

B6.2 Leaf structure

Core

- 1 State that most leaves have a large surface area and are thin, and explain how these features are adaptations for photosynthesis
- 2 Identify in diagrams and images the following structures in the leaf of a dicotyledonous plant: chloroplasts, cuticle, guard cells and stomata, upper and lower epidermis, palisade mesophyll, spongy mesophyll, air spaces, vascular bundles, xylem and phloem

Supplement

- 3 Explain how the structures listed in 6.2.2 adapt leaves for photosynthesis

B6.2 - Leaf Structure

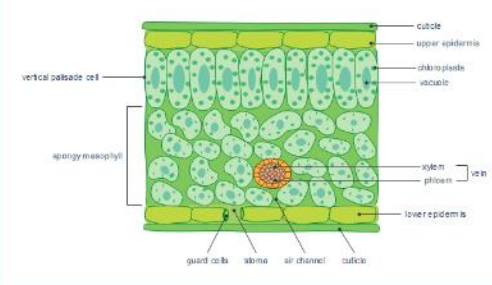
Basic properties

Large surface area

Thin

Allows their chloroplasts to absorb as much light energy as possible

CROSS SECTION OF A LEAF



Cross section of a leaf

Structure

Feature

Function

Waxy Cuticle

Prevents water loss, especially from upper surface

Upper epidermis

Transparent to allow more light to reach palisade cells

Palisade mesophyll

Where most photosynthesis takes place. Lots of chloroplasts, tightly packed, near top of leaf

Spongy mesophyll and air spaces

Provides a large surface-area-to-volume ratio for maximum gas exchange between cells and air in leaf

Vascular bundle

Forms the veins of leaves and consists of the xylem and phloem

Xylem

Transports water and minerals from roots to leaves

Phloem

Transports sucrose and amino acids from leaves to other parts of the body

Guard cells

Control the size of stomata by opening and closing

Stomata

Hole to allow diffusion of CO₂ in and O₂ out of leaves