

### Photosynthesis: What's in a Leaf?

#### Answers to this activity.

1. Light energy, carbon dioxide, water
2. Oxygen gas, water vapor, glucose (sugar)
3. Water
4. Label the vein going through the MIDDLE of the leaf.
5. Water enters the leaf as a liquid and exits as a gas (water vapor).
6. a. carbon dioxide & water  
b. Carbon dioxide enters through the underside of the leaf; water enters through the central vein.  
c. Glucose, oxygen & water  
d. Oxygen & water vapor exit from the underside of the leaf; glucose exits through the veins.
7. Carbon dioxide, water, chlorophyll, glucose & oxygen = MATTER  
Sunlight = ENERGY
8. Cuticle, upper epidermis, palisade mesophyll, spongy mesophyll, lower epidermis, cuticle.
9. a. The central vein runs down the middle & the other veins branch off the central vein throughout the leaf.  
b. In the middle of the cross section between the palisade & spongy mesophyll.
10. All cells are near a vein and can obtain water & release glucose quickly.
11. ENTERING - sunlight passes through the cuticle & upper epidermis. Water enters from the xylem portion of the vein; carbon dioxide enters through the stomata on the underside of the leaf.  
EXITING - Glucose exits in the phloem portion of the vein, water & oxygen exit through the stoma (plural- stomata).
12. Palisade mesophyll, spongy mesophyll, & guard cells.
13. Most photosynthesis occurs in the palisade mesophyll; some occurs in the spongy mesophyll and guard cells.