



# UNIT X

## Plant Taxonomy



# Introduction

- Taxonomy is the science of classifying and identifying plants.
- Scientific names are necessary because the same common name is used for different plants in different areas of the world.
- Latin is the language used for scientific classification.

# Karl von Linne (1707-1778)

- Swedish botanist
- Developed binomial classification scheme for plants.
- Uses two Latin words to indicate the genus and the species.
- Changed his name to the Latin name of Carolus Linnaeus.



# Scientific Names

- The first word is the genus and the second word is the species.
- If there are additional words, they indicate the variety or cultivar.

# Genus

- Plants in the same genus have similar characteristics.
- Examples:
  - Quercus – Oaks
  - Acer – Maples
  - Pinus – Pines
  - Ilex – Hollies
  - Cornus – Dogwoods
  - Ficus – Figs

# Species

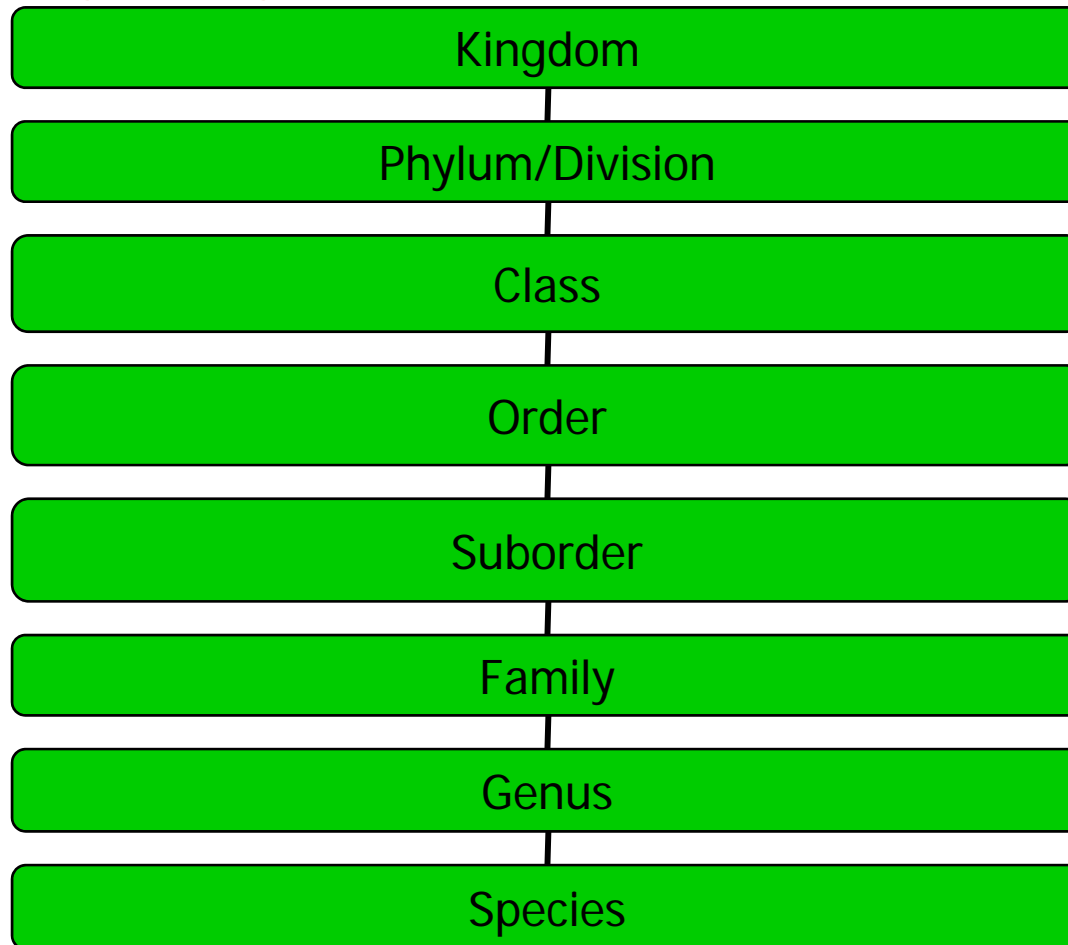
- Plants in the same species consistently produce plants of the same types.



# Scientific Classification

- The broadest category of scientific classification is the Kingdom.
  - Either Plant or Animal
- The broadest category of the plant kingdom is Division or Phylum.

# Scientific Classification





# Divisions

- The four most important divisions of the plant kingdom are....
  - Thallophytes
  - Bryophytes
  - Pteriophytes
  - Spermatophytes

# Spermatophytes

- Includes flowering or seed-bearing plants.
- The two subdivisions are....
  - Gymnosperms
  - Angiosperms



# Plant Characteristics

# Identifying Plants

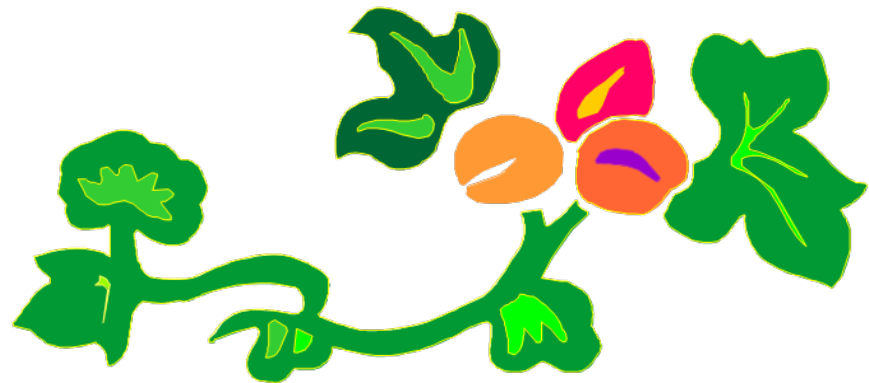
- Physical characteristics are used to identify plants which include....
  - Life Cycle
  - Form
  - Foliage Retention
  - Plant Parts
  - Use & Location

# Life Cycle

- Annuals
  - Plants that complete their life cycle in one year.
- Biennials
  - Plants that complete their life cycle in two years.
- Perennials
  - Plants that live more than two years.

# Growth Habits

- Trees
- Shrubs
- Vines



# Growth Forms

- Columnar
- Spreading
- Weeping
- Round
- Oval
- Pyramidal

# Growth Forms





# Growth Forms



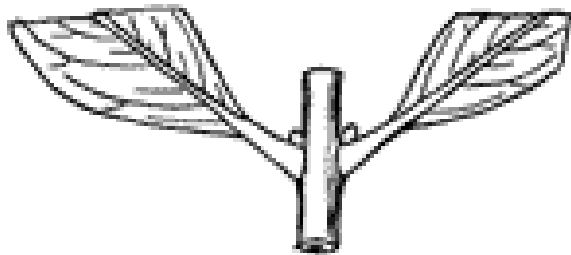
# Foliage Retention

- Deciduous
  - Loses leaves during the dormant season.
- Evergreen
  - Keeps leaves and remains green year-round.

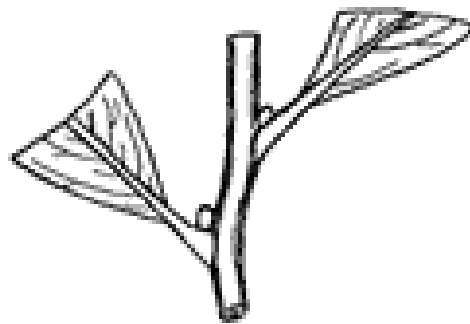
# Plant Parts – Leaf

- Arrangement
- Shapes
- Color
- Vein Pattern
- Form – Simple or Compound
- Margin
- Surface

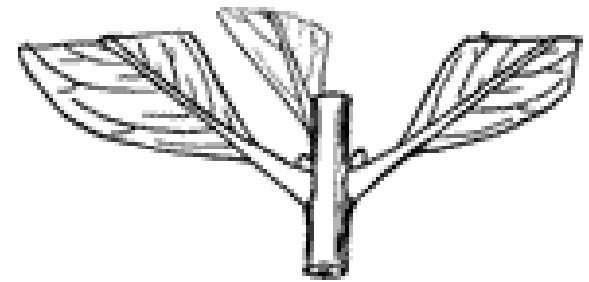
# Leaf Arrangement – Simple



opposite

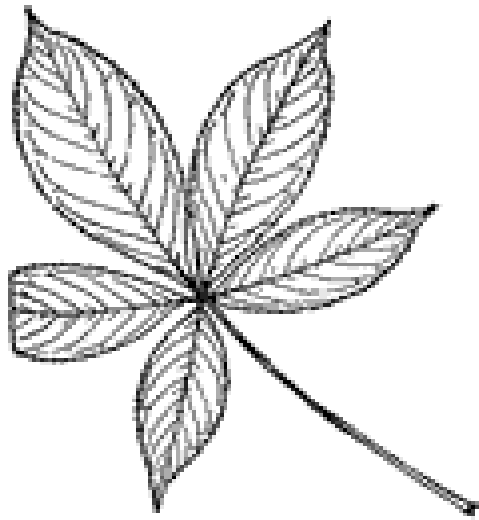


alternate

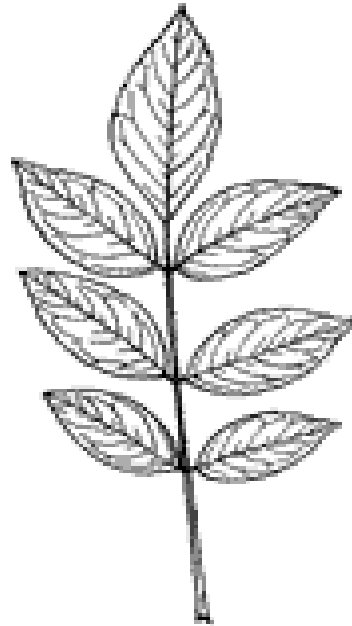


whorled

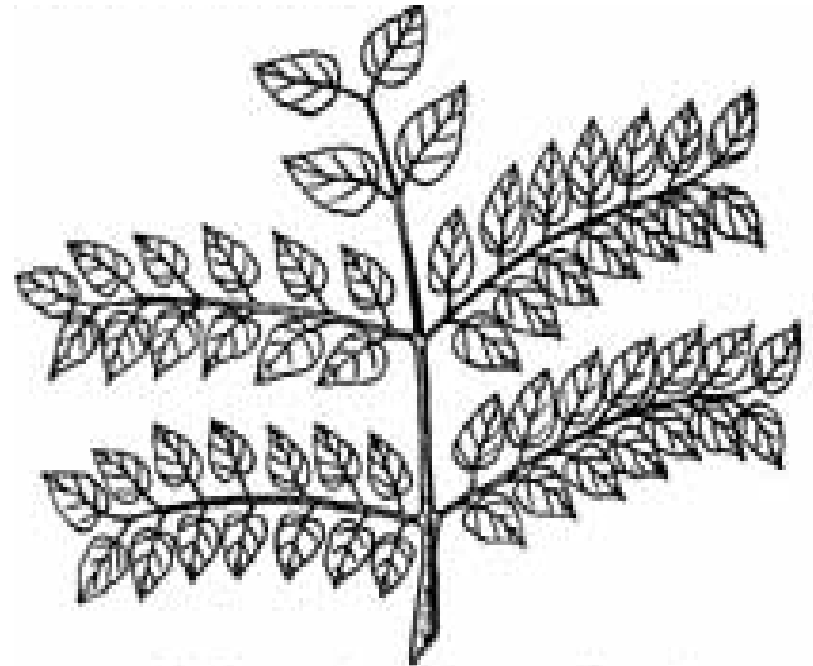
# Leaf Arrangement – Compound



palmately  
compound



pinnately  
compound



Bi-Pinnately Compound Leaf

# Leaf Shape



linear



oval



oblong



ovate



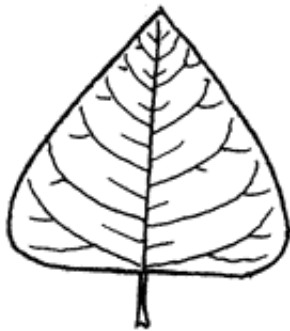
obovate



scale-like



awl-like



deltoid



cordate



elliptical



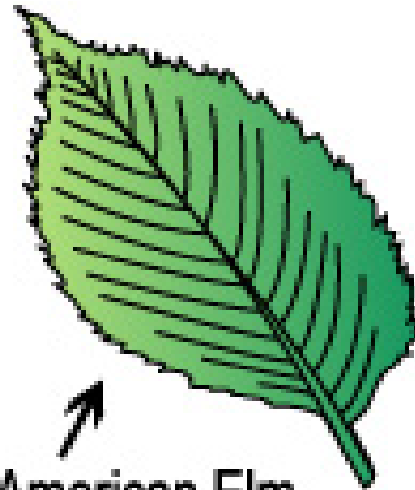
lanceolate



needle-like

# Vein Pattern

- Pinnate
- Palmate
- Parallel
- Dichotomous



American Elm  
(Pinnate)



Ginkgo  
(Dichotomous)



Sweetgum  
(Palmate)



Corn  
(Parallel)

# Leaf Margin



entire



undulate



finely  
serrate



coarsely  
serrate



doubly  
serrate



crenate



lobed



# Leaf Surface

- There are 8 common leaf surfaces.
  - Glabrous
  - Pubescent
  - Villous
  - Tomentose
  - Scabrous
  - Glaucous
  - Rugose
  - Glandular

# Leaf Surface – Glabrous

- The surface is smooth, not hairy.



# Leaf Surface – Pubescent

- Short, soft hairs cover the surface.



# Leaf Surface – Villous

- Long, straight hairs cover the surface.



# Leaf Surface – Tomentose

- Covered with wool-like hair.



# Leaf Surface – Scabrous

- Covered with short, prickly hairs.



# Leaf Surface – Glaucous

- Covered with a bluish-white waxy substance.





# Leaf Surface – Rugose

- Surface is wrinkly.



© W.P. Armstrong 2003



# Leaf Surface – Glandular

- Glands filled with oil or resin cover the surface.



*Prunus tomentosa*

# Plant Parts – Flowers

- Color
- Shape
- Size



# Plant Parts – Bud & Stem

- Shape & Color
- Stem Modifications
  - Thorns
  - Spines
  - Prickles



# Plant Parts – Modified Stems



# Plant Parts – Roots

- Tap
- Fibrous
- Bulb

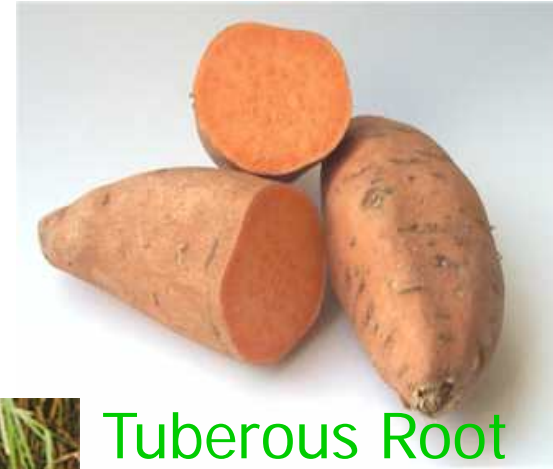




# Plant Parts – Roots



Tap Root



Tuberous Root



Fibrous Root

# Plant Parts – Fruit

- Cones
- Nuts (Acorns)
- Pomes (Apple)
- Drupes (Peach)
- Brambles (Raspberries)
- Capsules (Willow)
- Samara (Maple)

# Plant Parts – Fruit





# Plant Parts – Fruit

