

Super Learning Script , Plant Biology
Leaves Summary

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9 points

1. The chief functions of leaves are photosynthesis and transpiration.
2. Angiosperm leaves are generally flat thin blades.
These flat thin blades are attached to the stem by petioles or sheaths.
Veins strengthen the blades and transport food and water.
Leaf blades may be simple or compound.
Leaf margins may be entire, dentate or lobed.
3. Three tissues compose the leaf:
Upper epidermis, mesophyll and lower epidermis.
The mesophyll is differentiated into pallisade parenchyma
and spongy parenchyma.
Generally a waxy cuticle coats the epidermis.
Guard cells of the epidermis form stomata that control gas exchange.
4. Mesophyll tissue is made of pallisade and spongy parenchyma tissues
and veins.
Chloroplasts are present in both parenchyma tissues.
Mesophyll is adapted for photosynthesis.
Some plants do not differentiate mesophyll into
pallisade and spongy regions.
5. Leaf shape is under genetic and hormonal control.
Leaf shape is influenced by light, moisture and the age of the plant.
Leaves may become modified.
Modified leaves may serve as bud scales, spines or tendrils.
Modified leaves may be the source of propagules.
Modified leaves may be food or water storage organs.
Leaves may be insect traps.
Strong light intensity, nutrient deficiency or water stress
can affect leaf morphology and anatomy.
6. Leaf primordia develop in a definite spatial sequence

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on the flanks of the shoot apex.

7. The ground leaf lamina is produced by marginal meristems.
The marginal meristems are also responsible for the shape of the leaf.
8. Cell divisions are completed while the leaves are enclosed in the bud.
Leaf expansion results from cell enlargement.
9. The formation of a definite abscission zone across a petiole
is responsible for leaf fall.
Environmental cues and hormonal changes affect formation
of the abscission zone.