Plant Parts and Functions

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Covering:

2014A

2014B

2014C

2014D

Parts of The Plant

- Roots
- Leaves
- Stem
- Flower
- Seed

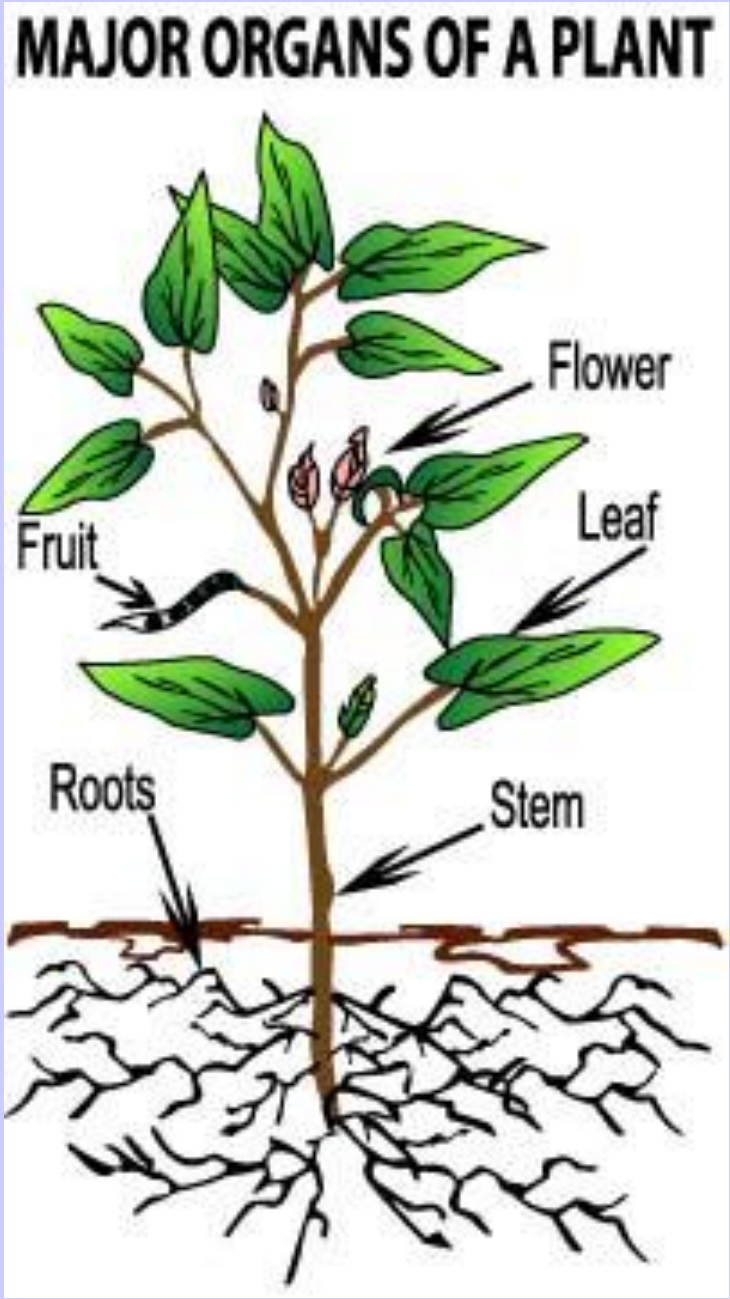
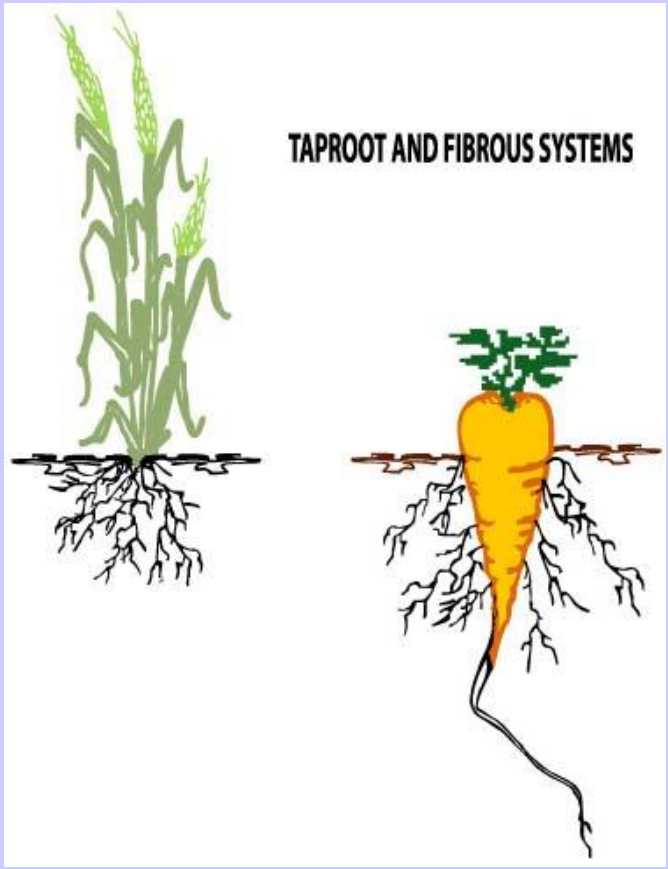


Image found at: www.webinstituteforteachers.org

Roots



- 2 Types of Root Systems
  - Taproot
  - Fibrous System

Image found at: http://www.puc.edu

Roots

Taproot System

Primary roots grow down from the stem with some secondary roots forming

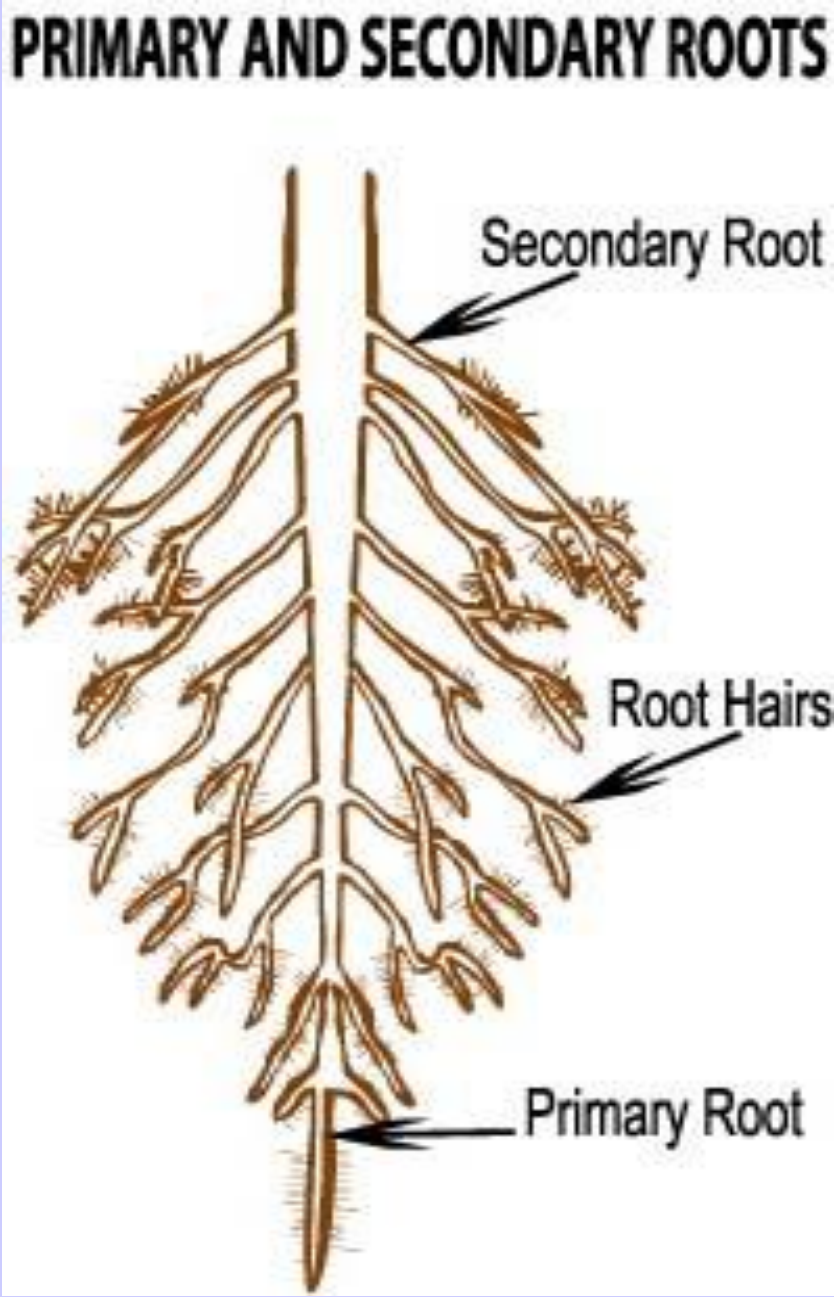


Image found at: http://www.arboretum.fullerton.edu

Roots

Fibrous Root System

Small lateral roots that spread out just below the soil surface

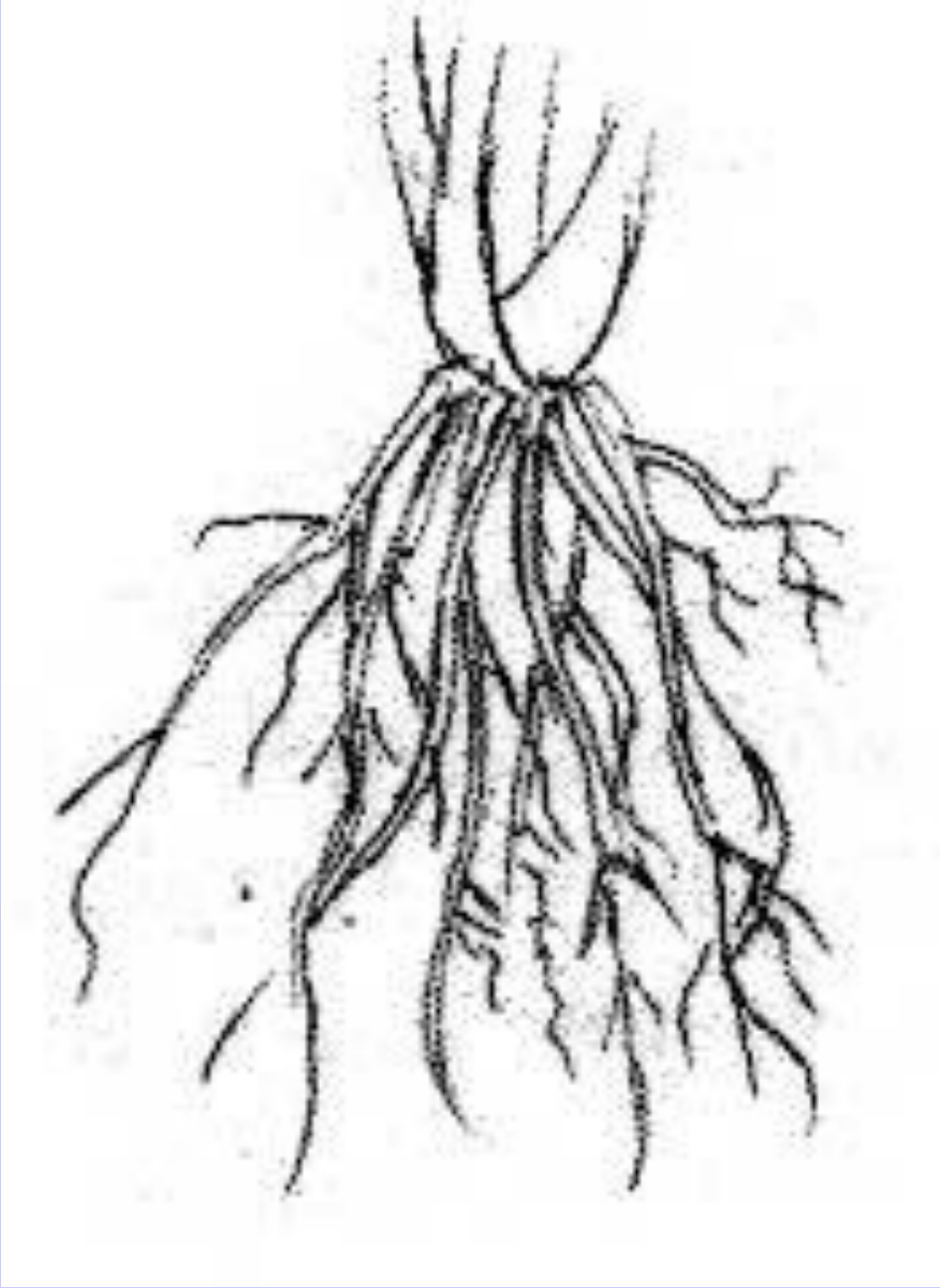
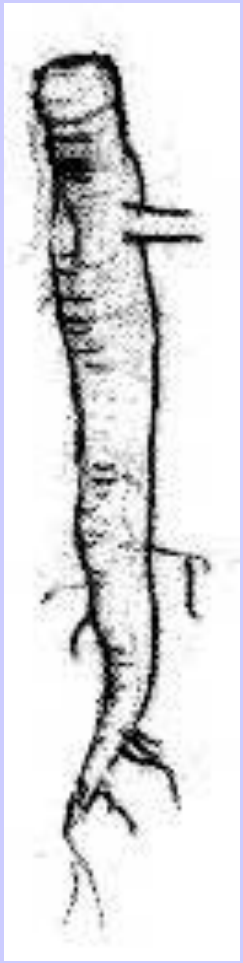
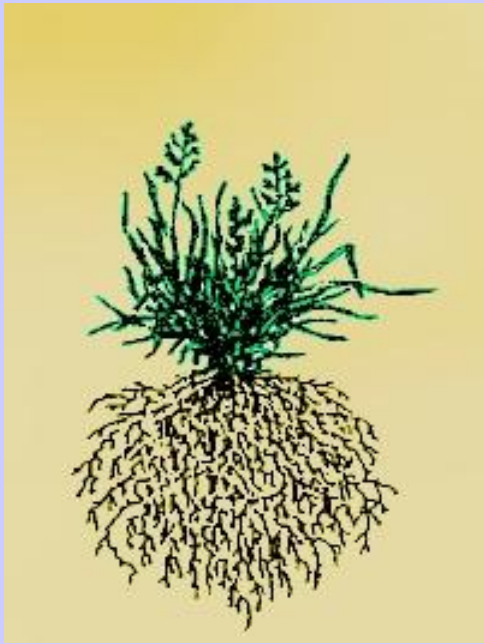


Image found at: www.wildmanstevebrill.com

Can you identify these root types?





Root Functions

Roots have 4 primary functions

- Absorption of water and nutrients
  - performed by root hairs
- Transportation of water and nutrients to stem
- Anchor plant to maintain stability
- Store food and water

Parts of the Root

- Epidermis
  - Outermost layer of cells, like the skin of the root
- Cortex
  - Tissue inside epidermis that stores starch and other substances for the growth of the root

Parts of the Root

- Root Cap
  - Provides protection for the root tip
- Root Hairs
  - Site of absorption
- Vascular Tissue
  - Within cortex, contains cells that transport water, nutrients, and minerals to all parts of the plant

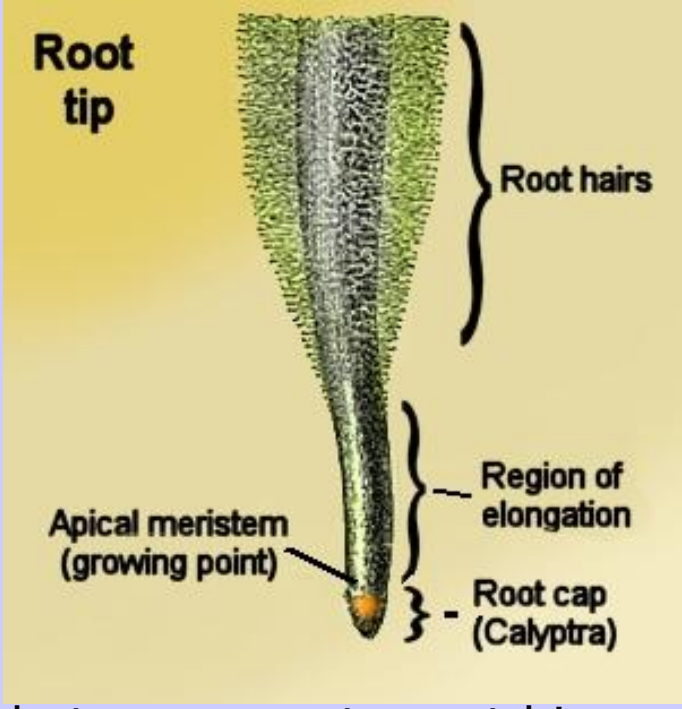


Image found at: www.cactus-art.biz

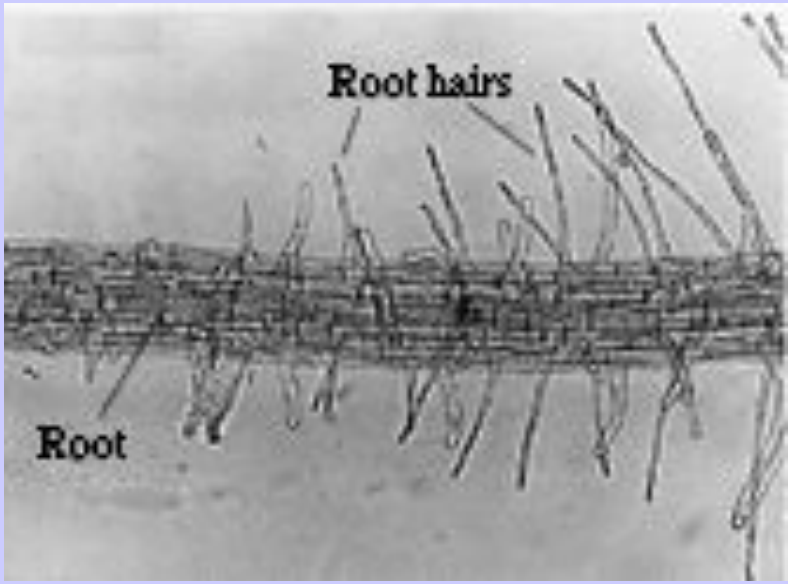


Image found at: www.bio.psu.edu

Important Functions of Leaves

- Photosynthesis
  - Process that plants use to produce their food
  - $6CO_2 + 6H_2O \rightarrow C_6H_{12}O_6 + 6O_2$
- Transpiration
  - Loss of water and exchange of carbon dioxide

Leaf Parts

- **Blade**
  - **Main body of leaf**
- **Petiole**
  - **Attaches blade to stem**
- **Midrib**
  - **Large central vein**

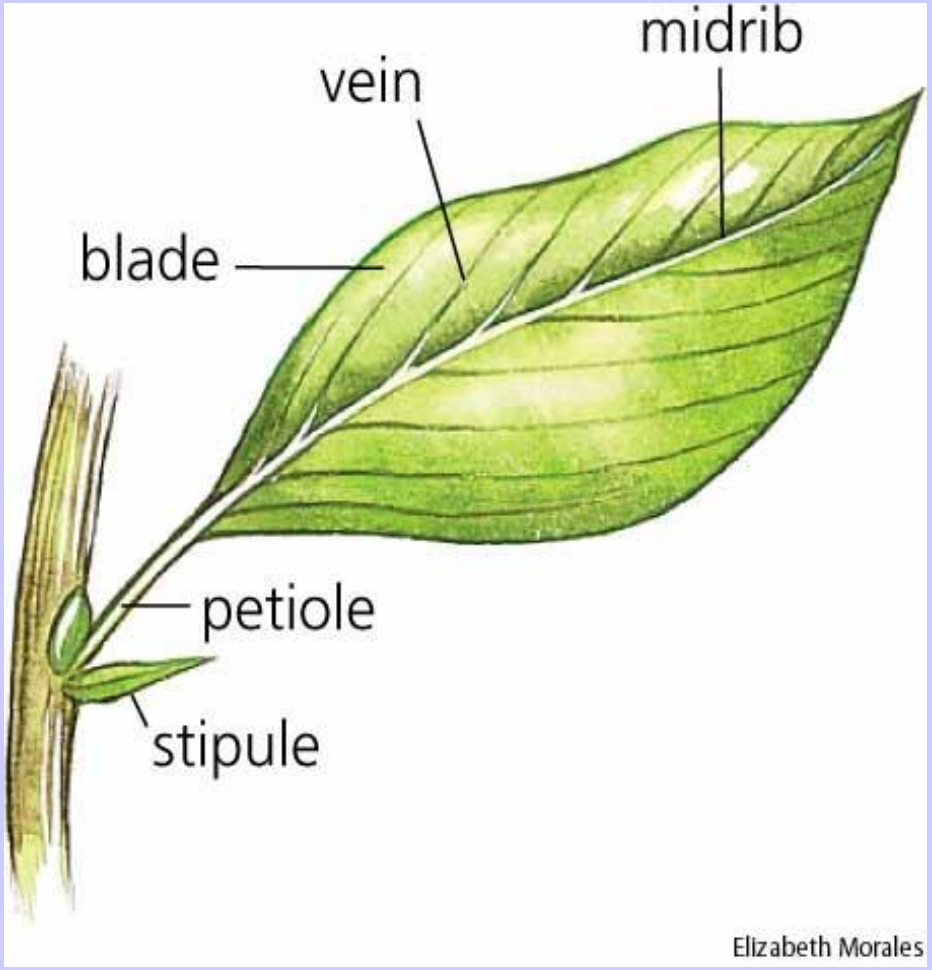


Image found at: www.yourdictionary.com

Leaf Parts

- Apex
  - Tip of leaf
- Base
  - Attaches to petiole – if petiole is absent, attaches directly to stem
- Margin
  - Edge of leaf
- Epidermis
  - “Skin” of leaf - responsible for gas exchange
- Stomata
  - Outside layer of leaf opening in epidermis where gas and water exchange
- Mesophyll
  - Middle layer of leaf where photosynthesis occurs

Functions of the Stem

- Transport water and nutrients from roots to leaves
- Supports leaves, fruit, and flowers
- Food storage

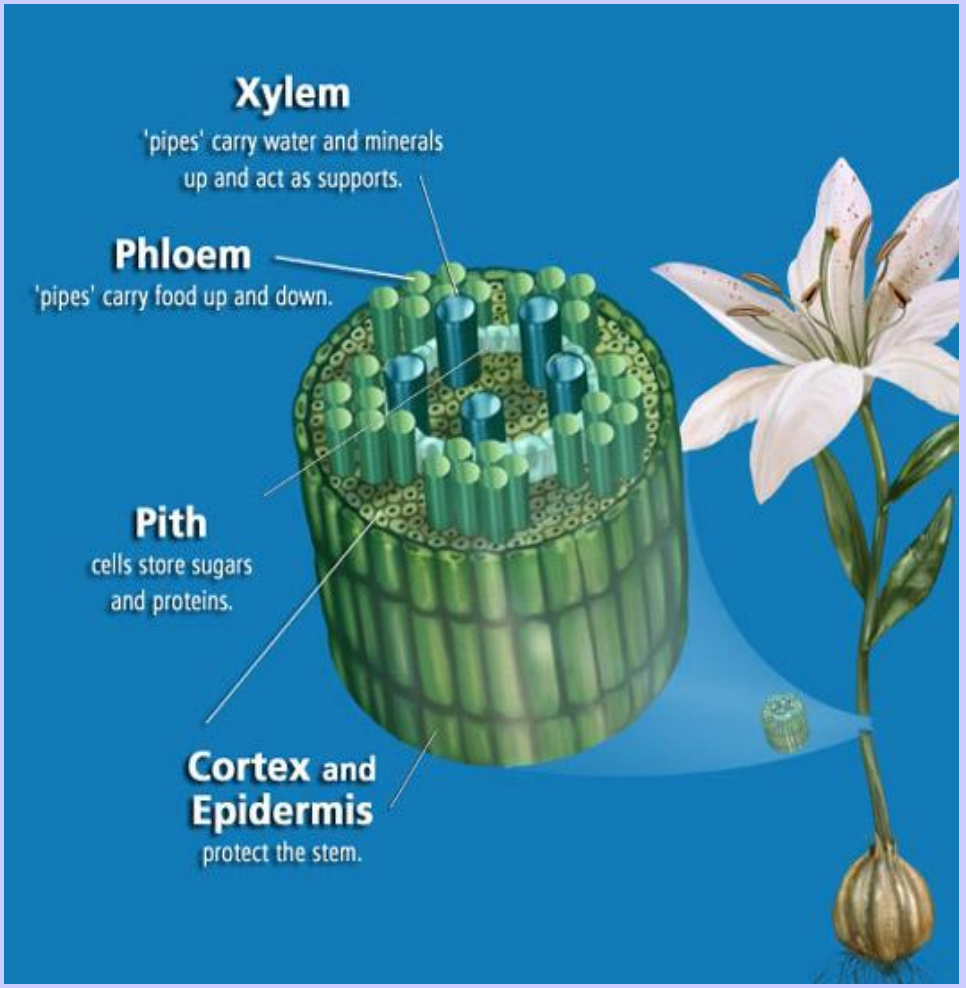


Image found at: www.karencarr.com

Parts of the Stem

- Node
  - Areas where side branches and leaves develop
- Internode
  - Area between nodes
- Xylem
  - Carries nutrients up
- Phloem
  - Carries nutrients down
- Pith
  - Stores food

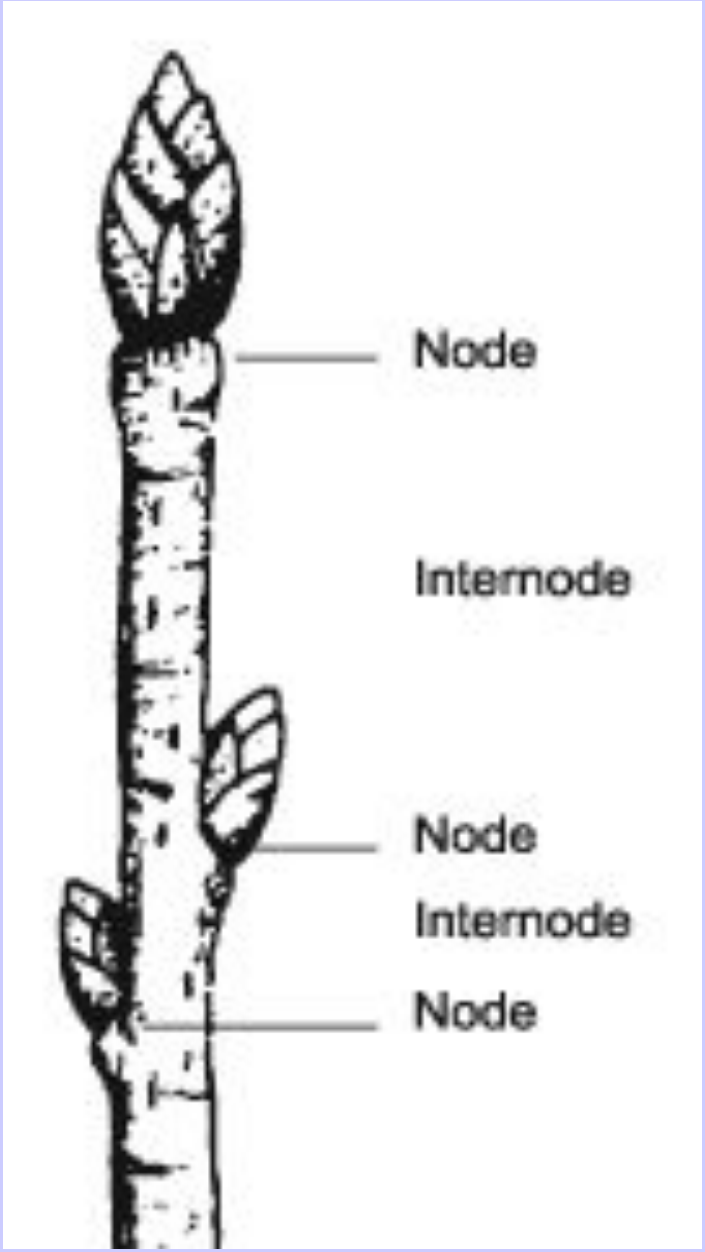


Image found at: www.ext.colostate.edu

Flower Function

Sexual Reproduction!!!!

- Flowers are pollinated by:
  - Wind
  - Insects
  - Birds

Flower Parts

- **Pistil**
  - **Female part of plant**
  - **Containing:**
    - **Stigma**
    - **Style**
    - **Ovary**

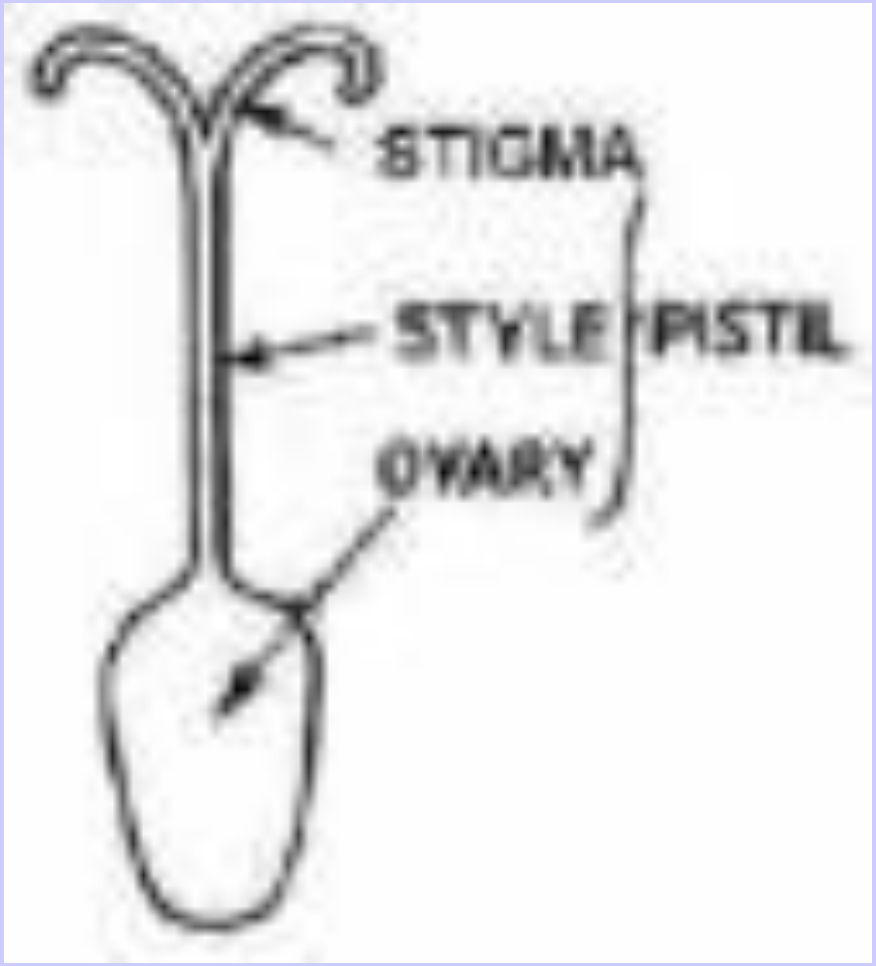


Image found at: www.howe.k12.ok.us

Flower Parts

- Stamen
  - Male reproductive part
  - Contains
    - Anther
    - Filament

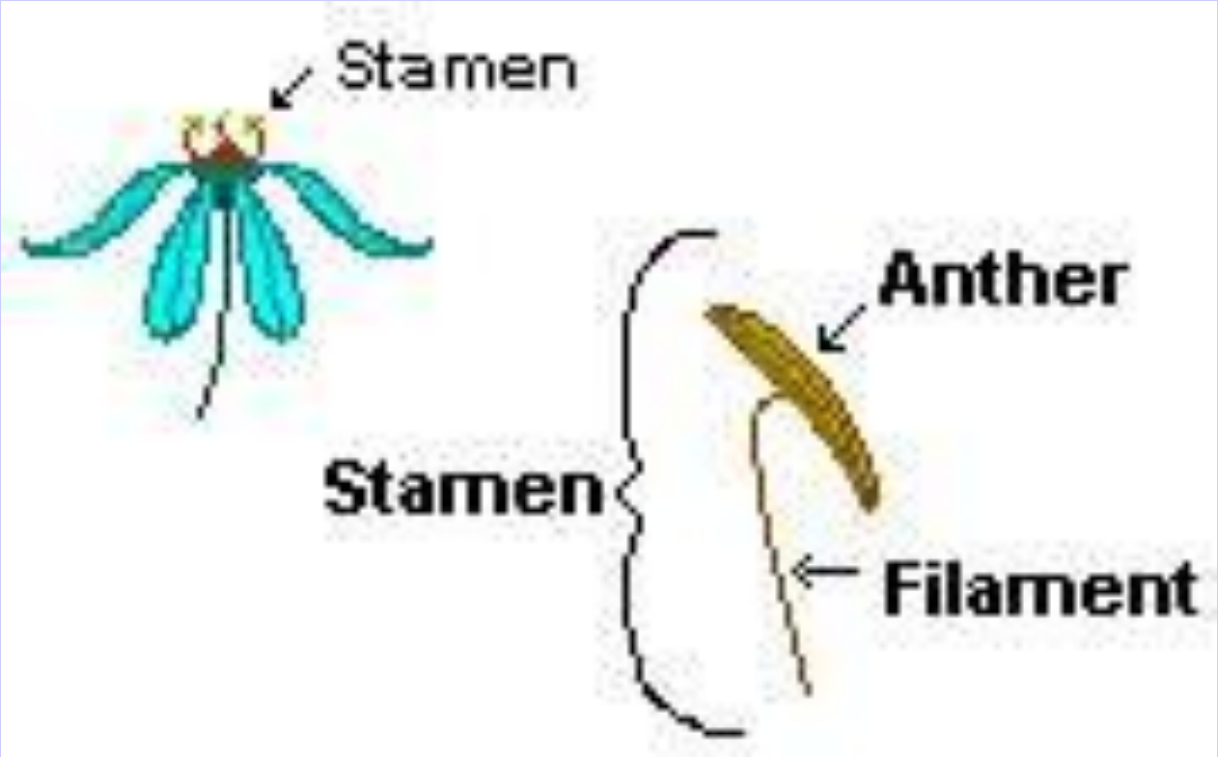


Image found at: www.botanyworld.com

Flower Parts

- Petals
  - Highly colored part of the flower, may contain perfume and/or nectar glands
- Sepals
  - Small green structures on the base of a flower that protect the flower bud

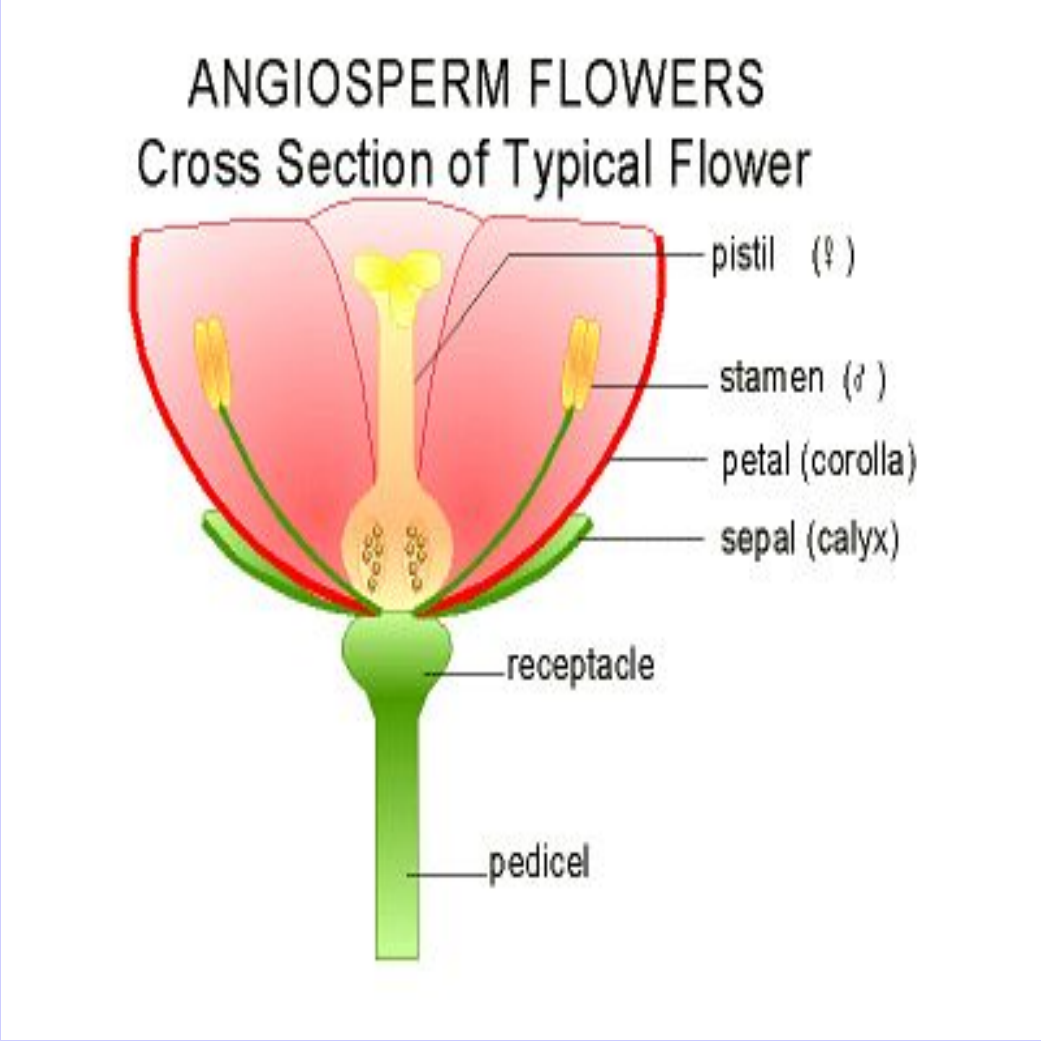
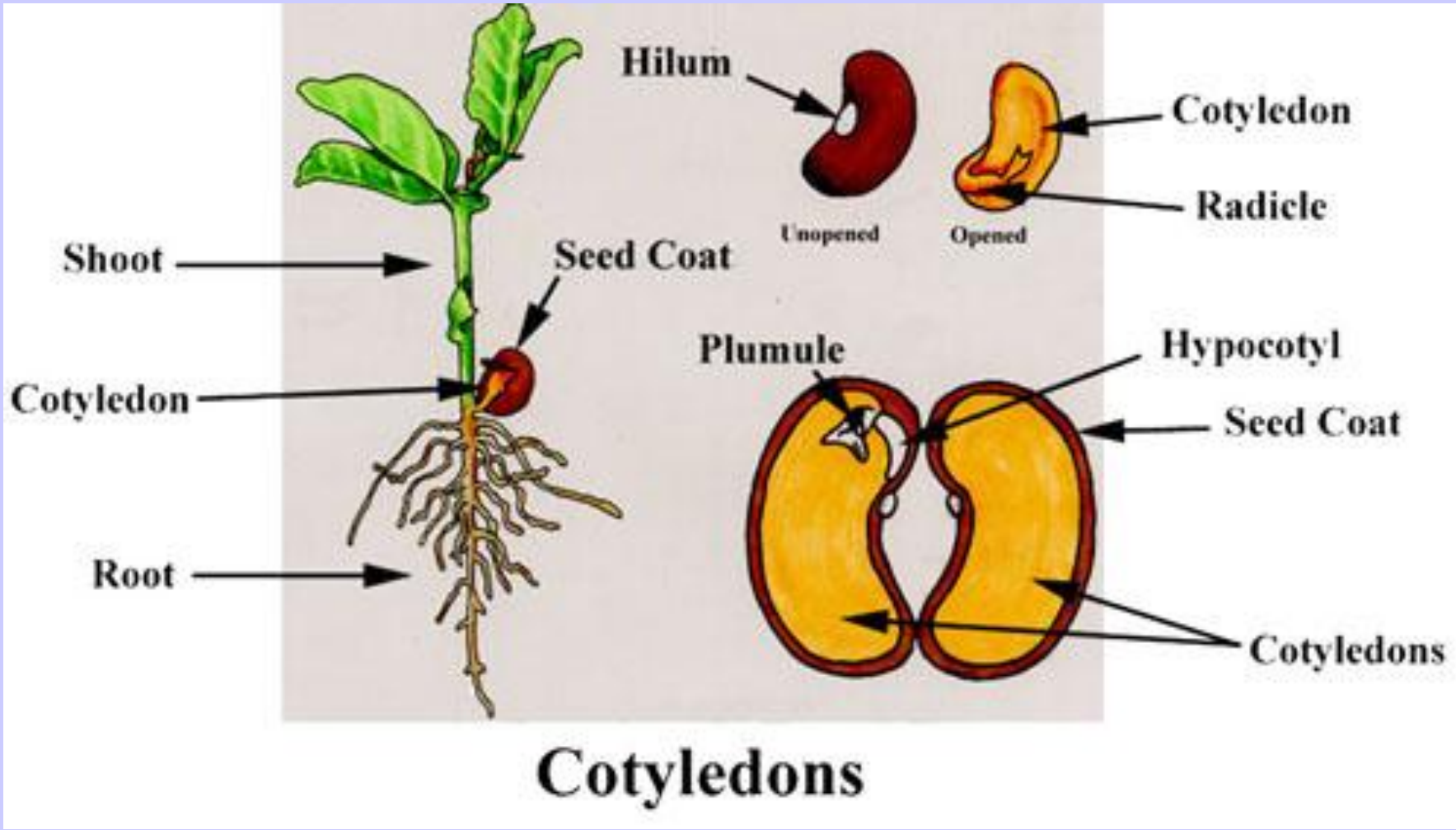


Image found at: http://biology.clc.uc.edu

Parts of the Seed

- Embryo
  - Growing part of seed containing:
    - Plumule – "Shoot"
    - Hypocotyl – Stem
    - Radical – "Root"
- Endosperm
  - Tissue that provides nutrition for the developing seed
- Cotyledon
  - Food Storage
- Seed Coat
  - Protective outer covering of the seed

Parts of the Seed



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