intercellular air spaces. Water vapour accumulates in the large air spaces near the stomata. Water vapour diffuses from the stomata to the atmosphere. As water evaporates from the mesophyll cells, the water potential of the cell sap decreases. The mesophyll cells begin to absorb water by osmosis from the cells deeper inside the leaf. These cells remove water from the xylem vessels. This results in transpiration pull, a suction force which pulls water up. Transpiration is linked to gaseous exchange. Transpiration is important as it draws water up from the roots, it removes latent heat of vaporisation that cools the plant and water transported to the leaves can be used in photosynthesis or to keep the leaf turgid to spread the leaf out.

- Factors Affecting Transpiration-
  - Size of stomata- When the guard cells are turgid they open and the stomata's surface area to volume ratio is higher and thus evaporation is higher.
  - Relative Humidity- The drier the air around the stomata, the steeper the concentration gradient between the leaf and the atmosphere. This increases the rate of diffusion of water vapour out of the stomata and hence increases the rate of transpiration. Increasing the humidity will make the gradient gentler and transpiration will decrease.
  - Temperature- Higher temperature increases the rate of diffusion of water vapour out of the stomata and hence increases the rate of transpiration.
  - Light- Presence of light triggers the opening of stomata leading to an increased rate of transpiration.
  - Wind or Air movement- Wind blows away water vapour that accumulates outside the stomata and this maintains the concentration gradient between the leaf and atmosphere. Thus, the stronger the wind, the higher the rate of transpiration. In still air, water vapour diffuses out of the leaf making the air more humid, decreasing the rate of transpiration.

- Root Pressure- Xylem vessel cells in the root use active transport to pump ions into the vessels, lowering the water potential in the xylem vessels. Water therefore passes from the living cells into the xylem via osmosis and the water flows upwards, called root pressure. Root pressure alone is not enough to account for movement of water.
- Capillary Action- Capillary action is the interaction of water molecules and the surfaces of the tubes, called capillary action. Since the xylem vessels in the plant are very narrow, capillary action helps move water along. Cohesion is the attraction force between each water molecule. Water molecules tend to stick to the surface of the xylem vessel walls. The attraction of water molecules to the walls is known as adhesion. When the forces of cohesion are stronger than the forces of adhesion, capillary action takes place and water travels up.