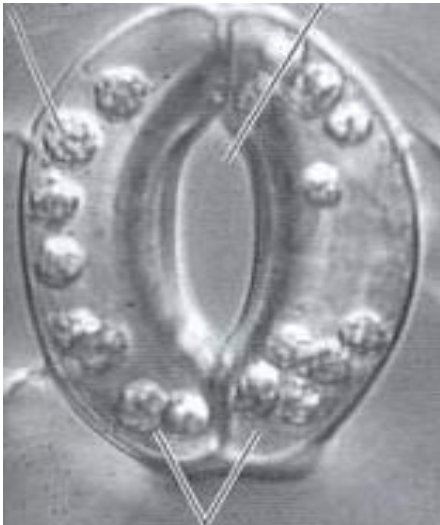


Name: _____ Date: _____ Period: _____

Looking at Stomata

1. What enters leaves through the stomata?
2. What exits leaves through the stomata?
3. How could a plant be harmed if the stomata are open all of the time?
4. How could stomata adapt to prevent the problem discussed in question 3?
5. Where on the leaf do you think the most stomata will be found—the top or the bottom—explain why you think this?
6. Below is a drawing of a stoma. Label the stomata/pore and the guard cells.

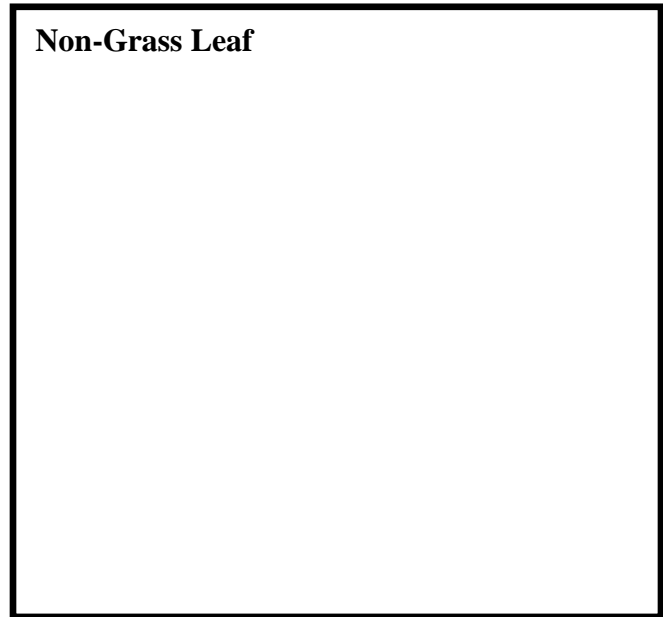
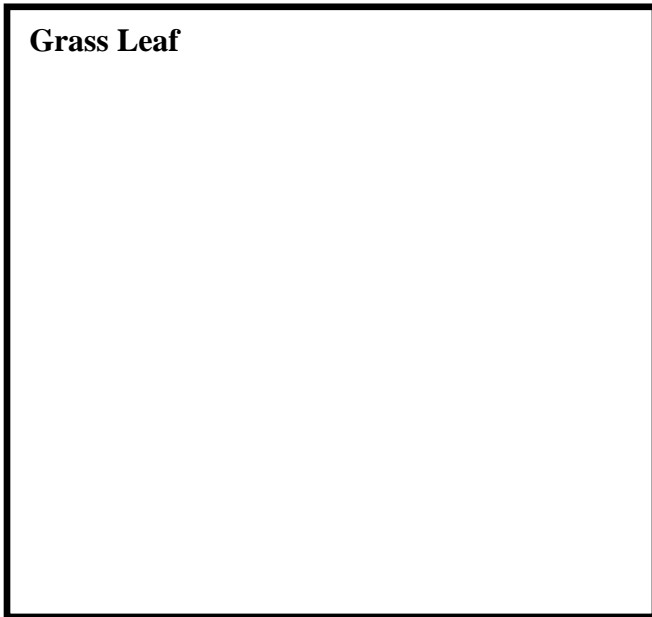


7. What conditions cause the stomata to close?
8. In hot and dry conditions why can the stomata not remain closed permanently?

Procedure

1. Go outside and obtain two green leaves from two different plants—one grassy and one non-grassy.
2. Paint about 1-2 square centimeters of the bottom of each leaf with nail polish, and allow the nail polish to dry.
3. Once the nail polish is dry, press the sticky side of the clear tape over the nail polish and gently remove.
4. Stick the tape to a slide.
5. Look at the leaf epidermis under the microscope. Sketch your observations below. Specifically focus on the structure, quantity, and distribution of stomata on the leaf.
6. Repeat this procedure for the other leaf.
7. When you finish, dispose of the slides in the broken glass disposal box.

Observations and Questions



8. How is the arrangement of stomata different between grassy and non-grassy leaves?
9. What enters the leaf through the stomata?
10. What exits the leaf through the stomata?
11. True or False. Photosynthesis could occur if a leaf had no stomata. If False, explain why.