

Chapter 23

23-1 Specialized Tissue in Plants

Epidermal Cell- A cell that makes up the dermal tissue, which is the out covering of a plant.

Vessel Element- In angiosperms, xylem cell that forms part of a continuous tube through which water can move.

Sieve Tube Element- The main phloem cells.

Companion Cell- Phloem cells that surround sieve tube elements.

Parenchyma- Cells that have thin cell walls and large central vacuoles surrounded by a thin layer of cytoplasm.

Collenchyma- Cells that have strong, flexible cell walls that help support larger plants.

Sclerenchyma- Cells that have extremely thick, rigid cell walls that make ground tissue tough and strong.

Meristem- Clusters of tissue that are responsible for continuing growth throughout a plant's life time.

Meristematic Tissue- Undifferentiated tissue; not being specialized for certain tasks.

Apical Meristem- A group of undifferentiated cells that divide to produce increased length of stems and roots.

Differentiation- The process by which cells develop into mature cells that gain specialization.

23-2 Roots

Taproot- The primary root that grows long and thick.

Fibrous Root- Roots that branch out so that soil would not be washed away during a flood or rain.

Root Hair- Tiny cellular projections on a root that separate soil particles to absorb water better.

Cortex- A spongy layer of ground tissue inside the epidermis.

Endodermis- A layer of cells inside the cortex.

Vascular Cylinder- A vascular subsystem which the endodermis completely encloses.

Root Cap- The end of a root that protects it as the root forces its way into the soil.

Casparian Strip- A water proof strip in the vascular cylinder that surrounds four sides of each cell.

23-3 Stems

Node- Where leaves are attached to a plant

Internode- Regions between the nodes

Bud- They contain undeveloped tissue that can produce new stems and leaves.

Vascular Bundle- A bundle that contains xylem and phloem tissue.

Pith- The parenchyma cells inside the ring of vascular tissue.

Primary Growth- The method of growth, occurring only at the ends of a plant.

Secondary Growth- The method of growth in which stems increase in width.

Vascular Cambium- Lateral meristematic tissue that produces vascular tissues and increases the thickness of stems over time.

Cork Cambium- Produces the outer covering of stems.

Heartwood- It contains old, nonfunctioning xylem that helps support the tree.

Sapwood- It contains active xylem that transports water and minerals.

Bark- It includes Cork, Cork Cambium, and Phloem