- ∻ Procambial cells develop into lateral meristem called vascular cambium
- ♦ Vascular cambium a continuous single layer of cells that give rise to secondary phloem and xylem.
- ♦ Differences between young dicot and monocot roots
  - 1. Stele smaller in dicot, larger in monocot
  - 2. Vascular bundle fewer in dicot, numerous in monocot
  - 3. Endodermis not so prominent in dicot, guite prominent in monocot
  - 4. Pith small or not at all in dicot, larger in monocot

|                 | Young Dicot         | Young Monocot |
|-----------------|---------------------|---------------|
| Stele           | Smaller             | Larger        |
| Vascular bundle | Few                 | Numerous      |
| Endodermis      | Not so prominent    | Prominent     |
| Pith            | Small or not at all | Larger        |

- ∻ Differences between old dicot and old monocot:
  - 1. Pith disappears in dicot, persists in monocot
  - 2. Cambium produced in dicot, none in monocot
  - 3. Secondary growth present in dicot, absent in monocot
  - 4. Cork cambium present in dicot, absent in monocot
  - 5. Cortex and epidermis peeled off in dicot, remain as integral part in monocot

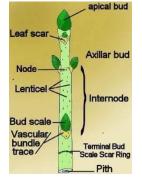
|   | Old Dicot   | Old Monocot                             |
|---|---|---|
| Pith  | Disappears  | Persists                                |
| Cambium   | Produced  | None Produced                           |
| Secondary growth  | Present   | Absent                                  |
| Cork cambium  | Present   | Absent                                  |
| Cortex and epidermis  | Peeled off  | Pernain is intigral part                |
| pecialized roots<br>bots are modified to have specialized fur                   | Peeled off  | e.cu.                                   |
| Potato (called tuber) and cassava – fo<br>Orchid roots – for photosynthesis and | r storage<br>aren orideo when velamin as coatrigunc | tion for water absorption from the air) |

## ∻ Specialized roots

- 1. Potato (called tuber) and cassava for storage
- nunction for water absorption from the air) 2. Orchid roots - for photosynthesis and a
- 3. Mangrove roots (pneumator o 2s — 1
- 4. Clinging, brace, pror d but

## THE STEN

- The axis of plant that originates above the hypocotyl of the embryo in the seed. ∻
  - 0 It is consist of nodes, internodes and appendages, e.g. leaves, buds, flowers and fruit from the node.
    - 0 some stems are specialized for storage, reproduction and other purposes.
    - variation in the stem provides many useful taxonomic characters for identification 0
- PARTS OF STEM: ∻
  - Nodes points on the stem where a leaf develops a)
  - b) Internode - the section between two successive nodes
  - c) Buds- undeveloped structures
  - d) Lenticels - corky postules found in older stems , functions for gas exchange in the absence of stomata
  - e) Stomata - present only in young stem
  - f) Trichomes - present only in young stem
  - g) Leaf scar - marks left on the stem by leaves that have naturally fallen off
  - h) Bundle scar - scars leaf on the stem by strands of food and water conducting tissues passing from the stem to the leaf.



\* The falling of leaves is a natural phenomenon, it is the result of the formation of

abscission layer of special cells at the base of the petiole, the point where it is attached to the stem. It cuts the leaves off without injury to the stem.

- CLASSIFICATION OF BUDS
  - Terminal bud found at the tip of the stem which is responsible for elongation; 0