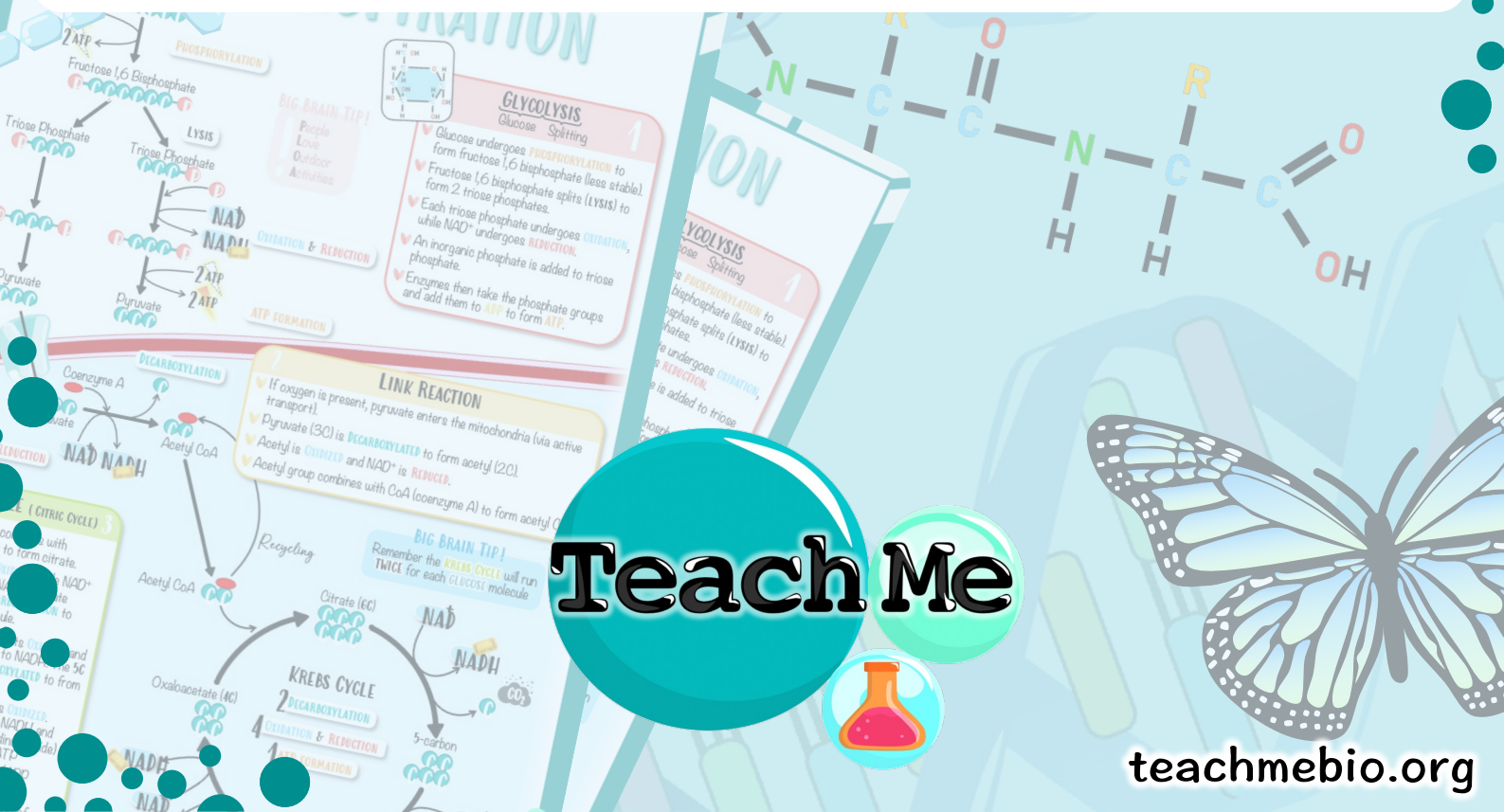


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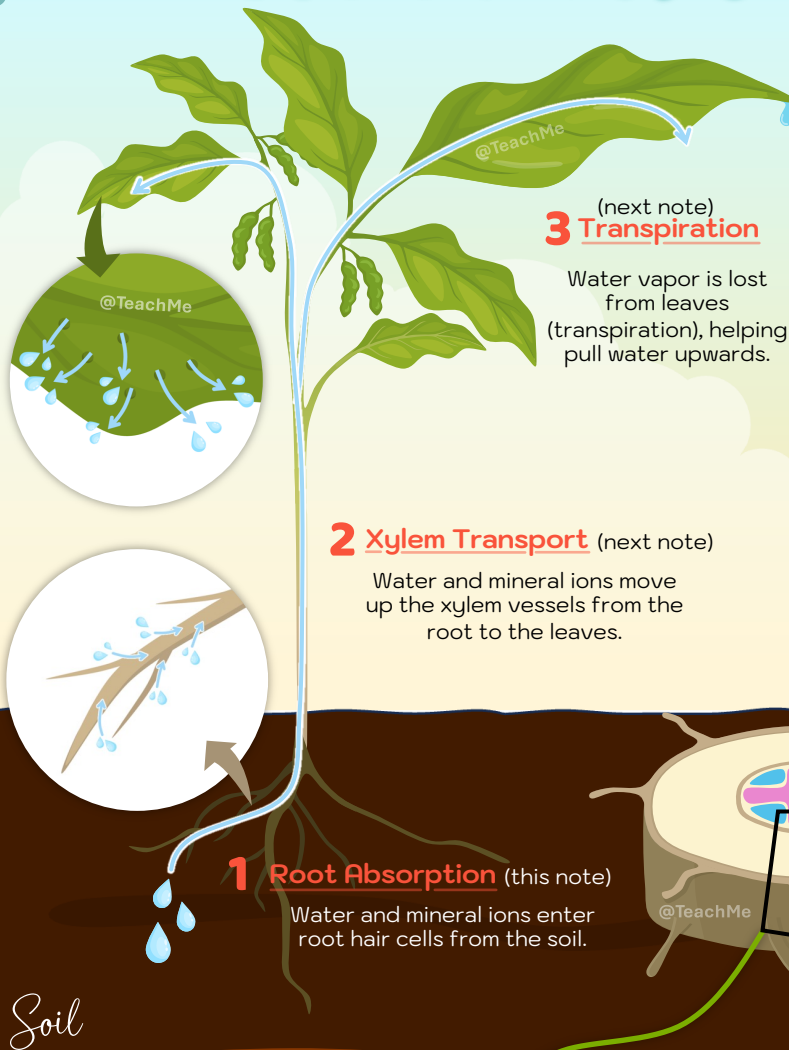
STUDY NOTES

CHAPTER 7 – PLANT TRANSPORT

ROOT ABSORPTION



ROOT ABSORPTION



Water Potential (Ψ)

→ The tendency of water to want to move
(Chapter 2 – Water)



Water moves from **HIGHER** water potential to **LOWER** water potential

Water potential (Ψ_w) depends on two factors:

Ψ_p – Pressure potential

Pressure **pushes** water away from an area.

Ψ_s – Solute potential

Dissolved solutes **attract** water, lowering its water potential.

$$\Psi_w = \Psi_p + \Psi_s$$

So, why does water move from the soil into the root? Water moves into the root because **there is a difference in water potential between the soil and root cells.**

→ Let's see how this happens!

We learned in the previous note about the purposes of the root. Now we focus specifically on its role in **absorption**!

ABSORPTION

STORAGE

ANCHOR

Overview

Water and mineral ions move from the soil, into the root through the epidermis, parenchyma (cortex) and endodermis before entering the xylem vessels.

3 Casparian Strip (endodermis)

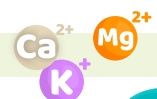
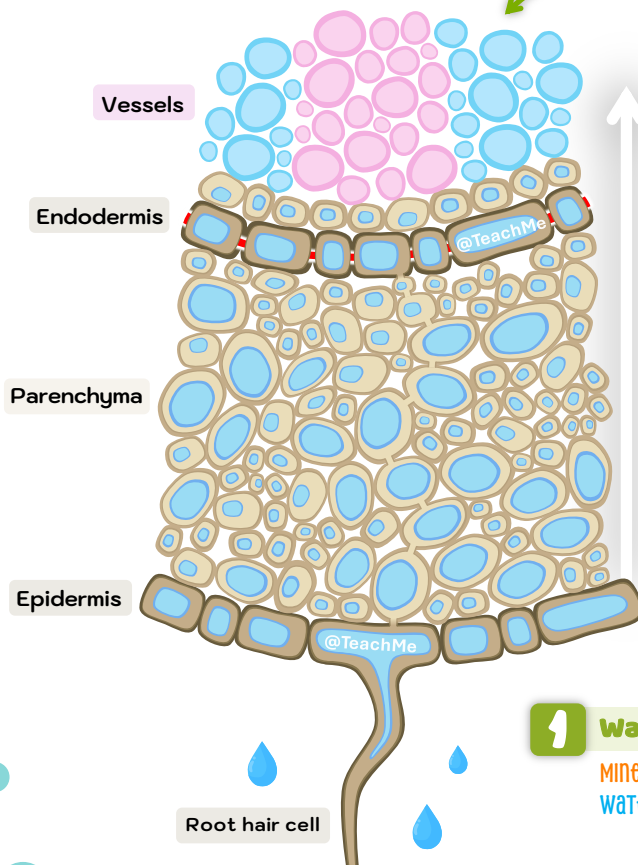
Water and **mineral ions** are forced through the endodermis cell membrane because of the **Casparian Strip** blocks the apoplast pathway.

2 Parenchyma Transport (cortex)

Water and **mineral ions** move across the cortex either through cell walls (**apoplast pathway**) or through the cytoplasm (**symplast pathway**).

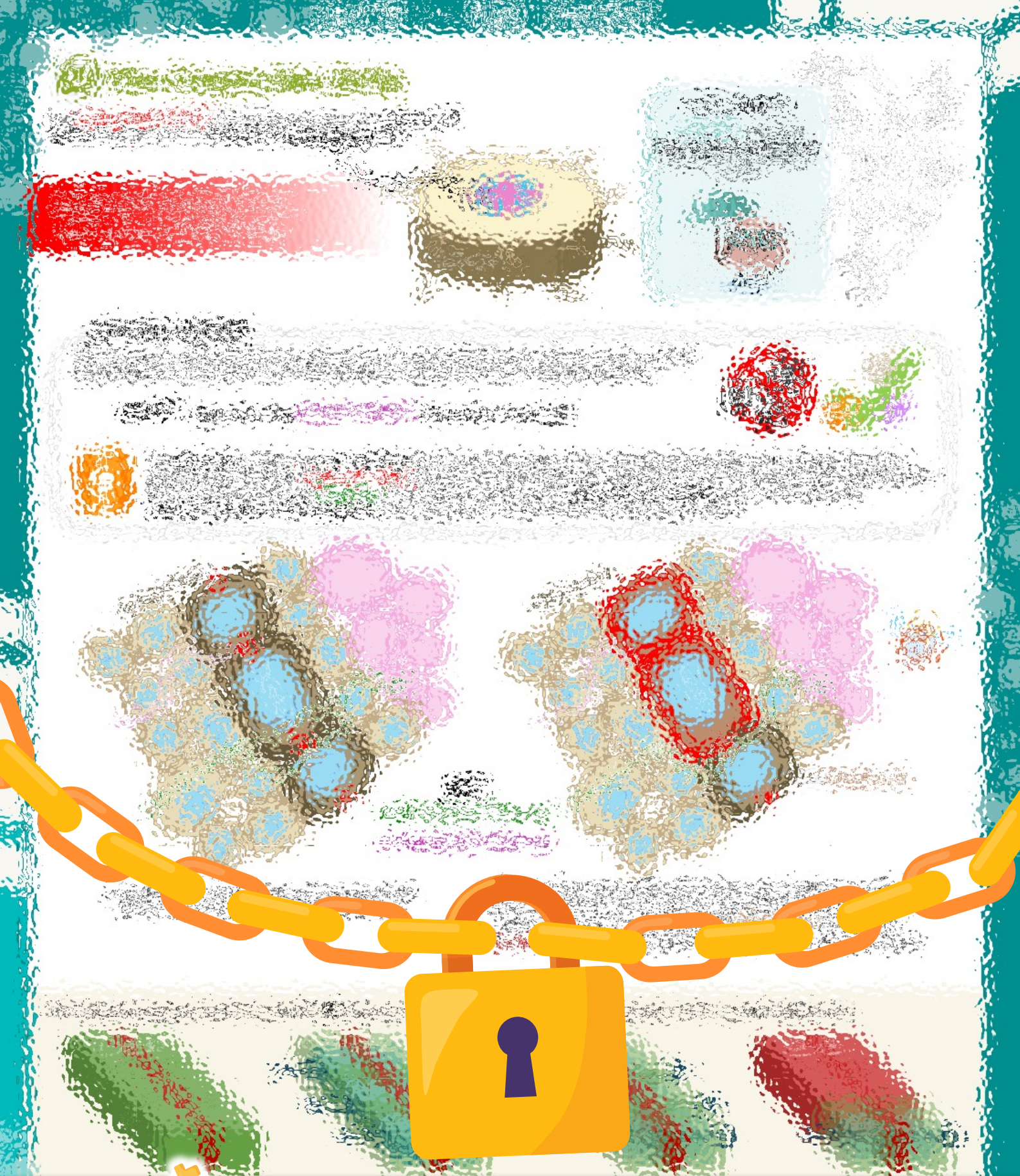
1 Water & Minerals Uptake (root hair cell)

Mineral ions enter the root hair cell by **active transport**.
Water enters root hair cell by **osmosis**.





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biochemistry is the study of the chemical and physical processes that occur in living organisms. It is a branch of biology that combines the principles of chemistry and physics to understand the molecular basis of life. The study of biochemistry is essential for understanding the structure and function of biomolecules, such as proteins, nucleic acids, and carbohydrates. It also plays a crucial role in understanding the mechanisms of disease and the development of new drugs. Biochemistry is a rapidly growing field, with new discoveries being made all the time. The study of biochemistry is essential for understanding the molecular basis of life and for developing new treatments for disease.



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