

# PLANT TISSUES & ORGANS

## Big Picture

Plants have specialized cells not found in animal cells, such as cells that carry out photosynthetic functions. A group of the same type of cells doing the same job makes up a tissue. Vascular tissues, which transport fluids, are one type of tissues found in vascular plants. More than one type of tissue working together to do specific jobs form an organ. The parts of a plant that we can easily identify - roots, stems, and leaves - are examples of plant organs.

## Key Terms

**Parenchymal:** Type of plant cell that carries out photosynthesis, cellular respiration, and/or storage functions.

**Collenchymal:** Type of plant cell that functions to support the plant.

**Sclerenchymal:** Type of plant cell that functions to strengthen and support the plant.

**Xylem:** Type of vascular tissue in a plant that transports water and dissolved nutrients from roots to stems and leaves.

**Phloem:** Type of vascular tissue in a plant that transports food from photosynthetic cells to other parts of the plant.

**Meristem:** Type of plant tissues consisting of undifferentiated cells that can continue to divide and differentiate and from which plants grow in length or width.

**Primary Growth:** Plant growth in length.

**Secondary Growth:** Plant growth in width.

**Taproot:** Single, thick primary root that characterizes the root system of some plants.

**Fibrous Root:** Threadlike root that makes up part of the fibrous root system of some plants.

**Root System:** All the roots of a plant, including primary roots and secondary roots.

**Root Hair:** Tiny hair-like structure that extends from a plant root.

**Bark:** Tissue that provides a rough, woody external covering on the stems of trees.

**Stomata (singular: stoma):** Tiny pore in the epidermis of a plant leaf that controls transpiration and gas exchange with the air.

**Mesophyll:** Specialized tissue inside plant leaves where photosynthesis takes place.

**Cuticle:** Waxy, waterproof substance produced by cells on the surface of leaves, shoots, and other above-ground parts of plants.

**Deciduous Plant:** Type of plant that seasonally loses its leaves.

**Evergreen Plant:** Type of plant that keeps its leaves and stays green year-round.

## Plant Cells

Some structures found in plant cells but not in animal cells are:

- **Large central vacuole:** Contains water and dissolved substances. Helps give the cell shape and support the plant.
- **Cell wall:** Located outside the cell membrane. Shapes, supports, and protects the cell.
- **Plastids:** Organelles with their own DNA. Examples include chloroplasts, which contain the green pigment chlorophyll.

There are three different types of basic plant cells:

- **Parenchymal:** Contains chloroplasts. Carries out photosynthesis and cellular respiration. Stores organic molecules.
- **Collenchymal:** Elongated cells that provide support.
- **Sclerenchymal:** Cells with very thick walls that also provide support. More rigid than collenchymal cells.

All three of these cell types are found in most plant tissues.



Figure: Cross-section of a plant cell.

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# Plants Cells And Tissues Study Guide

**Cybellium**



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