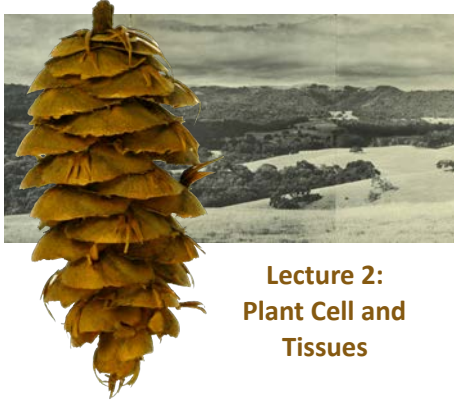


# Botany 121: General Botany

**Reading:**

Mauseth pages 51-57 (stop at properties of membranes), then 58-66 (stop at ribosomes), then 107-115 (stop at External Organization of Stems), then 120-136

Plant Tissues Handout  
in the Dropbox folder



## Lecture 2: Plant Cell and Tissues



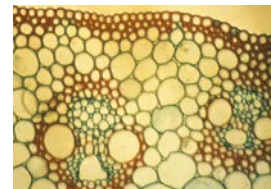
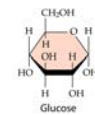
## ***Tillandsia* (Air Plants)**



## Spanish Moss (*Tillandsia usneoides*)



## Levels of Organization in Life



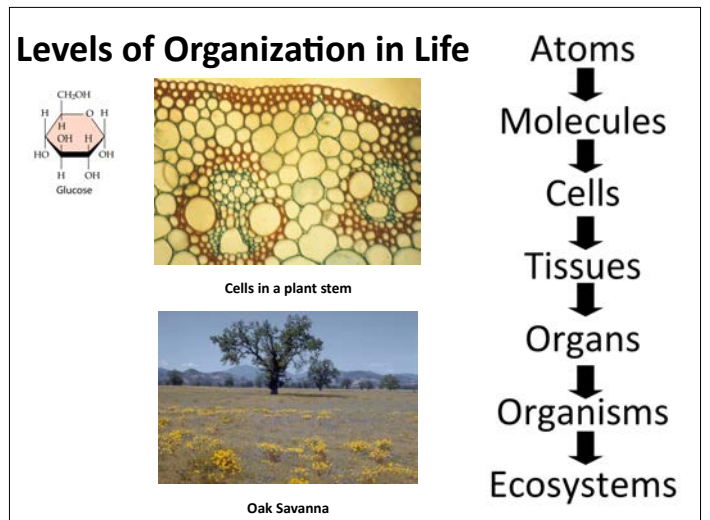
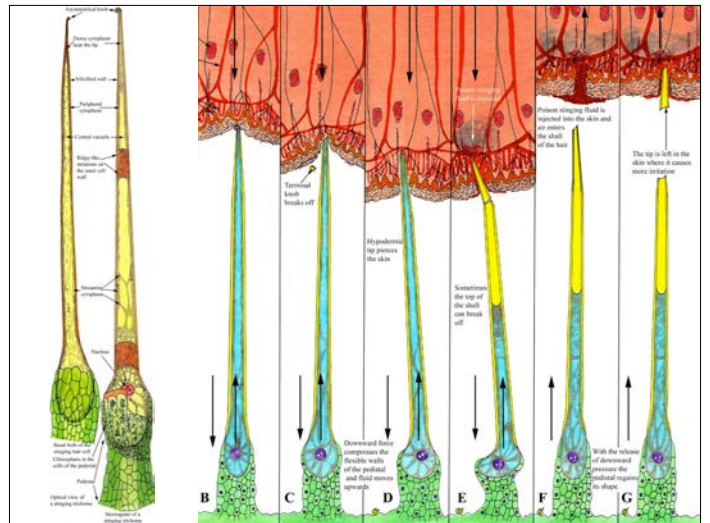
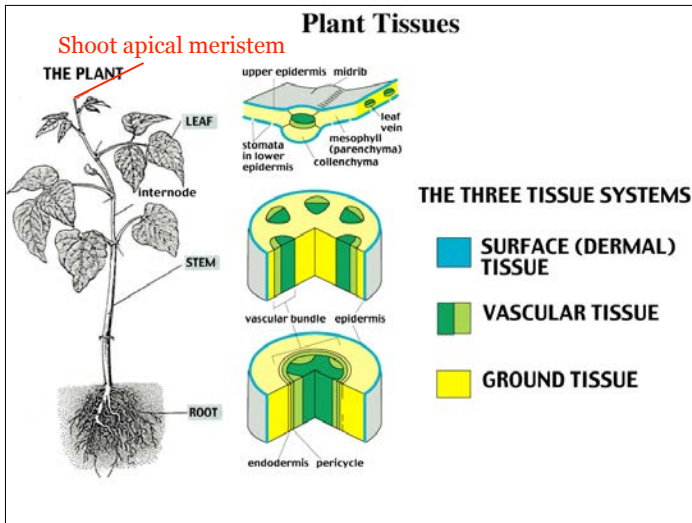
### Cells in a plant stem



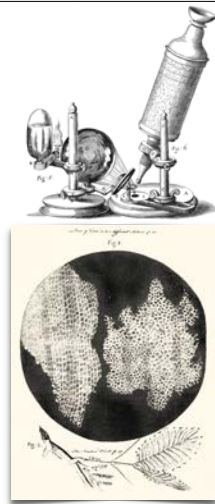
## Oak Savanna

Atoms  
↓  
Molecules  
↓  
Cells  
↓  
Tissues  
↓  
Organs  
↓  
Organisms  
↓  
Ecosystems



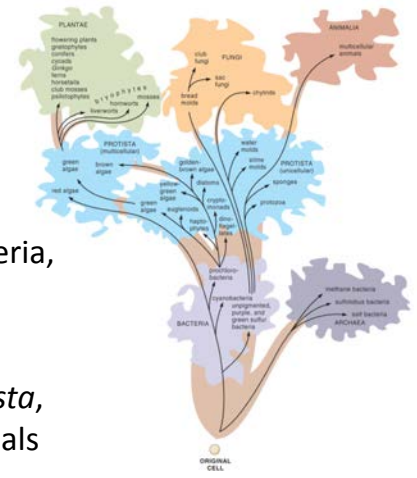


- A cell is the smallest unit of an organism that exhibits all the characteristics of life
- All organisms are composed of cells
- Cells are the structural and functional components of living things
- All cells arise from preexisting cells

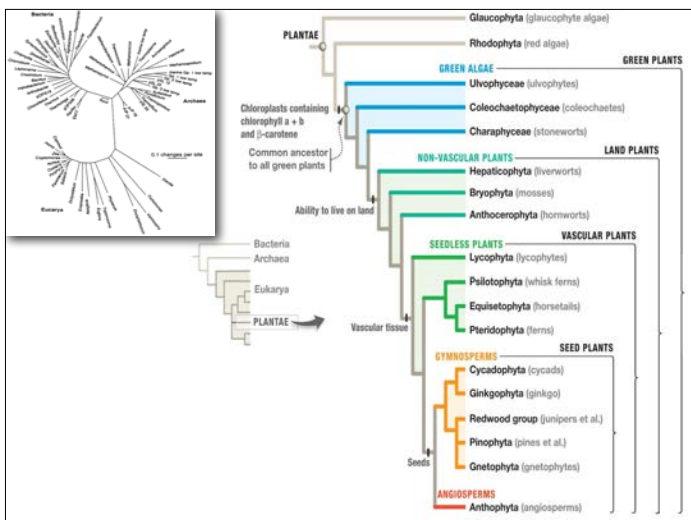
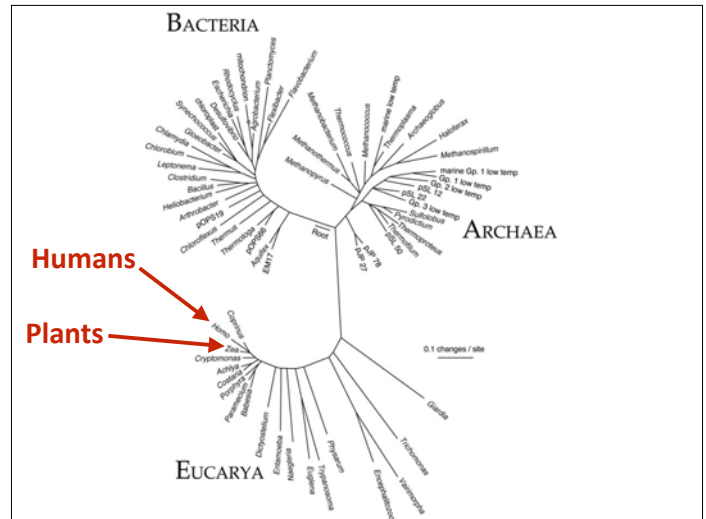
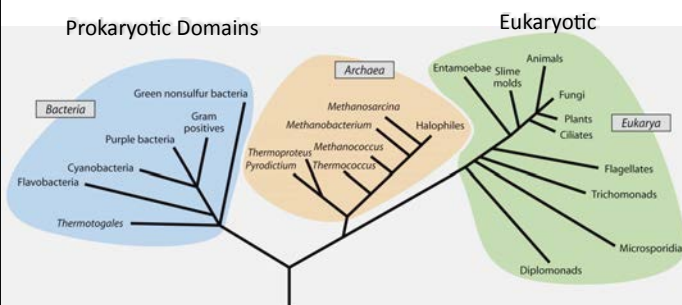


- Two types of cells

- Prokaryotic
  - Archaeobacteria, Eubacteria
- Eukaryotic
  - Fungi, *Protista*, Plants, Animals

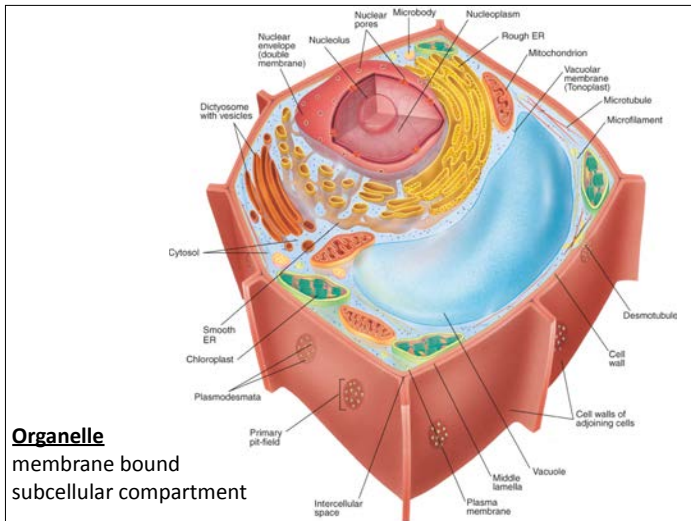


- Found in plants, animals, fungi, and *protists*.



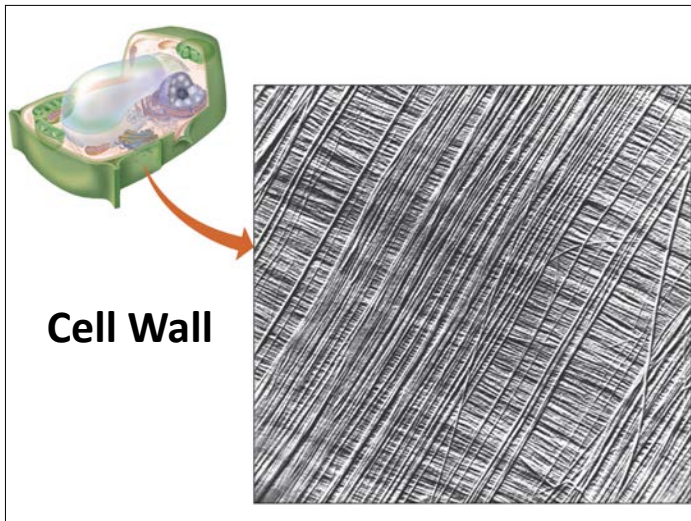
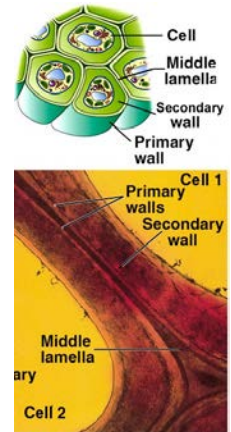
- Plasma membrane
- Nucleus
- Cytoplasmic organelles
  - Organelle: subcellular membrane-bound compartment





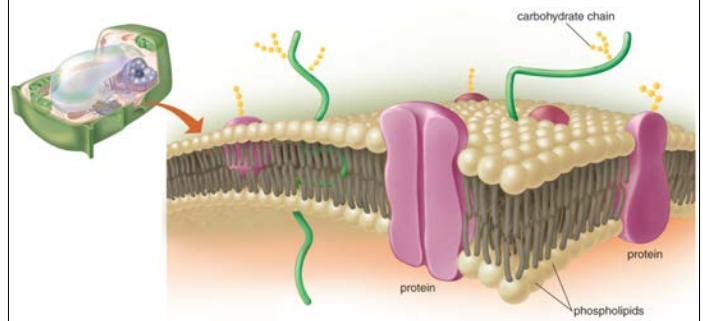
## Cell Wall

- Made mostly of cellulose
- Function: Support and protection
- All plants cells have a flexible primary cell wall
- Some cells have a rigid secondary cell wall imbedded with lignin



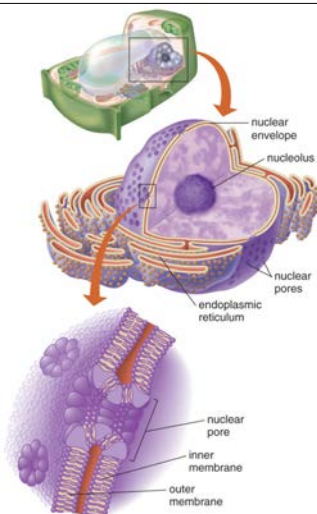
## Plasma Membrane

- A selectively permeable barrier that regulates the movement of substances in and out of the cell.



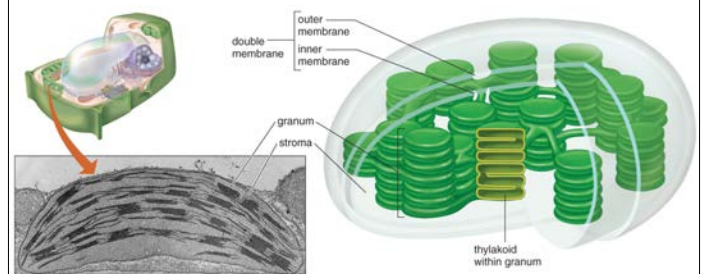
## Nucleus

- Bound by a double membrane—nuclear membrane.
- Control center of the cell with the instructions (recorded in the nucleotide sequence of DNA) for making many different enzymes and other proteins.

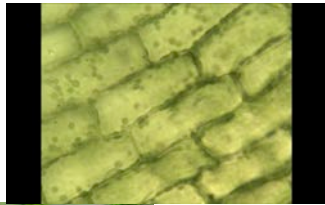
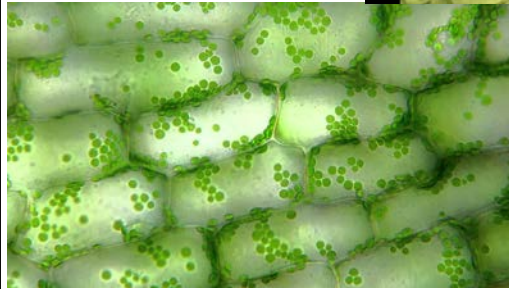


## Chloroplast

- Specialized plastid where photosynthesis occurs
- Other plastids may be colorless (leucoplasts) or brightly pigmented yellow, orange, or red (chromoplasts).



## Variegation



## Variegation



## Albino redwoods



## Vacuole

- Membrane enclosed fluid filled space
- Can occupy a large volume of the cell (up to 90% in a mature cell)
- Vacuole Function: 1. helps maintain cell pressure 2. storage and breakdown of cellular waste products 3. location of water soluble dyes called anthocyanins (purple and red color)

