

# SOME PRIMITIVE PLANT DIVISIONS

3/30/94, rvsd 3/27/95, 27 Mar 02, 29 Mar 04, 28 Mar 05, 27 Mar 06, 31Mar08, 30Mar09, 27Mar10  
Campbell, pp. 559-570, Campbell's 5<sup>th</sup>: 546-559, Campbell's 6<sup>th</sup>: 575-589, 7<sup>th</sup>: 573-588, Sadava p. 610-617

Moved from sea to land: Charophyceans: aquatic algae-like ancestors of mosses

**Evolution of plants** (p. 617): avascular evolved to tracheophyta (pipe-plants)  
spore reproduction evolved to spermatophytina ("seed-plants") (p 617)

Review **alternation of generations**, sporophytic (2N) to gametophytic (1N) (p 614)  
sexual reproduction: meiosis, gametophytic, fertilization and sporophytic  
**fertilization** produces diploid zygote, seta (stalk) and capsule are **sporophytic**.  
**meiosis** in capsule to produce haploid spores

## AVASCULAR, SPORE-FORMERS: the most primitive plants:

### Bryophyta (p 615) "moss plants:"

Liverworts, Hornworts and Mosses

**Avascular:** amphibious plants, need constant water (no roots, stems or leaves)  
Possess stomata and cuticle (conserve water)  
reproduce via **spores**.

male parts: antheridium, produce motile sperm, swim to:  
**female parts:** archegonium

Peat bogs, sphagnum moss (p. 624)

## VASCULAR SPORE-FORMERS (p 617 again):

### Hepatophyta LIVERWORT: (p. 623)

Most primitive:  
Sporophytes can be 20 cm tall  
Gametophytes flat plates

**Lycophyta CLUB MOSSES:** (p 625) "wolf plants"  
(club mosses because of **strobili**), seedless vascular, many epiphytes  
**microphylls** each contain single vascular strand.

**Sphenophyta HORSETAILS:** (p 625) "wedge plants,"  
horsetails, seedless vascular plants, repro via spores  
scouring rushes scour because of silica deposits in cell walls

### Pterophyta FERNS: (p. 626)

Wing plants, ferns: haploid spores germinate to produce prothallus.

## LIFE CYCLE: (P 627)

**Prothallus** (gametophyte) has both antheridia and archegonia  
fertilization:

sperm swim to archegonia, zygote produces sporophytic stage: fronds

**frond** is diploid "**megaphyll**", containing multiple vascular strands  
fiddle heads to fronds,

**meiosis** in **sporangia**, clusters of sporangia called **sori**.

All sporangia on single specialized leaf called **strobilus** (cone)

