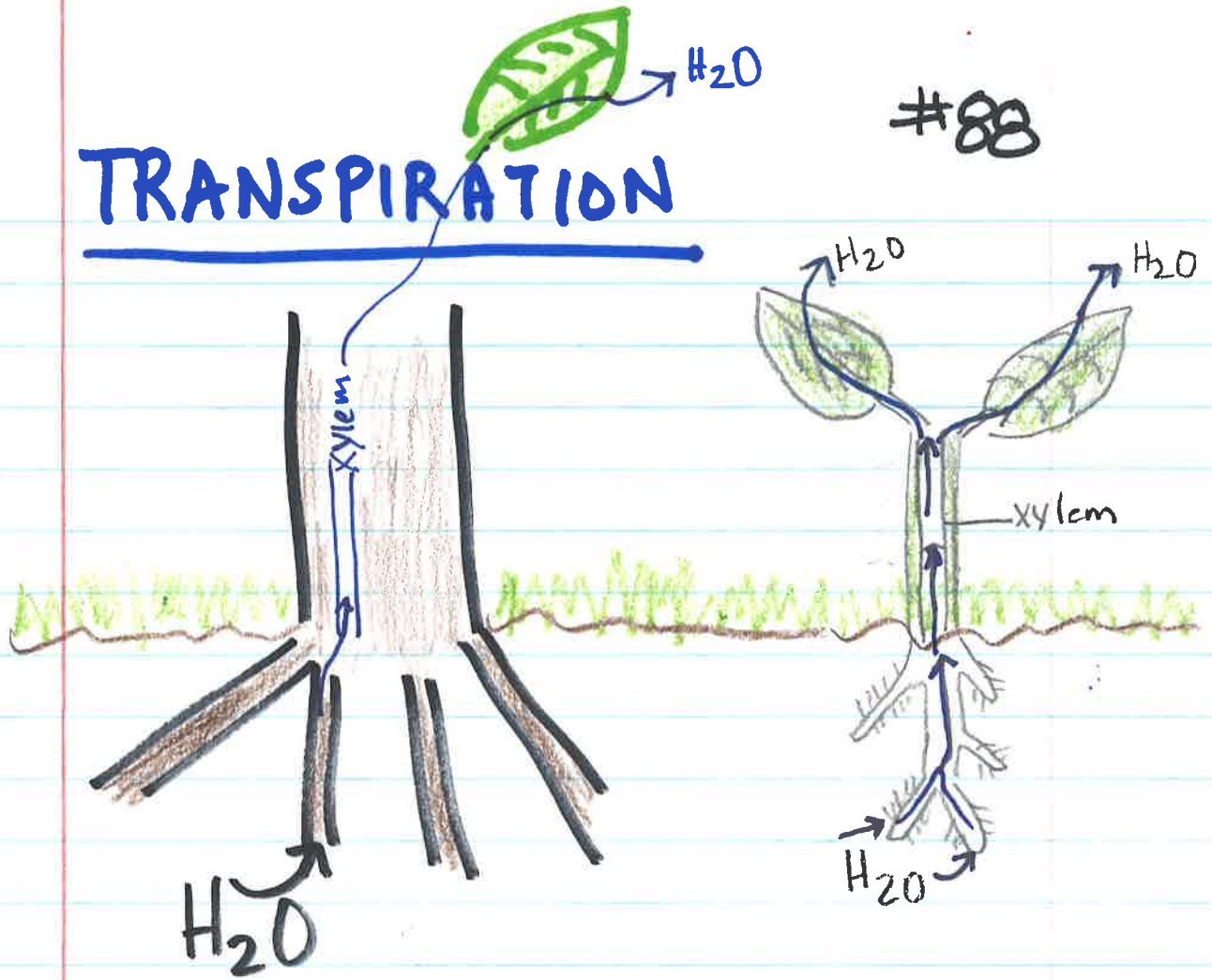


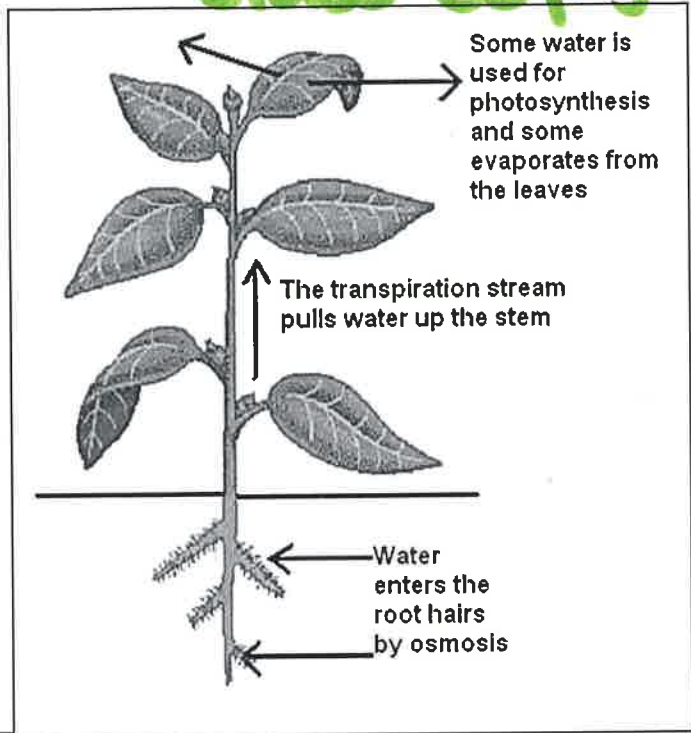
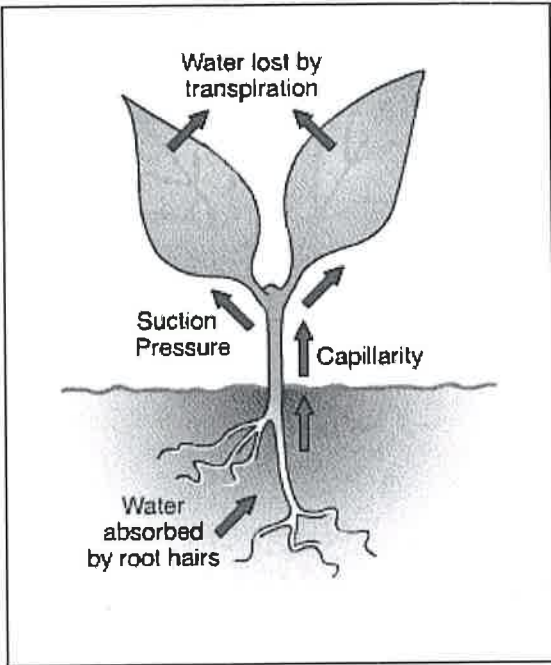
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# TRANSPIRATION



\* Transpiration - the movement of H<sub>2</sub>O from the soil into the roots and up the xylem and out of the leaf's stomata. (Evaporation of H<sub>2</sub>O from the leaf.)

- o The loss of H<sub>2</sub>O from the leaf creates a suction force that pulls up more H<sub>2</sub>O from the roots
- o Transpiration causes H<sub>2</sub>O to move to leaves for photosynthesis
- o Transpiration helps the plant collect vital minerals from the soil.
- o Transpiration keeps H<sub>2</sub>O moving in the plant and keeps the stem firm so it can support the weight of the plant.



## TRANSPIRATION

In this process, water evaporates from the surface of a leaf through microscopic pores known as STOMATA. The loss of water creates a suction force that pulls up more water from the roots. Transpiration helps a plant to collect vital minerals from the soil. The amount of water lost from the leaves depends on how much water is in the soil, as well as other environmental conditions, such as temperature, humidity, and wind.

## UPWARD-FLOWING WATER

Water in plants is both pushed and pulled upwards inside transport pipes called xylem. This continuous flow of water is known as the transpiration stream and keeps the stem firm so that it can support the weight of the plant. The transpiration stream also transports water to the plant's leaves for photosynthesis and carries minerals around the plant.

## STANDING FIRM

Plants need a continuous supply of water to stand upright. Each plant cell holds water in swollen bags called vacuoles. This water pushes against the cell walls and keeps the cell firm. This pressure and firmness of plant cells is called turgor.

## STOMATA

The surface of a leaf has many tiny pores, called stomata. The stomata allow carbon dioxide into the leaf so that photosynthesis can occur. They also allow water to leave the leaf by transpiration. Plants that grow in full sunlight usually have most of their stomata on the shaded undersides of their leaves. This helps the plant to conserve water.

## STOMATA BY DAY AND NIGHT

Each individual stoma (stomata is the plural) in the leaf's surface is surrounded by two guard cells, which look a bit like lips. During the day, these guard cells swell with water and become bloated, opening the stoma. At night, the guard cells release their water and the stomata close.