

Plant tissues, organs and systems

List the plant tissues you need to know.

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What is meristem tissue and where is it found?

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How is palisade mesophyll adapted for photosynthesis?

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What is the role of spongy mesophyll?

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What do the roots, stem and leaves form?

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How is a root hair cell adapted?

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What does xylem do and how is it adapted?

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What is translocation?

Tissue at the growing tips of shoots and roots, where cells divide to produce new cells.

Epidermal tissues, palisade mesophyll, spongy mesophyll, xylem and phloem, and meristem tissue. The leaf is an organ made of these tissues.

Air spaces let gases diffuse through the leaf, such as carbon dioxide for photosynthesis.

Tightly packed cells near the top of the leaf containing many chloroplasts, to absorb light.

Long root hair gives a large surface area. Takes up water by osmosis and mineral ions by active transport, which needs energy from respiration (many mitochondria).

A plant organ system for transport of substances around the plant.

The movement of dissolved sugars through phloem from the leaves to the rest of the plant. Phloem is tubes of elongated cells with pores in the end walls.

Transports water and mineral ions from roots to stems and leaves. Hollow tubes strengthened by lignin.

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What is transpiration?

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What do stomata and guard cells do?

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How do temperature, humidity, air movement and light affect transpiration?

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How can you measure the rate of transpiration?

They control gas exchange and water loss.
Guard cells open and close the stomata.

The loss of water vapour from the leaves.
Water moves up the xylem, evaporates
from leaf cells and diffuses out through the
stomata.

Use a potometer to measure water uptake
by a shoot. Rate = distance the bubble
moves $\div$ time.

Higher temperature, more air movement
and more light increase the rate. Higher
humidity decreases it.