Honors 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:
	+ Storage
	+ Photosynthesis
	+ Gas exchange
	+ Protection
	+ Tissue repair and replacement

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:
* Support for surrounding tissues
* Provides flexibility for plant
* Tissue repair and replacement

Sclerenchyma Cells

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

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.

 

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

Phloem

* + Transports dissolved sugars and other organic compounds throughout the plant.
	+ Sieve-tube member
		- Contain cytoplasm but lacks a nucleus
	+ Companion cells
		- Help the sieve tube members

Ground Tissue

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