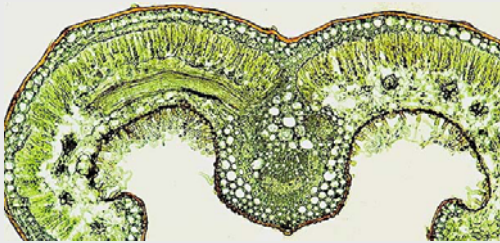


Adaptations

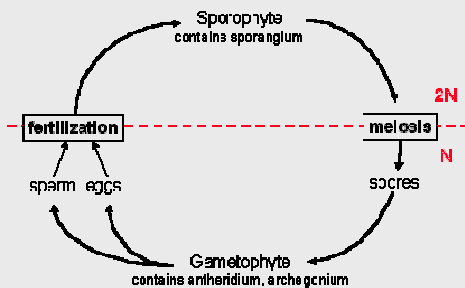
- Cuticle
- Alternation of generations
- Specialized tissues

Cuticle

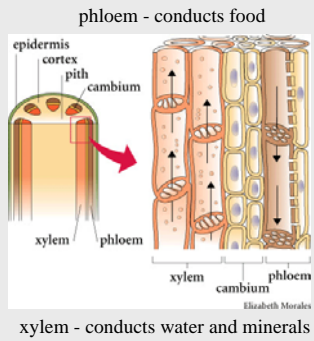


- Waxy coating on surfaces
- Resists drying out
- Stomata exist to allow necessary gas exchange

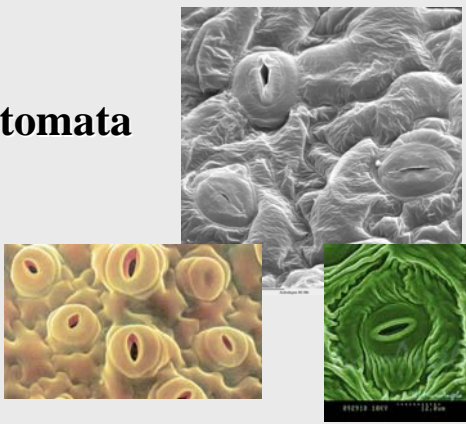
Alternation of Generations



Specialized Tissues



Stomata



Bryophytes



- Nonvascular: no ability to internally transport water/materials
- Require moist environment
- Live in colonies, has rhizoids to anchor it, no true roots

Still Seedless, but Vascular Ferns & Horsetails



Heterospory vs. Homospory

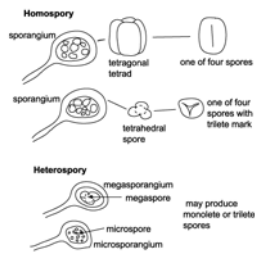


Diagram (not to scale) showing homospory and heterospory, both types of spores germinate proximally. Homosporous plants first appear in the late Silurian.

Gymnosperms



Gymnosperm Reproduction













Gymnosperm Reproduction



Angiosperms





Angiosperms

Monocots				
				
One cotyledon	Veins usually parallel	Vascular bundles usually complexly arranged	Fibrous root system	Floral parts usually in multiples of three
Embryos	Leaf venation	Stems	Roots	Flowers
Dicots				
				
Two cotyledons	Veins usually netlike	Vascular bundles usually arranged in ring	Taproot usually present	Floral parts usually in multiples of four or five

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Angiosperms: Monocots

Angiosperms: Dicots







Plant Evolution

- Bryophytes - no roots, leaves or stems, no vascular system, simple reproduction relying on water, gametophyte (haploid) dominant generation
- Ferns - first vascular system, rhizomes (horizontal stems), fronds, sporophyte (diploid) dominant generation

Plant Evolution

- Gymnosperms - first leaves (needles), vascular system, stems and roots, naked seeds
- Angiosperms - vascular system more organized, leaves, ability to shed leaves, seed provided with nutritive tissues, flowers, more sophisticated reproductive methods
