

Integrative Biology 102: Lecture Outline

Plant Structures for Capturing Energy and Matter

Lecture Objectives:

By the end of the lecture you should be able to:

1. diagram a transverse section of a leaf and root and label cell types.
2. explain the function of each cell type for roots and leaves.
3. list the major functions of roots.
4. list the major and other functions of leaves.
5. explain how leaf and root cell structure reflect their functioning in the plant body.

Reading: Pages 37 (starting at Roots) to page 44 (ending at Vegetables: Edible Plant Organs) in Levetin & McMahon Chapter 3

Terms:

- | | | |
|----------------------|--------------------|--------------|
| • blade | • spongy mesophyll | • phloem |
| • petiole | • stomate | • cortex |
| • palisade mesophyll | • guard cells | • cuticle |
| • trichomes | • xylem | • root hairs |
| • epidermis | • resin duct | • root cap |

1. Roots

- Functions

- Types

Mangrove Ecology

- Structure

- Root Tissue Functions

2. Leaves

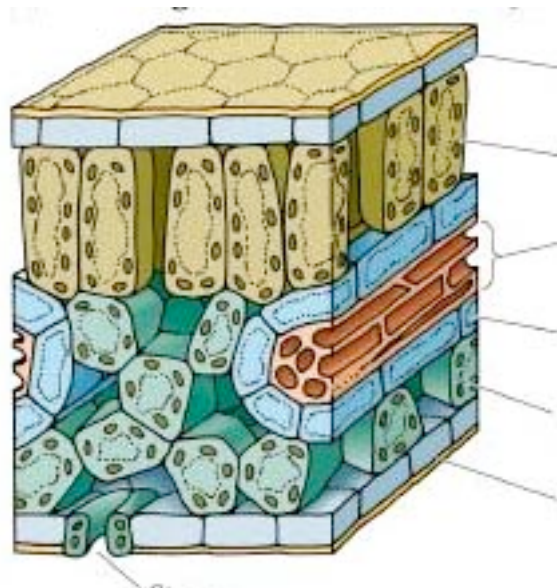
- Major function

- Other functions

- Leaf structure (tissues)
Epidermis

Ground tissue

palisade mesophyll



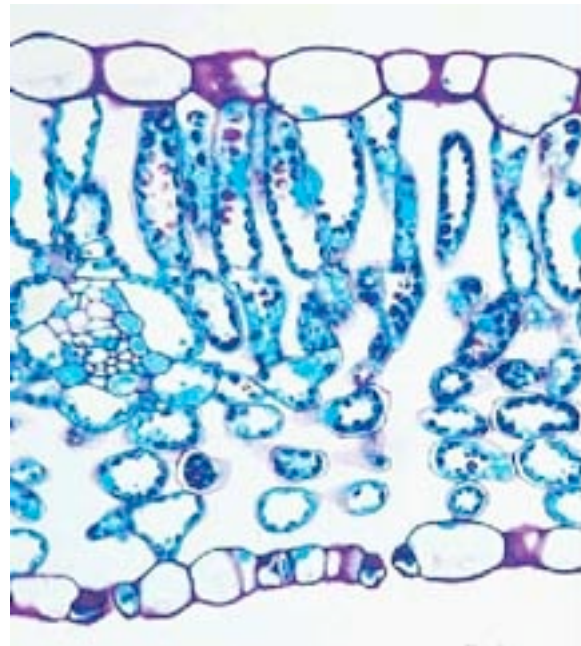
spongy mesophyll

Vascular bundles (veins)

Xylem

Phloem

- Leaf Tissue Functions



For the next lecture on *Capturing Energy: Photosynthesis*, read Levetin & McMahon

Chapter 4 and be able to answer this question:

- If you had chloroplasts in your cells, how could you control your weight?