



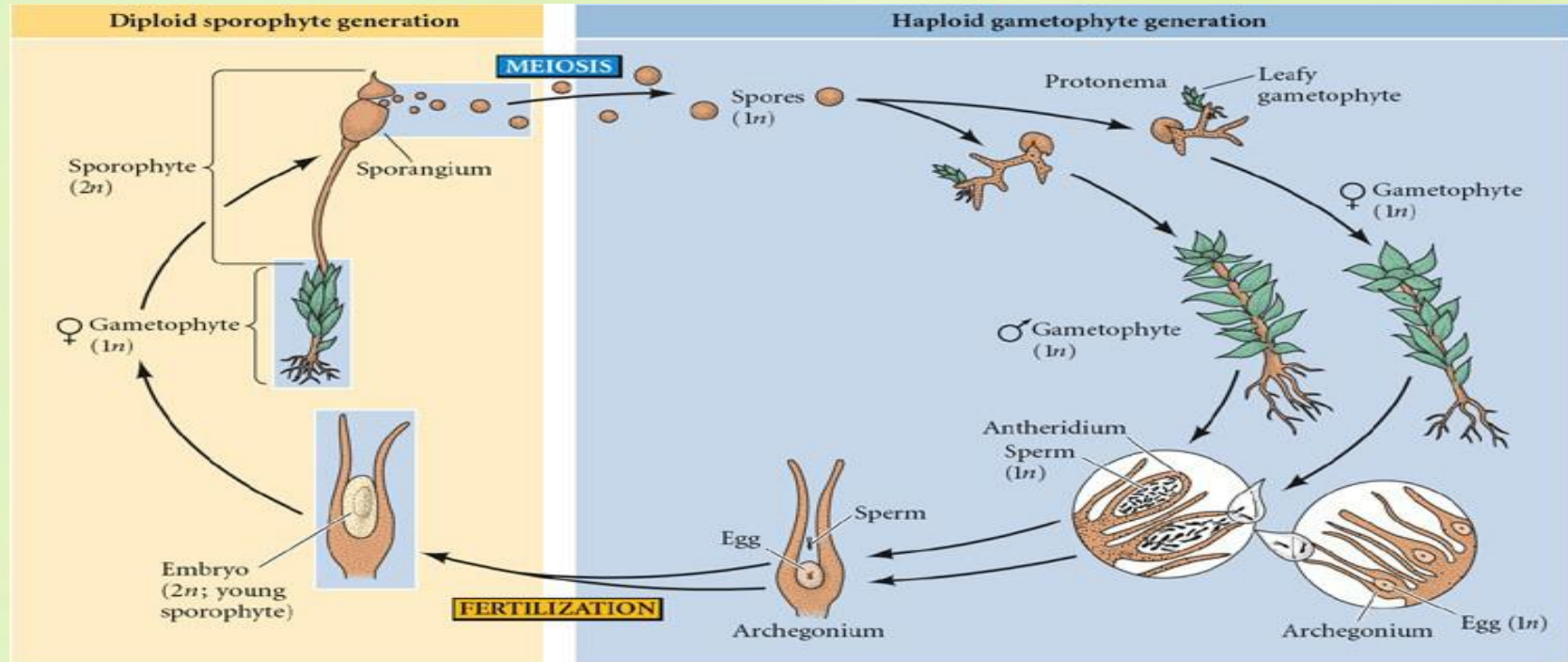
Plant
Kingdo

Bryophytes



- Non-vascular plants
- Obtain/transfer water by osmosis
- No true roots, leaves, stems
- “Rhizoids”- anchor plant to ground
- Low-growing (only few inches high)
- Grow moist, shaded areas
- Ex) Mosses, liverworts, hornworts

Life Cycle Bryophytes



- Gametophyte is dominant stage
- Depends on water to reproduce
- Spore → protonema (tangled mass green filaments) → develop into gametophyte plant
- Specific structures make reproductive cells at tips of gametophyte plant
- Antheridia = sperm and Archegonia = egg
- Join create diploid zygotes = sporophyte stage

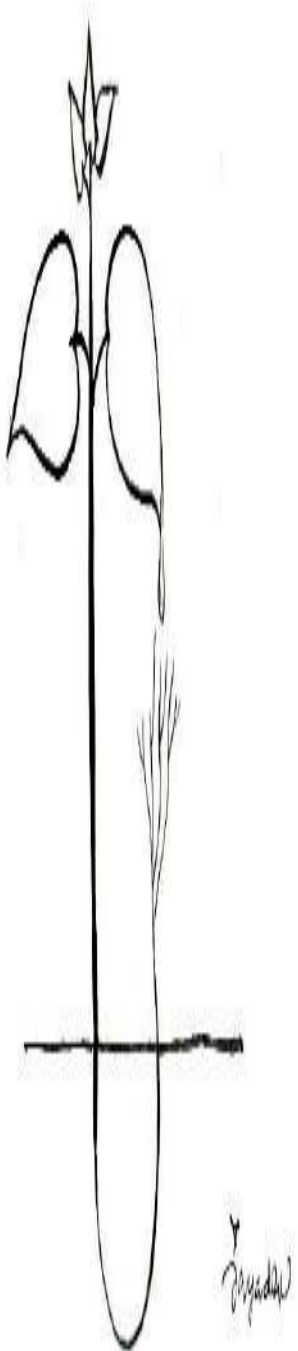
Seedless Vascular Plants

- 1st true land plants
- Contain "vascular tissue"
- Ex) Ferns, club moss, horsetails

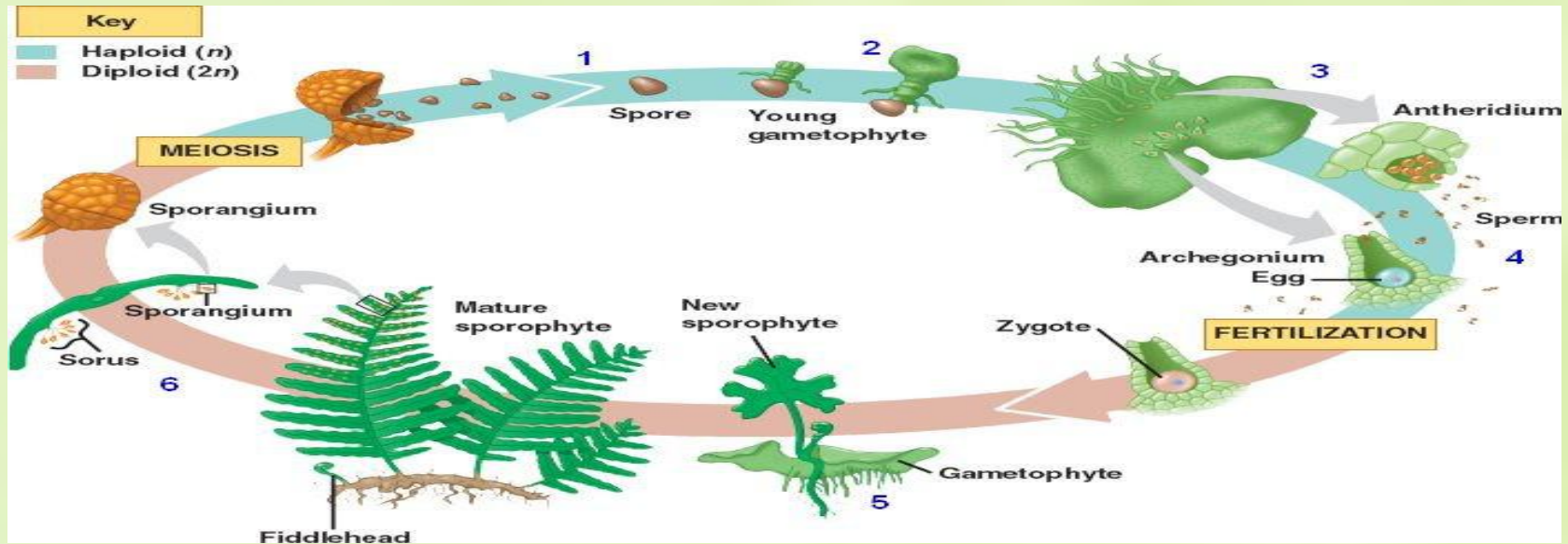


Structure: Seedless Vascular Plants

- 2 Types of vascular tissue:
 - xylem - moves water from roots to all parts of plants
 - phloem - distributes nutrients and carbohydrates (food) within plant
- Have roots, leaves, and stems
 - roots - absorb water/nutrients
 - leaves - site photosynthesis
 - stems - support plant and connect leaves and roots
- Ferns have strong roots called "rhizomes" and very large leaves called "fronds."



Fern Life Cycle



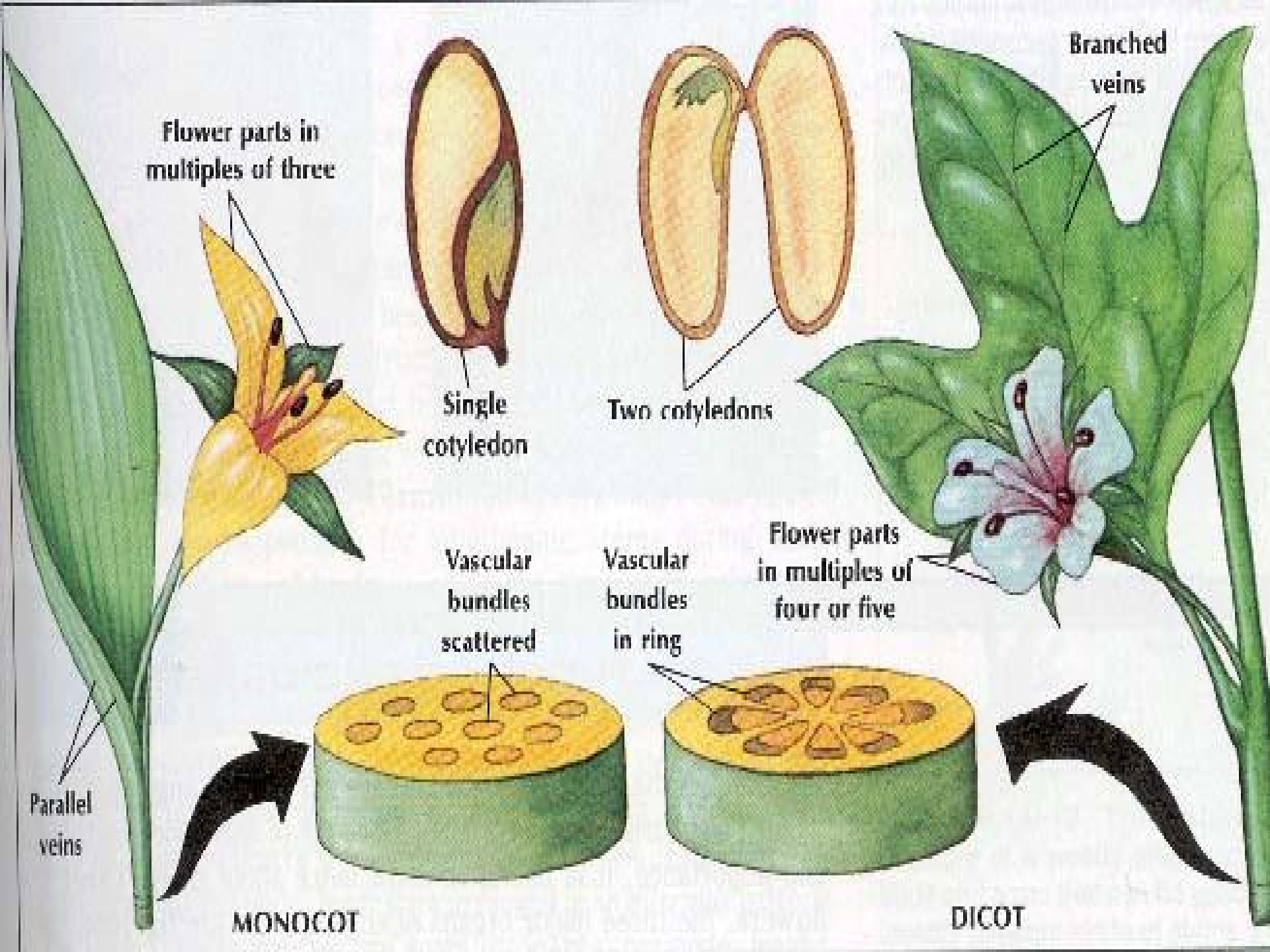
- Sporophyte dominant stage
- Grow haploid spores underside of fronds in structures called sporangia (clustered sporangia = sori)
- Spores carried by wind and water → grow into haploid gametophyte
- Gametophyte makes antheridia and archegonium which release sperm and eggs.
- Zygotes form adult, diploid, sporophyte.

Gymnosperms

- Reproduce with seeds instead of spores
- Do not require water for reproduction
- Seeds are "exposed" = naked seeds
- Seed produced inside cone-like structure
- Ex) "Conifers/Evergreens"-fir, spruce, ginko

Angiosperms

- Most common of all land plants.
- Seeds develop inside ovary within a "flower"
- Flowers attract animals to support pollination.
- After "fertilization" seed within flower develops into "fruit."
- Angiosperms = "enclosed seed"
- 2 groups angiosperms:
 - 1) Monocots
 - 2) Dicots



Life Spans Angiosperms

- **Annuals**- survive one season
- **Biennials**- take 2 years to complete life cycle
- **Perennials**- live many years