

I. Leaves in general

A. functions

- 1.
2. transpiration
- 3.

B. structure

1. blade = lamina
2. connection to stem
  - a. in dicots: petiole
  - sessile
  - b. in monocots: sheath
3. stipules

4. tissue layers

- a. epidermis
  - cuticle
  - stomate
    - stoma
    - guard cells
- b. mesophyll
  - 1) palisade mesophyll
  - 2) spongy mesophyll
- c. vein = vascular tissue
  - 1) xylem
  - 2) phloem
  - 3) bundle sheath

C. venation

1. dicots: reticulate
2. monocots: parallel
3. other: dichotomous

D. overall leaf shape

1. simple

2. compound  
leaflets

a. pinnate

b. palmate

E. wilting

F. abscission

1. deciduous vs. evergreen

2. abscission zone

a. protective layer

suberized  
b. separation layer

c. leads to a leaf scar

II. Stomata - guard cells

A. photosynthetic

B. how is the stoma opened?

C. What controls this?

III. Epidermal trichomes

IV. Crystals in and on leaves

V. Leaf specializations

A. shade vs. sun

B. Kranz anatomy  
bundle sheath cells

C. developmental changes: adult vs. juvenile (e.g.: ivy)

D. above and below water (e.g.: buttercup)

E. others: many modifications

1. (bud)scale leaves

2. tendrils

3. spines

(epidermal) prickles

4. storage leaves

a. for water

b. for carbohydrate

5. window leaves

6. flower pot leaves

7. carnivorous plants: animal-trapping leaves

a) sticky

b) traps

c) grab

8. asexual reproduction

9. floral bracts (aid sexual reproduction)