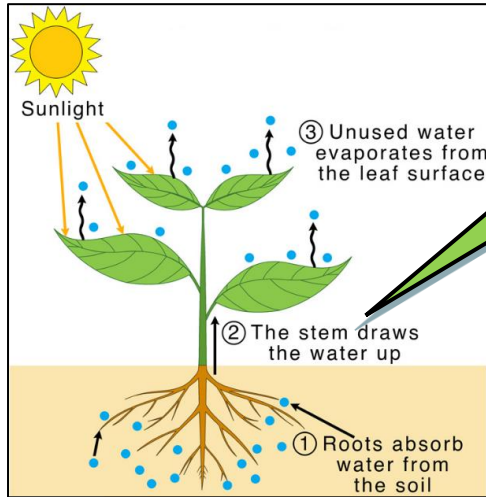


Name of the student: *Date:* 03/10/2020

Transpiration:

Transpiration is the biological process by which water is lost in the form of water vapor from the aerial parts of the plants.



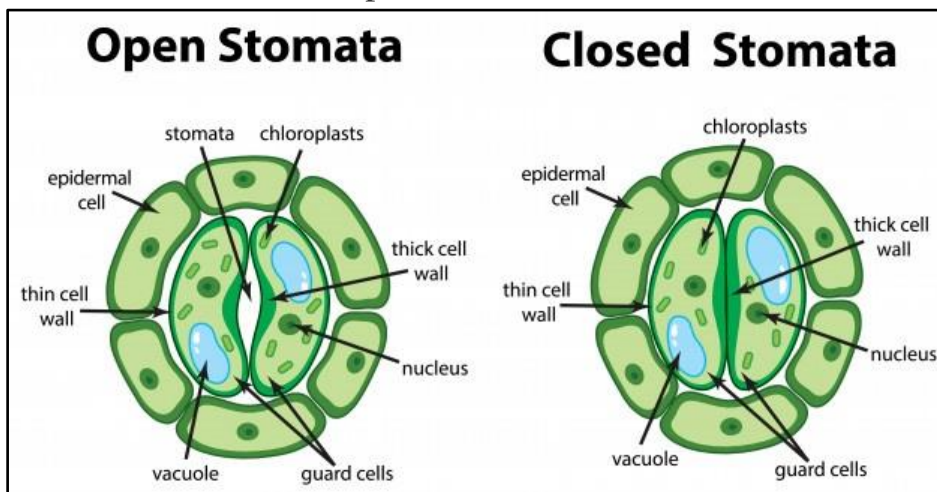
What causes trees to draw the water up?



Ans:

1) Stomatal Transpiration

It is the evaporation of water from the stomata of the plants. Most of the water from the plants is transpired this way. The water near the surface of the leaves changes into vapour and evaporates when the stomata are open.



Q. How does the opening and closing of stomata regulate the transpiration process?

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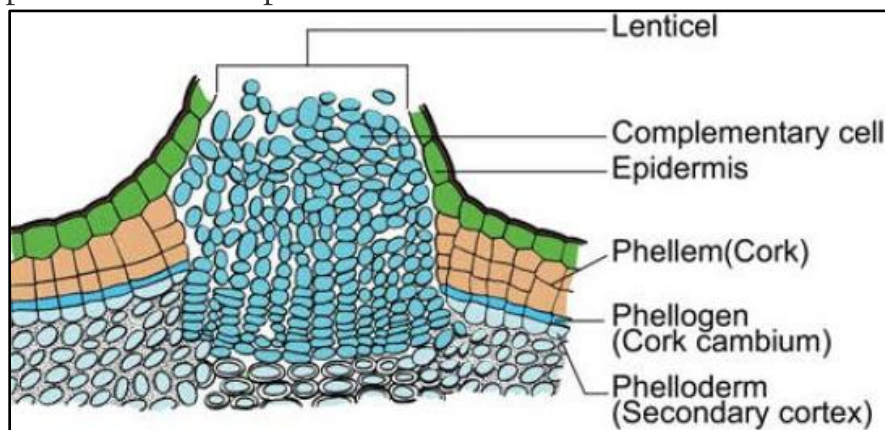
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Q. Why is stomatal transpiration called major transpiration process?

2) Lenticular Transpiration

Lenticels are minute openings in the bark of stem, branches and twigs. Evaporation of water from the lenticels of the plants is known as lenticular transpiration.

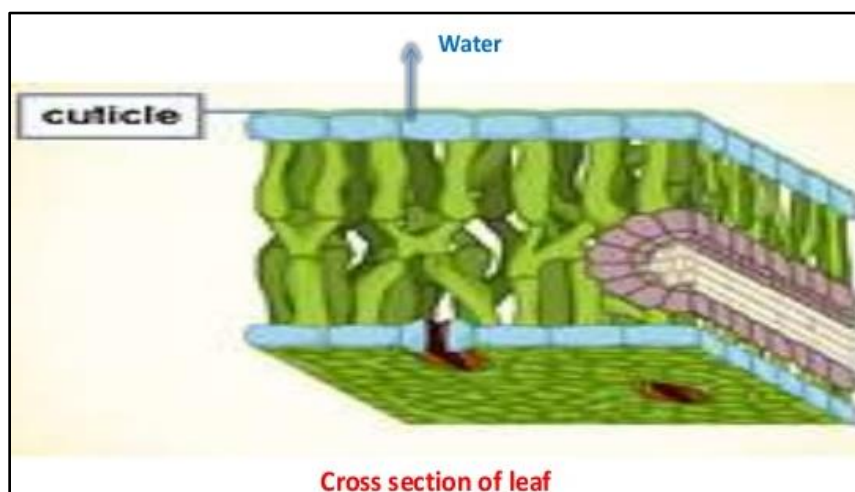
Lenticels are not present in all the plants. A minimal amount of water is lost through lenticels.



Q. Why is lenticular transpiration not occurred in all plants?

3) Cuticular Transpiration

It is the evaporation of water from the cuticle of the plants. The cuticle is a waxy covering on the surface of the leaves of the plants. About 5-10% of the water from the leaves is lost through cuticular transpiration. During dry conditions when the stomata are closed, more water is transpired through the cuticles.



Significance of Transpiration in Plants:

The significance of transpiration is explained below:

- 1) Transpiration helps in the conduction of water and minerals to different parts of the plants.
- 2) Due to the continuous elimination of water from the plant body, there is a balance of water maintained within the plant.
- 3) It maintains osmosis and keeps the cells rigid.
- 4) A suction force is created by transpiration that helps in the upward movement of water in the plants.
- 5) Certain hydrophilic salts are accumulated on the surface of the leaves, which keeps the leaves moist.
- 6) It maintains the turgidity of the cells and helps in cell division.
- 7) Optimum transpiration helps in the proper growth of the plants.
- 8) The cooling effect of a tree is due to the evaporation of water from its leaves.

In addition to the significance, transpiration has a few drawbacks:

- Transpiration slows down if the transpired water is not compensated by absorption from the soil.
- A lot of energy is released during transpiration.
- Plenty of unnecessary water is absorbed by the plants during the process.
- If the rate of the loss of water is greater than the rate of its absorption, it will cause deficiency of water and minerals in the plant. As a result, the plant may die.
- If water is deficient in soil, absorption will be very little though the transpiration will continue as before. To face this crisis, nature causes many plants to drop leaves in winter.

Q. What will happen if transpiration does not occur in plant?



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