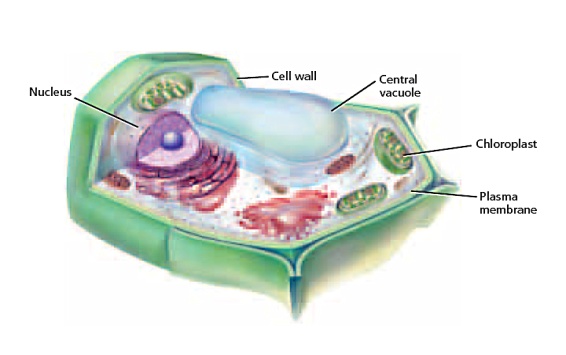
Biology Chapter 22 Student Notes

Plant Cells

* Different kinds of plant cells make up plant tissues.



Parenchyma Cells

* Most flexible, thin-walled cells found throughout the plant are parenchyma cells.
* Functions:

Collenchyma Cells

* Plant cells that often are elongated and occur in long strands or cylinders that provide support for the surrounding cells are collenchyma cells.
* Functions:

Sclerenchyma Cells

* Plant cells that lack cytoplasm and other living components when they mature, leaving thick, rigid cell walls are called sclerenchyma cells.
* Functions:

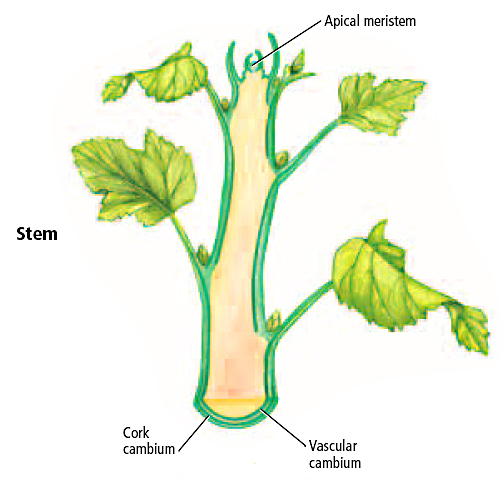
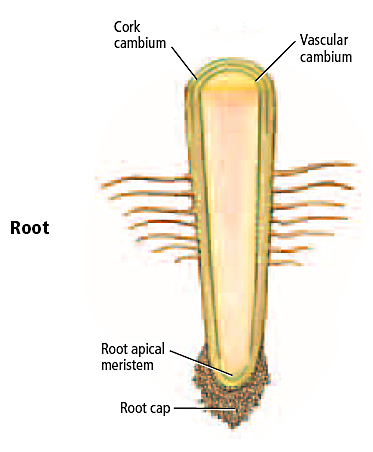
Plant Tissues

* A plant tissue can be composed of one or more types of cells.
* There are four different tissue types found in plants—meristematic, dermal, vascular, and ground.

Meristematic Tissue

Meristematic tissues make up meristems, or regions of rapidly dividing cells.

* Apical meristems
* Intercalary meristems
* Lateral meristems

Dermal Tissue

* The layer of cells that makes up the outer covering on a plant is the epidermis.
* Most epidermal cells can create a fatty substance that forms the cuticle.
* The cuticle helps reduce water loss and prevent bacteria from entering the plant.

Stomata

* Small openings through which carbon dioxide, water, oxygen, and other gases pass
* The two cells that border a stoma are guard cells.

Root Hairs

* Increase a root’s surface area and enable the root to take in a greater volume of materials

Vascular Tissue

Xylem

* + Transports substances away from the roots
  + Composed of specialized cells called vessel elements and tracheids
  + Vessel elements are tubular cells stacked end-to-end that enable the free movement of water and dissolved substances.
  + Tracheids are long, cylindrical cells with pitted ends that allow movement of water and dissolved substances.
  + Because mature tracheids have end walls, they are less efficient than vessel elements.

Phloem

* + Transports dissolved sugars and other organic compounds throughout the plant.
  + Sieve-tube member
  + Companion cells

Ground Tissue

* Consist of parenchyma, collenchyma, and sclerenchyma cells
* Functions include photosynthesis, storage, and support