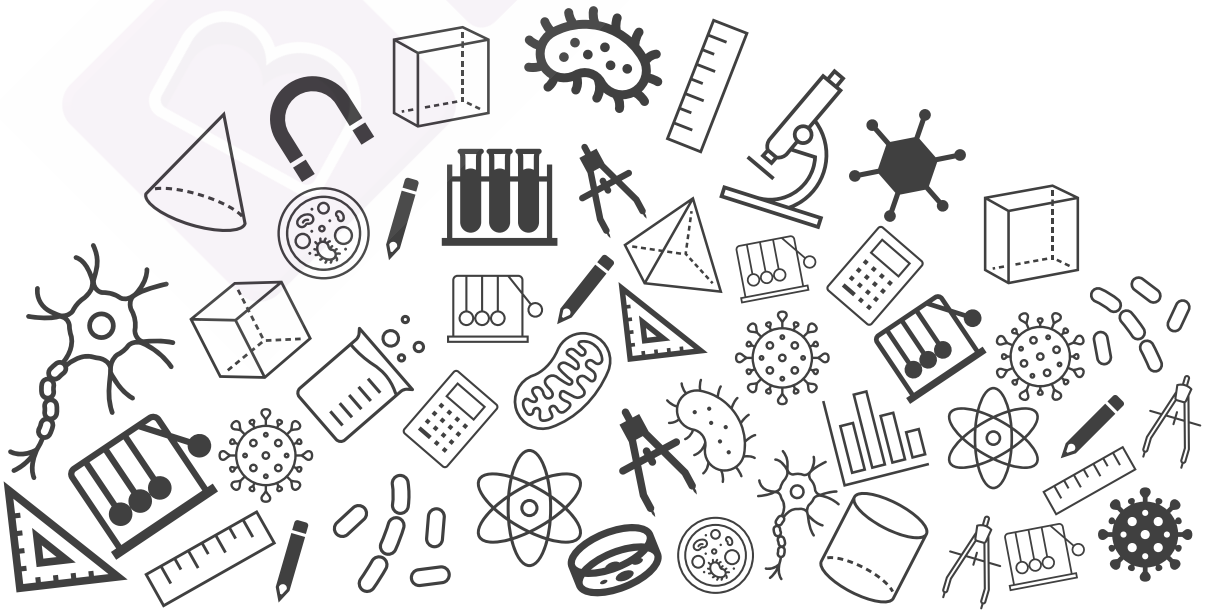
Grade 07
Chapter Notes



BIOLOGY

BYJU'S

CHAPTER NOTES

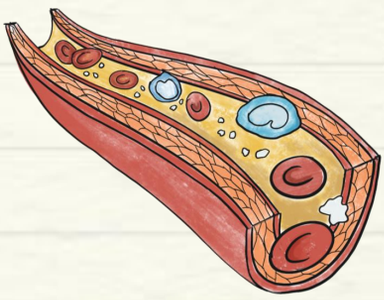
Transportation in Animals and Plants

Topics

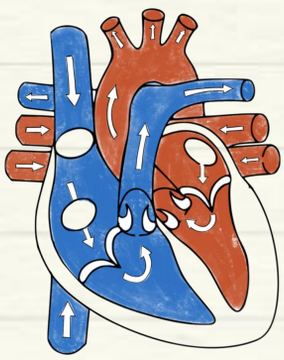
- Human Circulatory system
  1. Components of Blood
  2. Heart
  3. Blood Vessels
- Human Excretory System
  1. Excretory System
  2. Urine Formation
  3. Kidney Malfunction & Artificial Kidney
- Transport in Other Animals & Plants
  1. Excretion in Other Animals
  2. Transport in Plants
  3. Transpiration
  4. Excretion in Plants

Human Circulatory System

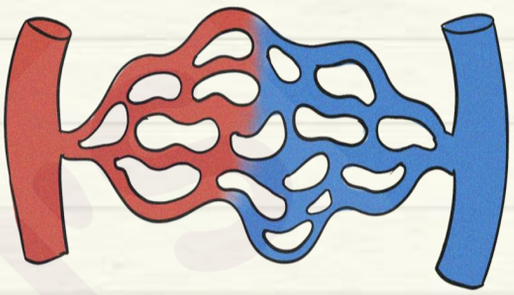
The circulatory system is made up of blood vessels that carry blood away from and towards the heart.



Blood



Heart



Blood Vessels

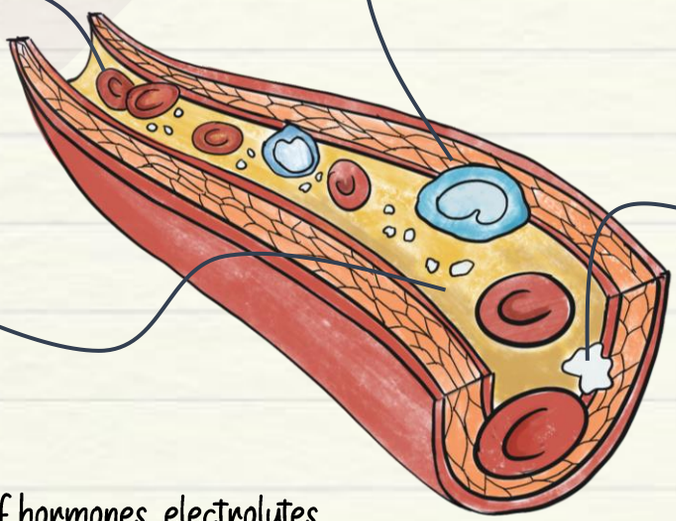
Blood components

Red Blood Cells

Contain hemoglobin and transport oxygen

White Blood Cells

Identify and destroy pathogens



Plasma

Fluid part of the blood.
Carries small amounts of hormones, electrolytes, waste products and gases.

Platelets

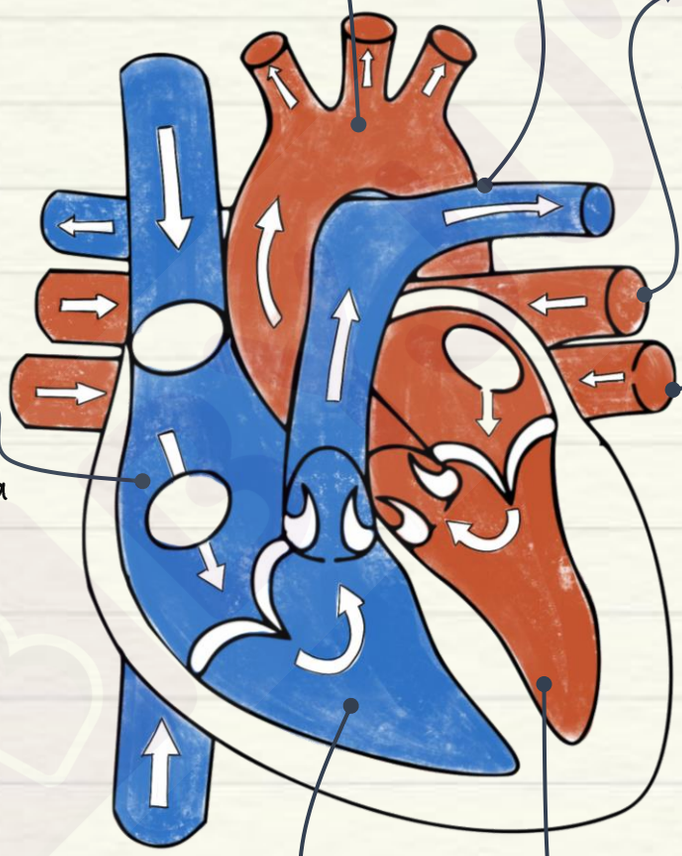
Involved in blood clotting.

The Heart
(The pumping organ)

Aorta
Largest artery of the body that distributes oxygenated blood throughout the body.

Pulmonary artery
Carries deoxygenated blood from the RV to the lungs for oxygenation.

Pulmonary vein
Carries oxygenated blood from the lungs to the LA of the heart.



Left Atrium (LA)
- Receives oxygenated **blood** from the lungs through pulmonary veins

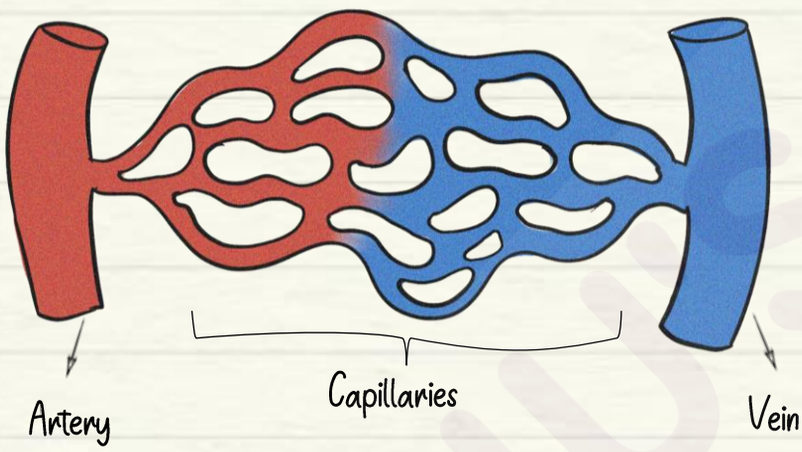
Right Atrium (RA)
- Receives deoxygenated blood from the vena cava

Right Ventricle (RV)
- Receives deoxygenated blood from the RA.
- Pumps blood into the pulmonary artery.

Left Ventricle (LV)
- Thickest chamber of the heart
- Responsible for the pumping of oxygenated blood to all parts of the body through the aorta.

Blood Vessels

Arteries v/s Veins



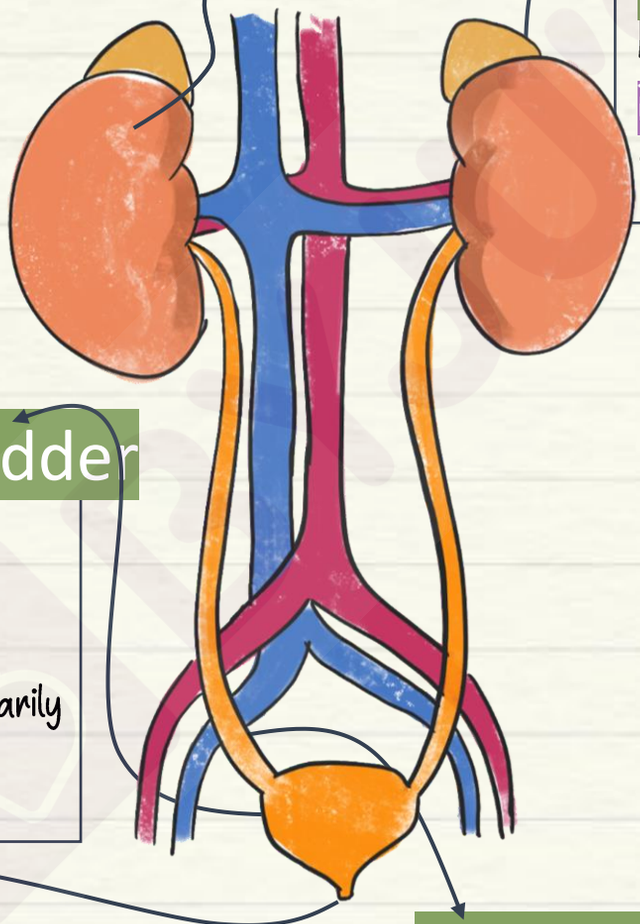
Artery	Vein
Carries blood away from heart	Carries blood towards the heart
Blood flows under high pressure	Blood flows under low pressure
Has thick elastic wall	Has thin inelastic wall.
Does not have valves.	Has valves to prevent backflow of blood
Carries oxygenated blood except pulmonary artery.	Carries deoxygenated blood except pulmonary vein.

Human Excretory System

Excretion

Process of removing metabolic waste from the body.

Metabolic waste – Nitrogenous waste (Ammonia ,urea , uric acid), CO_2 and H_2O



Pair of Kidney

Reddish bean shaped

Function

- Formation of urine

Urinary Bladder

Pear shaped bag,
muscular and elastic

Function

- Stores urine temporarily

Urethra

Opening of urinary bladder

Function

- Expels urine

Pair of ureter

muscular elastic tube,
connected to urinary bladder

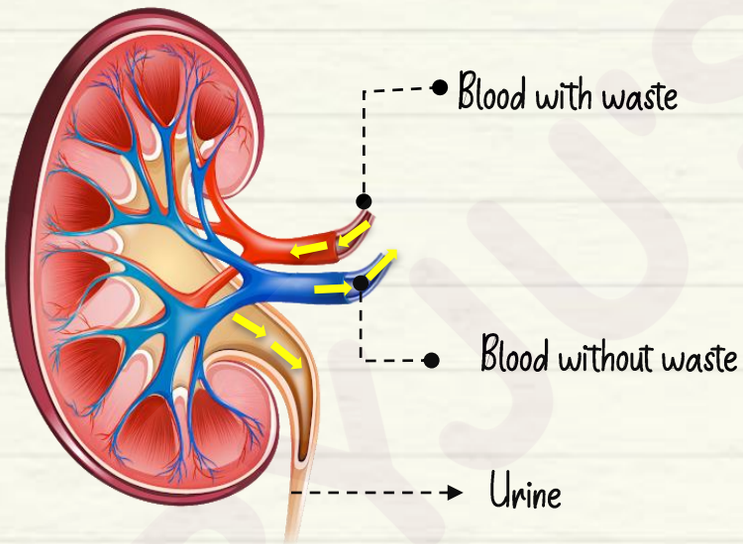
Function

- Carries urine from kidney to urinary bladder

Urine Formation

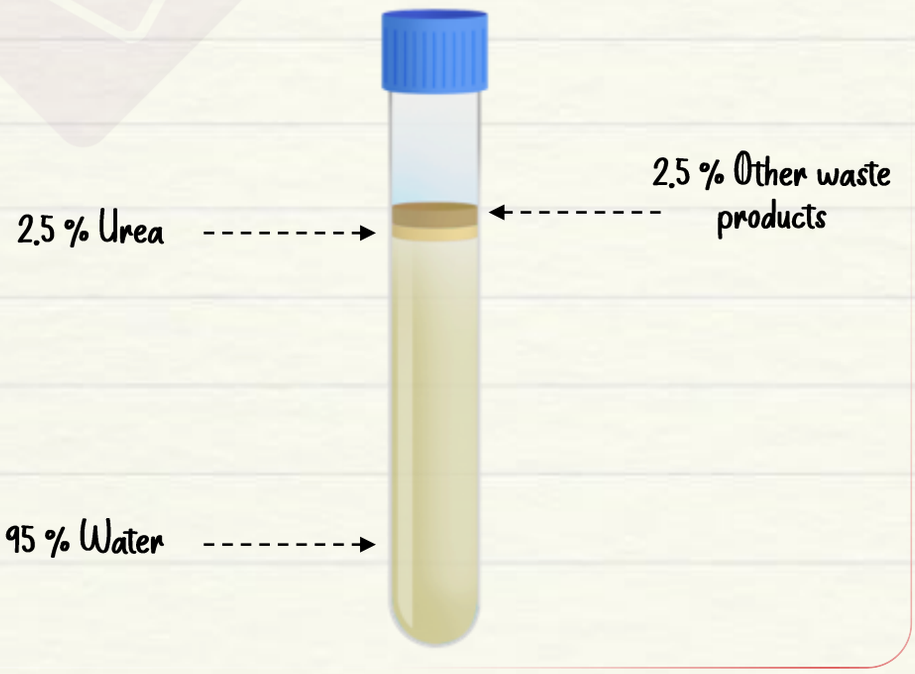
Kidney

- Blood contains both useful and harmful substances.
- The kidneys filter the blood by absorbing useful substances
- and removing harmful substances.



Urine Composition

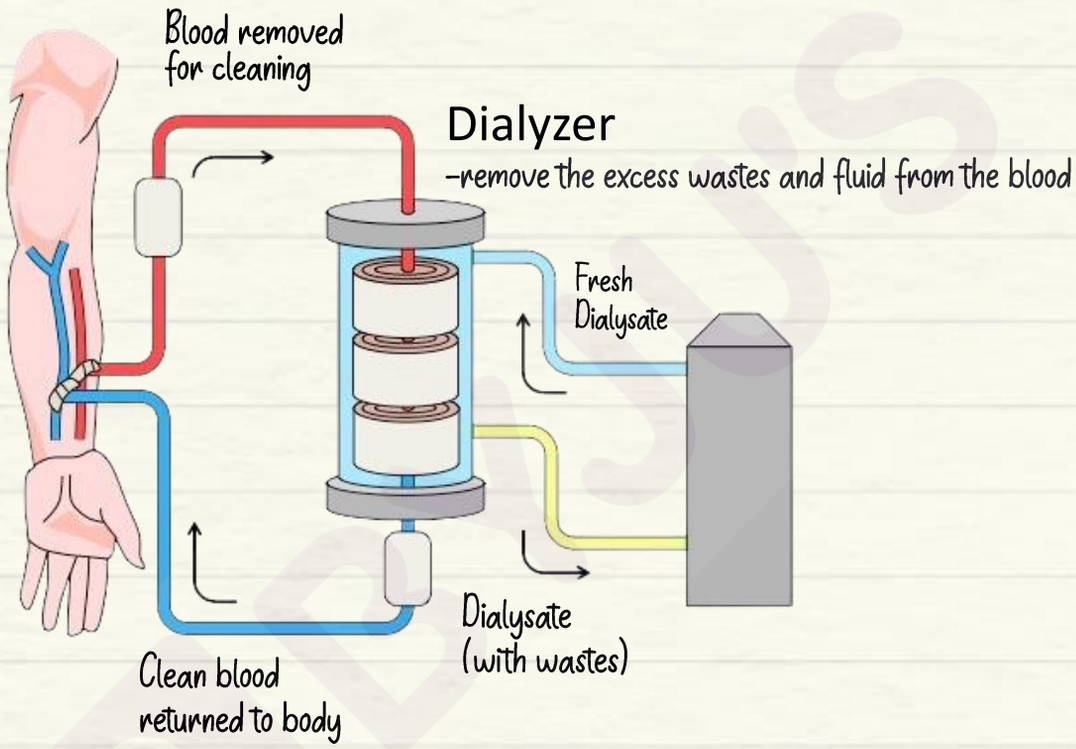
- An adult human being normally passes about 1 – 1.8 L of urine in 24 hours.



Kidney Malfunction

Artificial kidney

- Filters blood via dialyzing fluid
- Only removes wastes like urea and uric acid by diffusion
- No tubular reabsorption



Excretion in Other Animals

Fish

- Excretory waste: Ammonia (dissolves in water)
- Also found in other aquatic animals

Bird

- Excretory waste: Uric acid (semi-solid, white coloured compound)
- Also found in animals like lizards and snakes

Transportation in Plants

- Transportation of food and water takes place separately in plants.

Xylem

- Transports water and minerals from root to all other parts of the plant.

The flow is unidirectional.

Xylem

Phloem

- Transport of food through phloem is called translocation.
- Translocate sugar, amino acids, proteins and other ions.
- ATP is used to transport sugar from leaves to phloem.
- The flow is bidirectional.

Phloem

Forces responsible for translocation in phloem

Osmotic Pressure

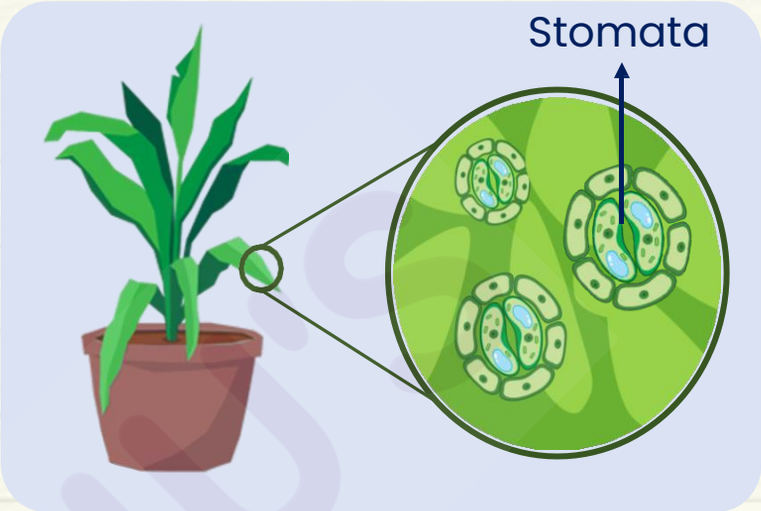
Osmotic pressure is responsible for the transfer of substances from phloem to tissues where food is required.

Transportation in Plants

Transpiration

- Loss of excess water in the form of water vapour through the stomata.
- Importance of transpiration:

1. Generates a suction pull that helps in the transportation of water
2. Provides cooling effect to plants



Excretion in Plants

Plants do not possess special excretory system but also eliminate wastes or stores them permanently in their body parts

Gaseous exchange
- CO_2 and H_2O – released during respiration
- O_2 released during photosynthesis

Storage –Converted in gum, resins or latex and stored in old xylem (wood)

Diffusion
–Aquatic plants excrete metabolic wastes
–Terrestrial plants excrete into the soil.