



St. Francis` High School, Peshawar

Homework

Class: 7

Subject: General Science

General Science Notes (1st Term)

Chapter 1:

Plant Systems

Q1. Fill in the blanks:

1. **Respiration** is the energy releasing process.
2. The process through which yeast breaks down glucose into ethanol and carbon dioxide is known as **Fermentation**.
3. Water vapour passes out of the leaf through small holes known as **stomata**.
4. The word xylem comes from a Greek word *xylon* which means **wood**.
5. **Phloem** carries sugar solution from leaves to other parts of the plant.

Q2. Short Q/A

1. How food is transported in plants?

Ans. Transport of food:

Phloem tubes are made of living cells. They transport a sugar solution produced during photosynthesis from the leaves to all other parts of the plant. Each phloem cell has holes at the ends, allowing the sugar solution to pass through.

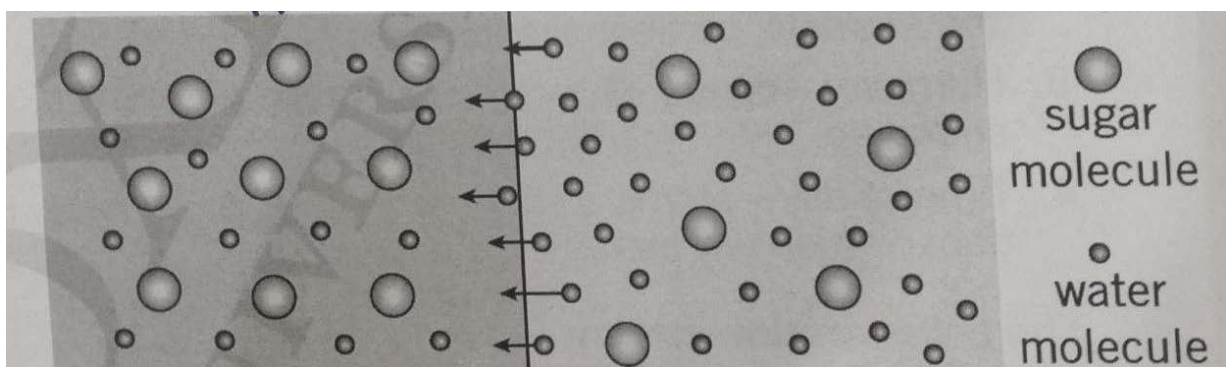
2. Define osmosis. Briefly explain the process of osmosis.

Ans. Osmosis:

Osmosis is the movement of water molecules from an area of high water concentration to an area of low water concentration across a partially permeable membrane.

Explanation:

A semi-permeable membrane allows water to pass but blocks larger molecules like sugar. If there



is a strong sugar solution on one side and a weak sugar solution on the other, water moves towards the stronger solution. This process continues until the concentration of water is balanced on both sides.

3. Define aerobic and anaerobic respiration.

Ans. Aerobic respiration:

Aerobic means 'with air'. It is the process of cellular respiration that takes place in the presence of oxygen gas to produce energy from food.

Anaerobic respiration:

Anaerobic means 'without air'. In this process, the energy is obtained by the breakdown of glucose in the absence of oxygen.

Q4. Define tap root and Fibrous root.

Ans. **Tap root:**

A taproot is a single, thick main root that grows straight down into the soil, with smaller roots branching out from it.

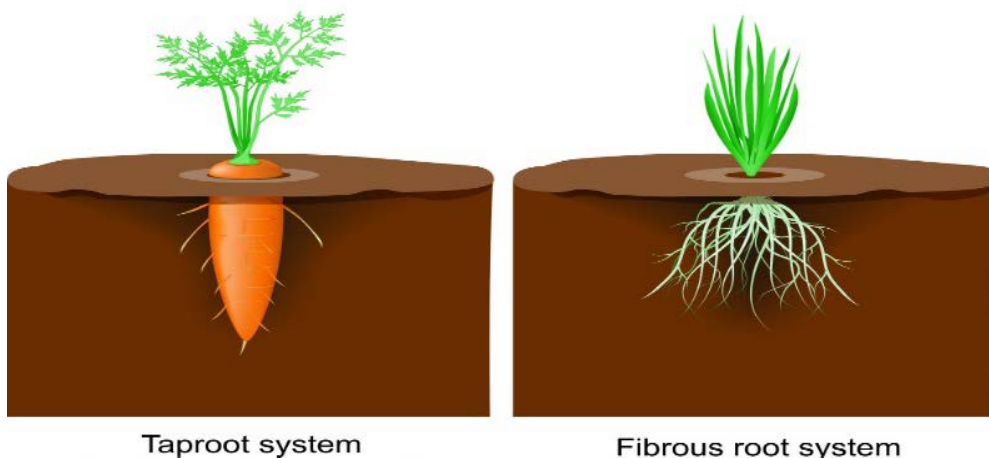
Example: carrot, radish

Fibrous root:

A fibrous root system has many thin roots of similar size that spread out in all directions near the surface of the soil.

Example: grass, wheat

The two types of root systems



5. Why do plants need minerals?

1. Plants need mineral elements for normal healthy growth.

2. Plants require mineral to grow leaves, stem and roots.
3. Plants use minerals to make food molecules, such as protein.
4. Plants need minerals to produce chlorophyll and carry out photosynthesis.

Q3. Long Questions

1. Define transpiration. What are the factors that affect the rate of transpiration?

Ans. Transpiration:

Transpiration is defined as; the loss of water in the form of water vapors, mainly from the stomata in leaves, but also through evaporation from the surfaces of leaves, flowers, and stems.

Factors affecting the rate of transpiration:

The rate of transpiration can be affected by;

Temperature: Higher temperatures increase evaporation, speeding up transpiration.

Humidity: High humidity slows down transpiration, while low humidity speeds it up.

Wind Speed: More wind removes water vapor quickly, increasing transpiration.

Time of day: Stomata are only open during the day in most plants so transpiration will be fastest then.

2. Differentiate between xylem and phloem.

Ans.

Xylem	Phloem
1. It conducts water and minerals from roots up to the parts of the plant above the ground.	1. It conducts food from leaves to all parts of the body.
2. Xylem is dead tissue.	2. Phloem cells are alive.
3. Transport is unidirectional i.e from roots to apical parts.	3. Transport is bidirectional i.e sugar solution can go up and down a phloem tube.
4. Xylem has thick and strong walls.	4. Phloem has soft walls.
5. They give mechanical strength to the plant.	5. They do not give mechanical strength to the plant.

3. Draw a labelled diagram of “A leaf” from book page 11.

BOOK PAGE 20

Q1. Multiple choice questions

i. What part of a plant absorbs water?

- a. flower
- b. leaf
- c. **root**
- d. stem

ii. What is vascular bundle made of?

- a. phloem only
- b. xylem only
- c. **xylem and phloem**
- d. neither xylem nor phloem

iii. The job of root hairs is to ...

- a. **increase the area of the roots.**
- b. keep the roots warm.
- c. protect the roots from damage.
- d. provide the roots with food.

iv. What is the name of the green chemical which absorbs sunlight in plants?

- a. chlorine
- b. chloroform
- c. **chlorophyll**
- d. chloroplast

v. In which part of a plant cell does respiration take place?

- a. cell membrane
- b. chromosomes
- c. **mitochondria**
- d. nucleus

Q2. True or false.

1. Phloem is dead tissue; xylem is living tissue. **False**
2. Sugar solution can go up and down a plant at the same time. **False**
3. During photosynthesis, energy comes from the splitting of glucose molecules. **False**
4. Respiration only takes place during the day time. **False**
5. Gas exchange in plants takes place through tiny holes called stomata located on the underside of leaves. **True**