Plants

Learn it,
Live it,
Love it

Plants: External Structure

(Need to know --- Ding –a- lings)

A. Roots

1. Tap Root
2. Fibrous Roots
3. Lateral Roots
4. Root Hairs
5. Root Cap

B. Stem

1. Terminal Bud
2. Lateral Bud
3. Bud Scales
4. Node
5. Internode
6. Bark/Cork
7. Lenticle
8. Leaf Arrangement
    a. Opposite
    b. Alternate
    c. Whorled
    d. Rosette

Flower

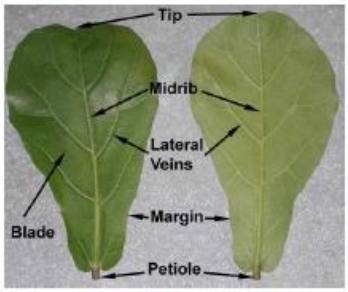
9. Sepal
10. Petal
11. Stamen
    a. Filament
    b. Anther
12. Pistil
    a. Stigma
    b. Style
    c. Ovary
    d. Ovule
    e. Receptacle

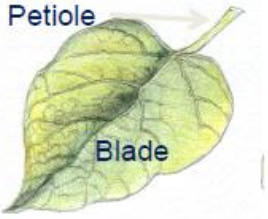
Leaves

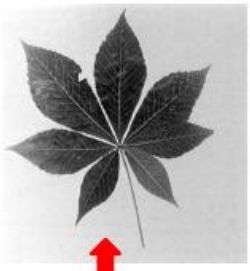
1. Simple
2. Compound
    f. Pinnately compound
    g. Palmately compound
3. Blade
4. Petiole
5. Leaflet
6. Veination
    h. Parallel
    i. Palmate
    j. Pinnate
7. Margin
    k. Entire
    l. Undulate
    m. Serrate
    n. Lobed
8. Shapes
    o. Oblong
    p. Ovate
    q. Cordate
    r. Oblique

"Need-to-Knows" Leaf Parts

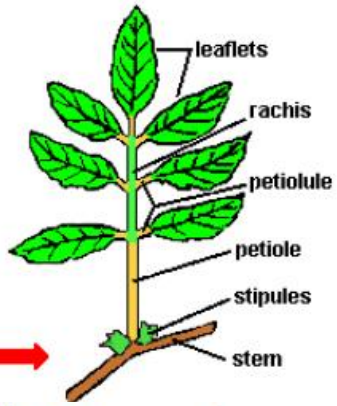
- Blade
- Petiole
- Margin
- Midrib Vein
- Rachis
- Sessile
- Leaflet
- Lobe
- Stipules
- Shapes
- Arrangement
- Venation
- Base







Palmately compound
Pinnately compound



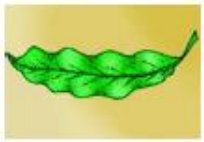
Leaf Margins

- Leaf Margin - **the boundary area extending along the edge of the leaf. There are lots of different types of leaf margins that are important for plant identification.**

Entire – A leaf margin that has a continuous, unbroken and smooth edge, without teeth, lobes or indentations.

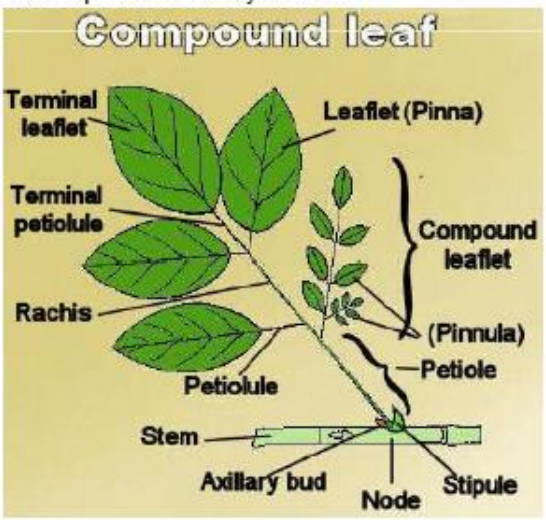
Serrate -A leaf margin forming a row of small sharp outward projections pointing toward the apex of the leaf resembling the teeth of a saw.

Lobe - having some type of indentation toward the midrib that can vary in profundity and shape (rounded or pointed) and the incisions go **less** than halfway to the midrib.



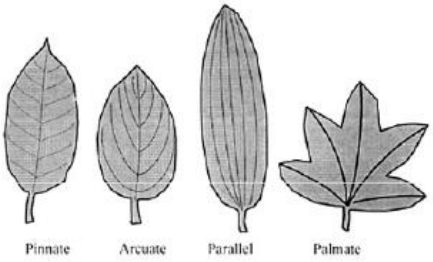
Undulate – wavy (up & down rippled surface.

Compound Leaf – Exaggerated form of a lobed leaf where the lobes extend all the way to the mid rib. A double compound leaf is one in which each leaflet of a compound leaf is also made up of secondary leaflets.



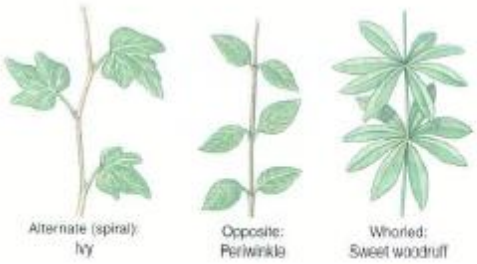
Leaf Venation

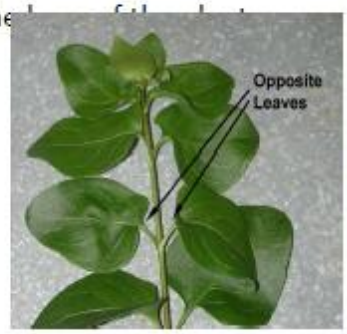
- Parallel, Pinnate, Palmate or Arcuate



Leaf Arrangement

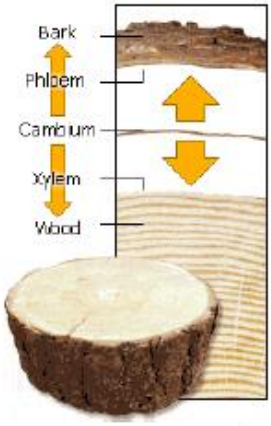
- Leaf arrangement is determined by the number of leaves found at each node.
  - **Alternate** - I n alternate arrangement there is only one leaf per node, usually alternating from one side of the stem to an other as on moves from node to node.
  - **Opposite** - In opposite leaf arrangement there are two leaves per node. Leaves are usually located on opposite sides of the node.
  - **Whorled** - Whorled leaf arrangement has three or more leaves per node which are arranged (whorled) around the node.
  - **Rosette** – Similar to whorled but leaves are t the

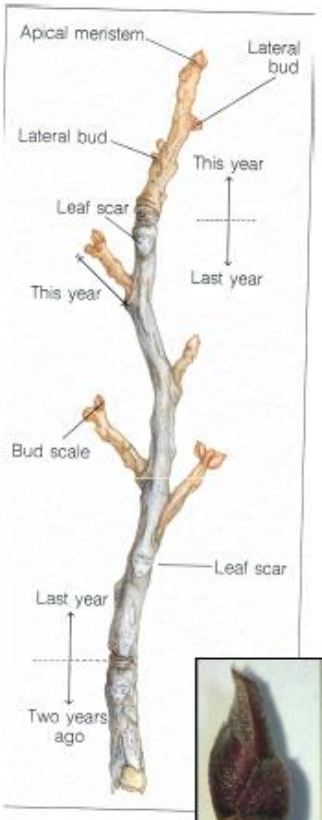


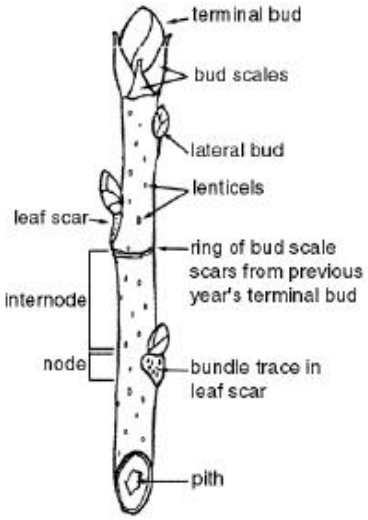


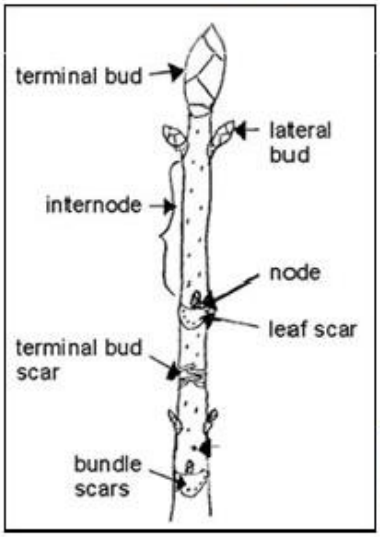
Stems & Twigs

Be able to identify these structures: ***Terminal bud, Lateral bud, bud scales, node, internode, lenticles, leaf scar, year's growth ring***



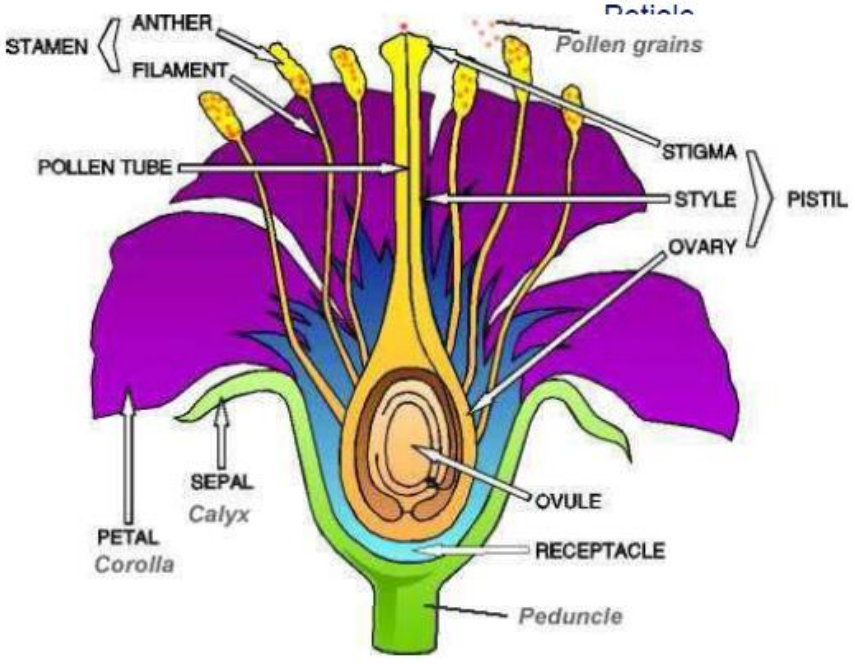






"Need-to-Knows" Flower Parts

- A. Petal
- B. Corolla
- C. Sepal
- D. Calyx
- E. Peduncle
- F. Stamen
- G. Anther
- H. Filament
- I. Pistil
- J. Stigma
- K. Style
- L. Ovary
- M. Ovule
- N. Receptacle
- O. Pollen
- P. Pollen tube

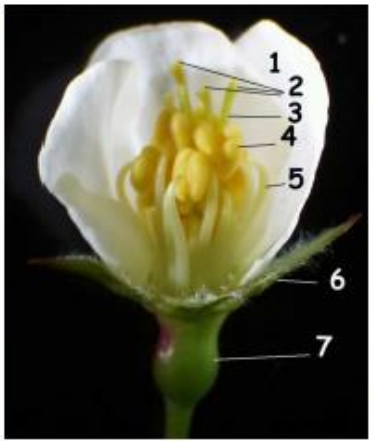


"Need-to-Knows" Flower Parts



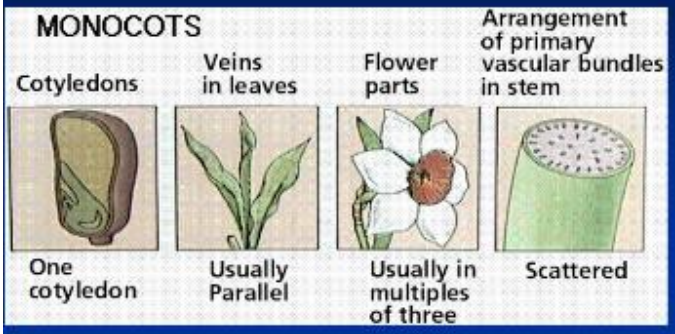




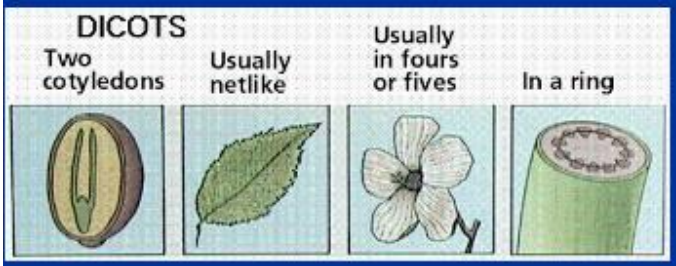





Monocot vs. Dicot



- **Monocots: Corn, wheat, palms, grasses, orchids, lilies**
- Leaf veins usually parallel
- Flower parts in multiples of three
- Vascular bundles are scattered in stem
- Usually fibrous root
- One cotyledon



- **Dicotyledons: roses, maple, oaks, beans, apples,**
- Leaf veins branched: Palmate or Pinnate
- Flower –parts in multiples of 4 or 5
- Vascular bundles are arranged in a ring in the stem
- Usually tap root system
- Two cotyledons in the seed