

Introduction to Botany. Lecture 16

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Outline

- 1 Questions and answers
- 2 Morphology of leaf
- 3 Leaves in nature

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Previous final question: the answer

How many levels of hierarchy has this leaf?



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3

Terminal characters

Terminal (leaflet) characters are applicable only to terminal parts (normally, leaflets) of leaves:

- Form of base
- Form of tip
- Type of margin
- Surface
- Venation

Terminal characters: base of leaf blade

- Rounded
- Truncate (straight)
- Cuneate
- Cordate
- Sagittate

Terminal characters: leaf apex

- Rounded
- Mucronate
- Acute
- Obtuse
- Acuminate
- Retuse

Terminal characters: leaf margin

- Without teeth: smooth
- With teeth
 - Dentate
 - Serrate
 - Crenate
- Could be double-dentate, triple-serrate etc.

Terminal characters: leaf venation

Lateral veins \ Main vein	No	One	Several
	No	Apodromous	Hypophyllous
Several	Acrodromous	Pterophyllous	Actino-

Heterophylly

- Juvenile and adult leaves
- Water and air leaves
- Sun leaves and shade leaves

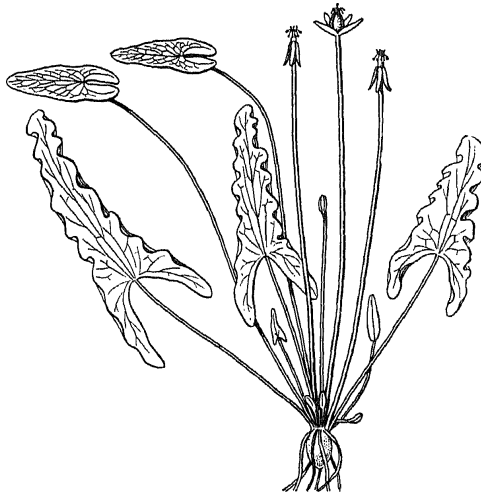
Juvenile leaves of *Juniperus* sp.



Juvenile leaves of *Eucalyptus* sp.



Submerged and floated leaves of *Ondinea*



Leaf mosaic

- Distribution of leaves of plants in a single plane, usually perpendicular to light rays
- Provides the least shading of leaves by one another

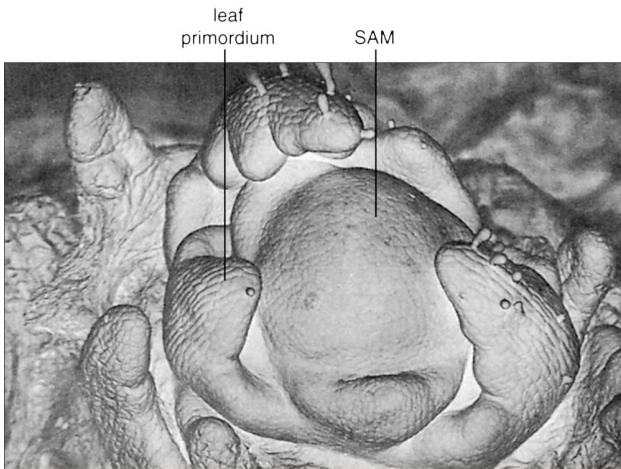
Leaf mosaic of red maple (*Acer rubrum*)



Seasonal life of leaves

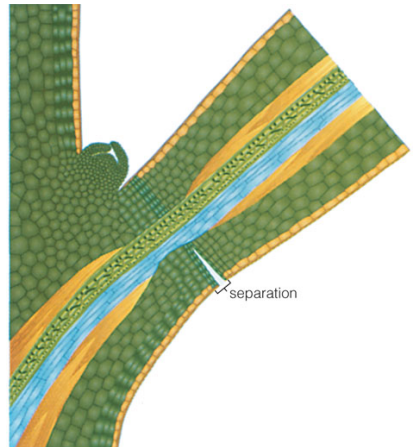
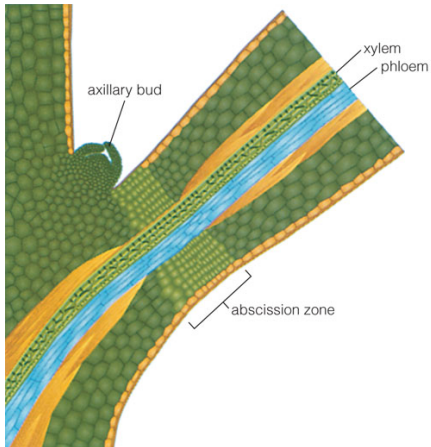
- Leaves arise from SAM through leaf primordia
- Old leaves separate from plant in a region called abscission zone

Leaf primordia



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Abscission zone



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Final question (3 points)

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Please draw the **entire** (not dissected), **ovate** leaf with **acute** apex, **cordate** base, **smooth** margin and **hypodromous** venation.

Summary

- Leaves have **general**, **repetitive** and **terminal** characters
- **Heterophylly** is a co-existence of different types of leaves on the same plant
- **Abscission zone** helps the separation of leaf at the end of season

For Further Reading



J. E. Bidlack, Sh. H. Jansky.
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McGraw-Hill, 2011.
Chapter 7.



Th. L. Rost, M. G. Barbour, C. R. Stocking, T. M. Murphy.
Plant Biology. 2nd edition.
Thomson Brooks/Cole, 2006.
Chapter 6.