



Guidelines:

Dear Students,

- Refer to the following content of the chapter
- These notes will help you to understand the concept of the lesson and complete the assignment that follows which will be graded on submission.
- Attempt the assignment in the Biology notebook.
- Link for the book: http://ncertbooks.prashanthellina.com/10_Science.html

❖ Sub topics covered:

- **TRANSPORTATION IN PLANTS**
- **EXCRETION IN ANIMALS AND PLANTS**

TRANSPORTATION IN PLANTS

Plants have low energy needs, as they use relatively slow transport systems. Plant transport systems move energy from leaves and raw materials from roots to all their parts.

Transpiration:

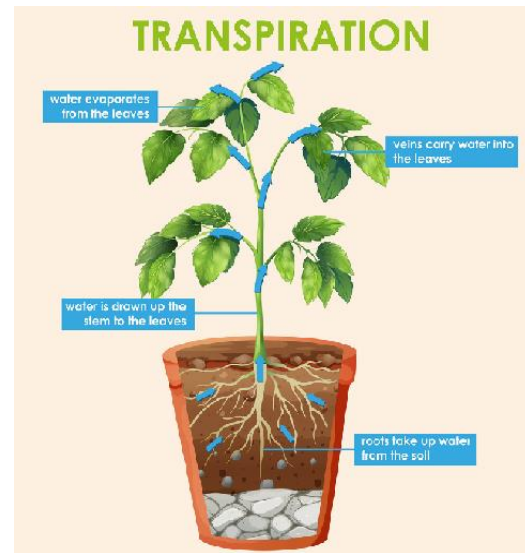
It is defined as the process of loss of water as vapour from aerial parts of the plant.

Significance of Transpiration:

- i) Absorption and upward movement of water and minerals by creating **TRANSPIRATIONAL PULL (ascent of sap)**
- ii) Helps in temperature regulation of plant.
- iii) It also helps in removal of excess water from a plant

Kindly refer to the link shared below for better understanding of the process of transpiration in plants. It will enable you to interpret the process visually.

<https://www.youtube.com/watch?v=7rWHT02n47k>



vectorstock.com

Translocation:

Transport of food from leaves to different parts of plant is called translocation.

Kindly refer to the link shared below for better understanding of the process of translocation in plants. It will enable you to interpret the process visually.

<https://www.youtube.com/watch?v=hZAxvIXDiiQ>

In plants, there are pipe-like vessels through which water and minerals can enter the plants. These vessels are made up of elongated cells and thick walls. These are **Conducting Tissues**. There are two main conducting pathways in a plant.

Xylem	Phloem
Carries water and minerals from roots to other parts of plant	Carries product of photosynthesis from leaves to other parts of plant
No energy is used	Energy is used from ATP
Made up of dead cells	Made up of living cells
Cell wall is thick	Cell wall is thin
Impermeable	Permeable
Direction of flow is upwards	Direction of flow is bidirectional

ASSIGNMENT:

- Q1. Name the structure which helps in the process of transpiration in plants.
- Q2. Which tissue is involved in bidirectional transport: xylem or phloem? Why?
- Q3. State any two major differences between xylem and phloem.
- Q4. How is food transported to different parts of plant body? Explain.
- Q5. What will happen if xylem is not present in plants?

EXCRETION IN ANIMALS

Excretion:

The process by which metabolic waste products (such as urea and carbon dioxide) are eliminated from the body is called excretion.

Every organism has a method of eliminating the waste out of the body, such as Protists have contractile vacuole, insects have Malpighian tubules and Amphibians have kidney.

Human Excretory System:

The human excretory system organs include:

- A pair of kidneys
- A pair of ureters
- A urinary bladder
- A urethra

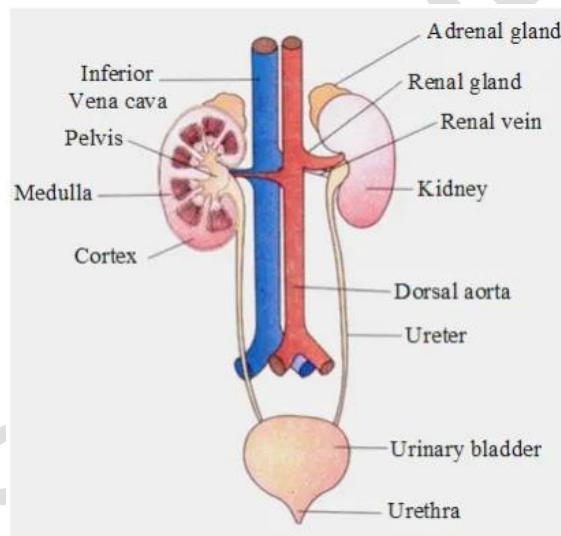


Figure 1: Human Excretory System

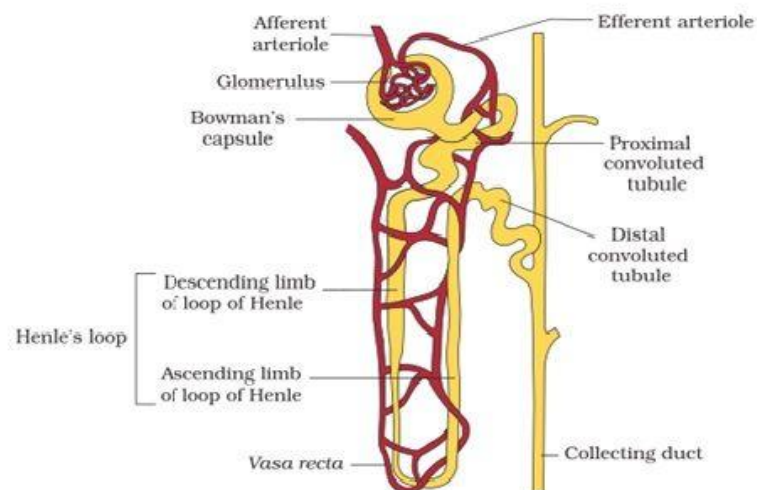


Figure 2: Nephron

The mechanism of urine formation involves the following steps:

- A cluster of very thin walled blood capillaries are present in the kidneys.



- Each cluster of capillaries in the kidney is associated with a cup shaped end of a tube that collects the filtered urine and these filtration units are called **nephrons**.



- Substances like glucose, amino acids, salts and major amount of water are **selectively reabsorbed** as urine flows along the tube.



- Urine formed in each kidney enters a long tube, ureter which connects the kidneys with urinary bladder.



- Urine is stored in bladder until the pressure of expanded bladder leads to the urge to pass it out through the urethra.

Kindly refer to the link shared below for better understanding of the human excretory system and mechanism of urine formation. It will enable you to experience the process visually.

<https://www.youtube.com/watch?v=EhnRhFLyOg>

Composition of Urine:

Urine is 95% water and 5% nitrogenous wastes. Wastes such as urea, ammonia, and creatinine are excreted in urine. Apart from these, potassium, sodium and calcium ions are also excreted.



What is dialysis?
Why it is done? I
want to know more
about it

Dialysis is a treatment given when healthy kidneys fail to work properly. An individual needs dialysis when the end stage is kidney failure, usually by the time an individual loses about 85 to 90 percent of their kidney function and have a GFR of <15.

- In haemodialysis, an artificial kidney (haemodialyser) is used to remove waste and extra chemicals and fluid from your blood. To get the blood into the artificial kidney, the doctor needs to make an access (entrance) into blood vessels. This is done by minor surgery of your arm or leg.
- Sometimes, an access is made by joining an artery to a vein under your skin to make a bigger blood vessel called a fistula.
- Occasionally, an access is made by means of a narrow plastic tube, called a catheter, which is inserted into a large vein in your neck. This type of access may be temporary, but is sometimes used for long-term treatment.
- However, if blood vessels are not adequate for a fistula, the doctor may use a soft plastic tube to join an artery and a vein under your skin. This is called a graft.

When kidneys fail, dialysis keeps the body in balance by:

- removing waste, salt and extra water to prevent them from building up in the body
- keeping a safe level of certain chemicals in blood, such as potassium, sodium and bicarbonate
- helping to control blood pressure

Excretion in Plants:

- ❖ The cellular respiration, photosynthesis, and other metabolic reactions produce a lot of excretory products in plants. **Carbon dioxide, excess water produced during respiration and nitrogenous compounds produced during protein metabolism** are the major excretory products in plants.
- ❖ Plants produce two gaseous waste products i.e. **oxygen during photosynthesis and carbon dioxide during respiration**. Excretion of gaseous waste in plants takes place through stomatal pores.
- ❖ The **oil** produced from orange, eucalyptus, jasmine, **latex** from the rubber tree, papaya tree, and **gums** from acacia, are different forms of stored waste products. Sometimes they even excrete into the soil.
- ❖ Some plants also produce **resins and crystals** as excretory products.

Gum oozes out of a branch

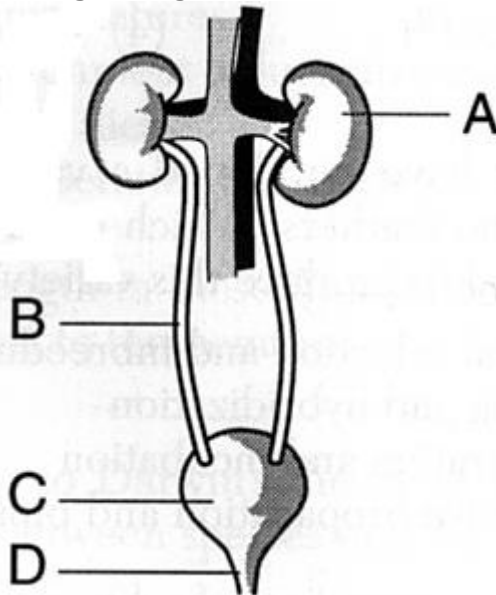


Key points:

Transpiration	Translocation	Xylem	Phloem
Excretion	Kidney	Ureters	Dialysis
			Nephron

ASSIGNMENT:

- Q1. Name the structural unit of Kidneys.
- Q2. State two vital functions of Kidney.
- Q3. Describe the formation of urine in Kidneys.
- Q4. Identify A, B, C and D in the given figure:



- Q5. Discuss the ways by which different organisms excrete their waste. Why?
- Q6. Enumerate upon the excretory products of plants.