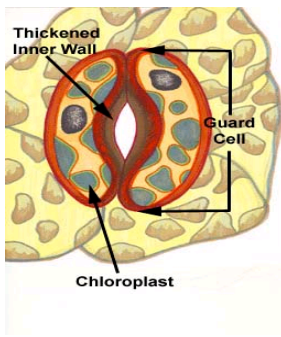


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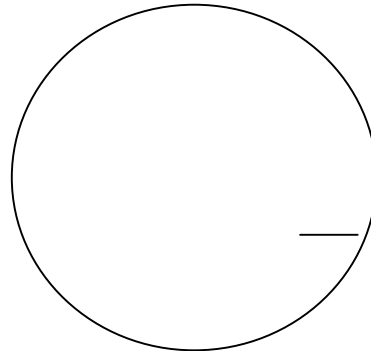
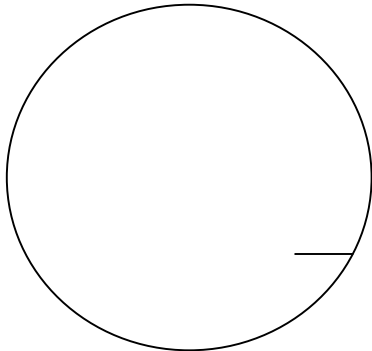
Stomates and Their Role in Transport of Water

In leaves, the lower epidermis in particular has openings called stomates. The opening and closing of a stomate is regulated by guard cells. When stomates are open, gas exchange occurs; also, water evaporates from the leaves.

The more stomates there are, the more water a plant can lose through transpiration.

Observation: Number of Stomates

1. Use a bean plant (not as waxy) or a succulent (jade, plants or cacti).
2. Place a small drop (1/4 to 1/2 size of a pea) of superglue onto the center of a clean microscope slide.
3. Place the *abaxial* (underside of leaf) side of the leaf onto the drop and firmly press down for thirty seconds.
4. At the end of thirty seconds, release the pressure and let the leaf set in place on the slide for another thirty seconds.
5. Peel the leaf from the glue. You may now blow on the glue or wait for another minute until it is dry.
6. Examine the slide under low, medium and finally high power. Draw what you see. How big are the stomata? Label the stomata, guard cells, and palisade mesophyll cells.



7. Repeat the activity with different parts of leaves from the same plant (top side, edges) and with other leaves. Is the distribution the same or different? _____
Are all the stomata the same size? _____

