

## PLANT STRUCTURES & PHOTOSYNTHESIS

Read about *Alternative Pathways* for carbon fixation and effects on *Rate of Photosynthesis* p. 119-120.

1. What plant structures allow the passage of water out of a plant and carbon dioxide into a plant?
2. Many plants have stomata that take in carbon dioxide at night and release it during the day (CAM pathway). Why is this form of photosynthesis an advantage for plants living in a hot, dry environment?
3. Look at the graph on p. 120. Notice that rate of photosynthesis increases and then reaches a plateau as the light intensity on a plant increases. What other limiting factors (involved in the photosynthesis process) might come into play to cause this plateau?

Read about *Leaf Functions* p. 617-618.

4. Name two leaf adaptations that increase the amount of light obtained by a leaf.
5. Would leaves of rainforest plants have more or fewer stomata per square centimeter of surface than leaves of temperate or cold-climate plants? Explain your answer.
6. Explain the function of the guard cells in regulating stomatal opening and closing.
7. How is a plant experiencing a water shortage connected to the way a guard cell works?
8. Why is it an advantage for a plant to have most of its stomata on the underside of a horizontal leaf?