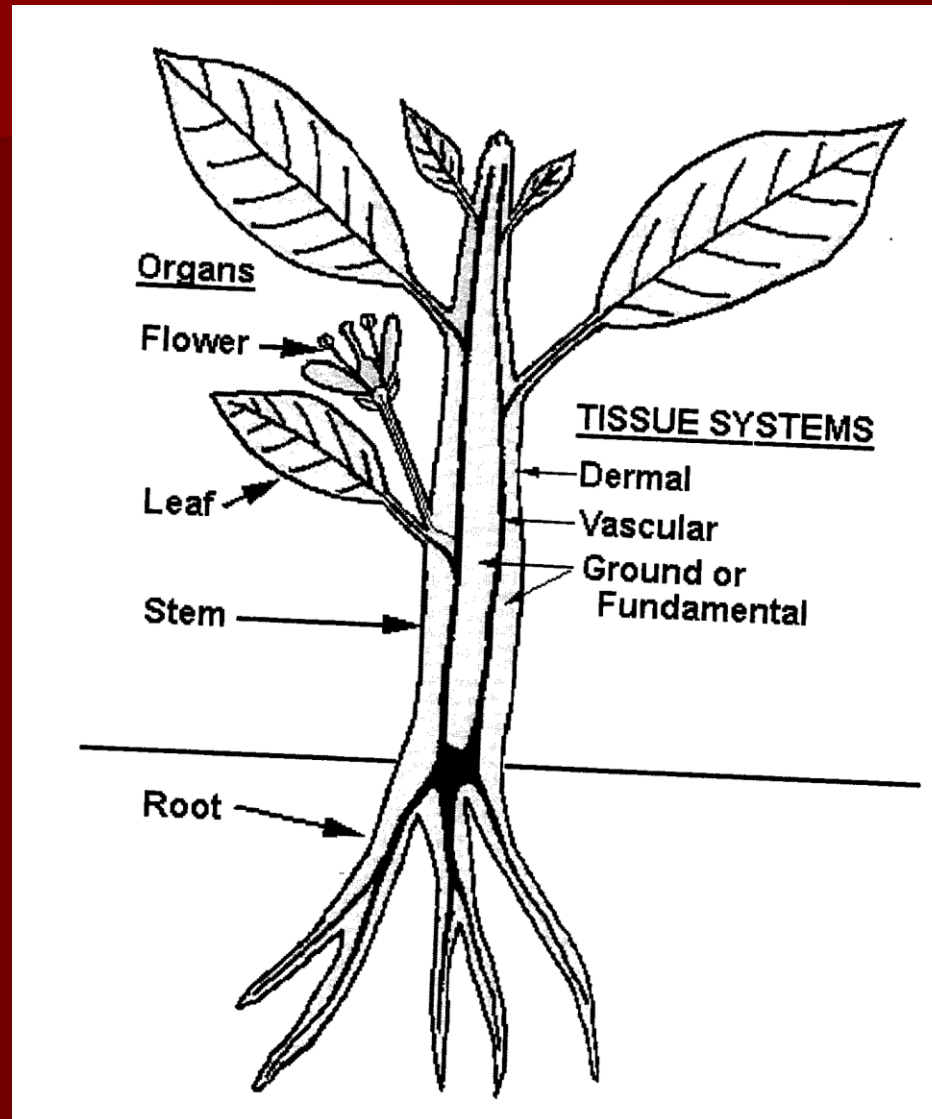


Plant Anatomy and Physiology

Horticulture

Plant Anatomy



Plant Anatomy

■ Organs

- Flower
 - Complete / Incomplete
 - Perfect / Imperfect
 - Sterile
- Leaf
 - Simple
 - Compound
- Stem
- Root
 - Primary
 - Secondary
 - Root Hairs

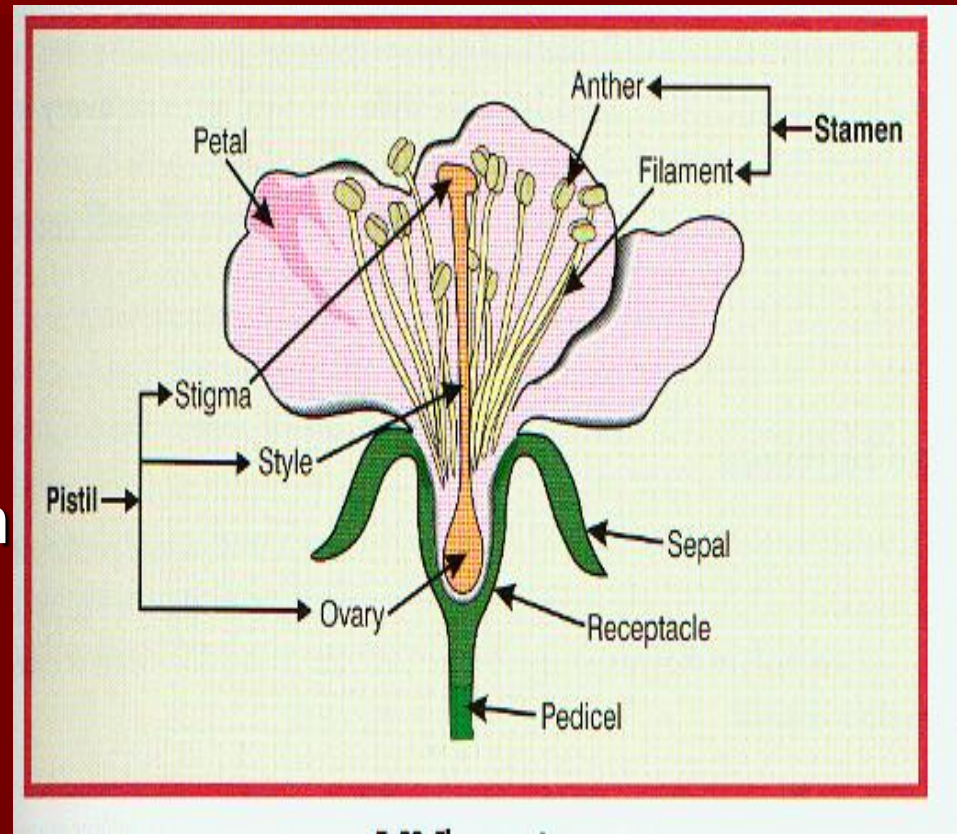
■ Tissues

- Dermal
 - Epidermis
 - Periderm/Bark
- Vascular
 - Xylem
 - Phloem
- Ground
 - Cortex
 - Pith
 - Mesophyll

Plant Organs - Flower

■ Flower Types

- Complete – all flower parts
- Incomplete – lacks one or more of the flower parts
- Perfect – contains both pistil or stamen
- Imperfect – lacks either pistil or stamen
- Sterile – both stamen and pistil are absent



Plant Organs - Leaf

■ Functions

- Photosynthesis
- Regulate water loss
- Storage
- Support
- Protection
- Attraction
- Propagation

■ Types

- Simple
 - Blade of the leaf occurs as one unit
- Compound
 - Blade of the leaf is divided into individual leaflets

Plant Organs - Leaf

SIMPLE



Elm



Maple



Magnolia

COMPOUND



Pecan



Locust

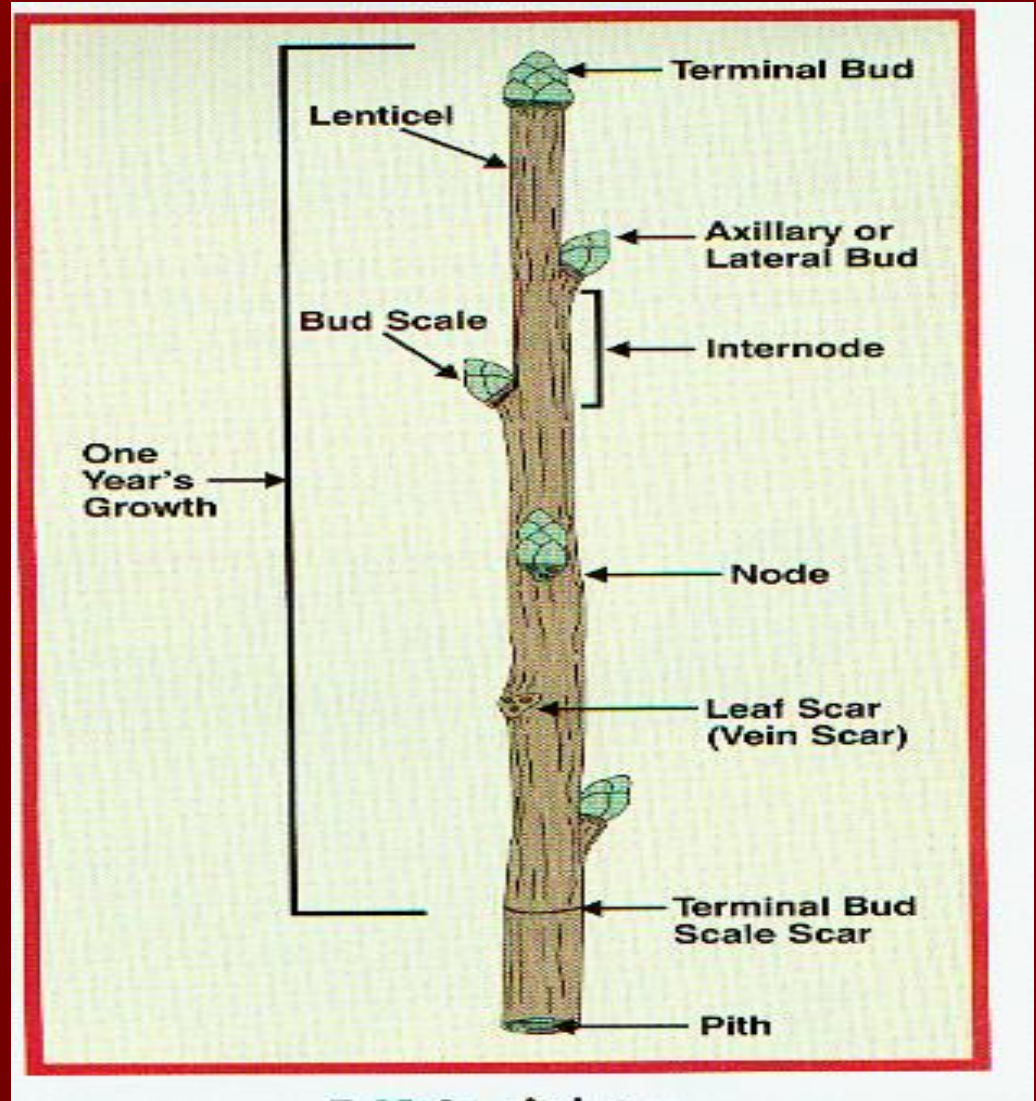


Ash

Plant Organs - Stem

– Functions

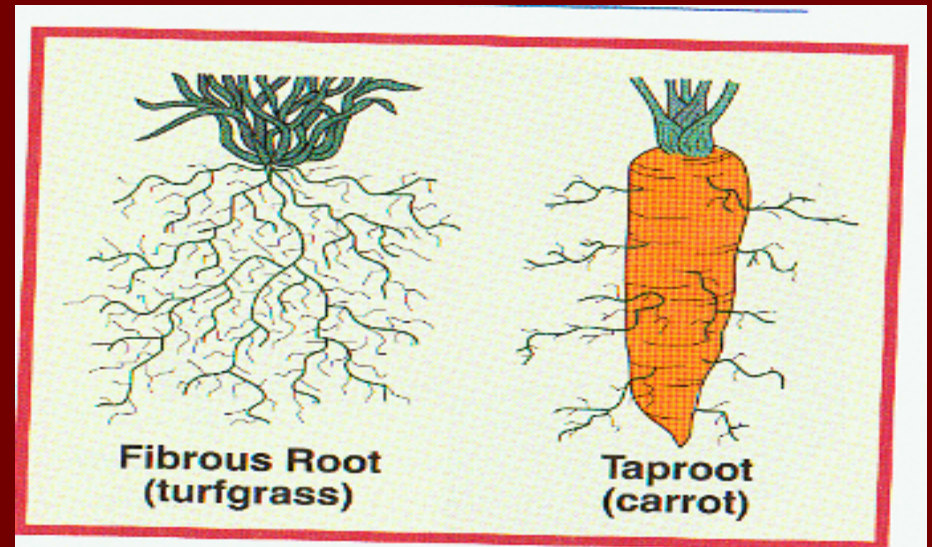
- Support
- Conduction
- Food Storage
- Protection
- Propagation
- Photosynthesis



Plant Organs - Roots

- 3 Parts Roots
 - Primary Root
 - Secondary Root
 - Root Hairs
- Type of Root System
 - Tap Root System
 - Fibrous Root System

- Functions
 - Anchorage
 - Absorption
 - Storage
 - Propagation



Plant Tissues

■ Dermal

– Function

- Protection from environment and water loss

– Consists of

- Epidermis – single layer of cells on primary plant parts (herbaceous)
- Periderm/Bark – corky tissue that replaces epidermis on secondary plant parts (woody)

Plant Tissues

■ Vascular

– Function

- Conduction of water, nutrients, sugars and hormones throughout the plant

– Consists of

- Phloem – conducts water, sugar, hormones, etc. down and up roots, stems, and leaves (moves from where produced to where needed)
- Xylem – conducts water and nutrients up roots, stems, and leaves

Plant Tissues

■ Ground

– Function

- Storage, support, filler tissue and site of photosynthesis

– Consists of

- Cortex – outer region of stems and roots
- Pith – center of stems
- Mesophyll – middle of leaves and flower parts

Flower Dissection

- Observe external characteristics to determine class and type of plant
 - i.e. Angiosperm/Gymnosperm, Monocot/Dicot
- Cut flower in half laterally
- Observe internal characteristics
- Label the worksheet and tape the corresponding plant part to the paper.

Review

■ List and Describe the plant organs

- Flower
 - Complete / Incomplete
 - Perfect / Imperfect
 - Sterile
- Leaf
 - Simple
 - Compound
- Stem
- Root
 - Primary
 - Secondary
 - Root Hairs

■ List and Describe the plant tissues

- Dermal
 - Epidermis
 - Periderm/Bark
- Vascular
 - Xylem
 - Phloem
- Ground
 - Cortex
 - Pith
 - Mesophyll

Review

- What are the 5 flower types?
 - Complete – all flower parts
 - Incomplete – lacks one or more of the flower parts
 - Perfect – contains both pistil or stamen
 - Imperfect – lacks either pistil or stamen
 - Sterile – both stamen and pistil are absent
- What are the 3 root parts?
 - Primary Root
 - Secondary Root
 - Root Hairs
- What are the 2 types of root systems?
 - Tap Root System
 - Fibrous Root System