Vascular Seed Bearing Plants

1. Why are these plants the most dominant type found on earth?
   due to presence of vascular tissue & seeds, these plants can handle dry conditions better than the other plants
2. Fill in the blank with major differences between vascular seed bearing and other plants:
   a. pollen grain replaces swimming sperm
   b. Gametophyte is reduced and maintained in the sporophyte
   c. The gametophyte is microscopic, not free living
   d. Gametophyte nourishes the developing sporophyte in early development

* all are heterosporous

The Gymnosperms

- Have tracheids in xylem (no vessel elements)

Phylum Coniferophyta
Common Name: conifers
Includes: pines, firs, cedars, spruce
Preferred Climate: cool
Physical Traits: modified leaves, soft wood

Describe the life cycle of conifer:

(1) in male: microsporangium undergoes meiosis to make microspore which develops into pollen grain → pollen grain has tube, sperm, & sterile cell

in female: meiosis occurs in megasporangium to produce 4 cells (one survives) → pollination

(2) pollen tube grows in, sperm travel through tube & fertilize egg inside archegonium

(3) remaining gametophyte becomes food reserve

(4) embryo grows

Phylum Cycadophyta
Common Name: cycads
Includes: sago palm

Phylum Ginkgophyta
Common Name: ginkgo
Includes: ginkgo biloba (only living species)

Phylum Gnetophyta Gnetophytes
Common Name: *palms aren't flowering plants
Includes: mormon tea, Ephedra

Angiosperms

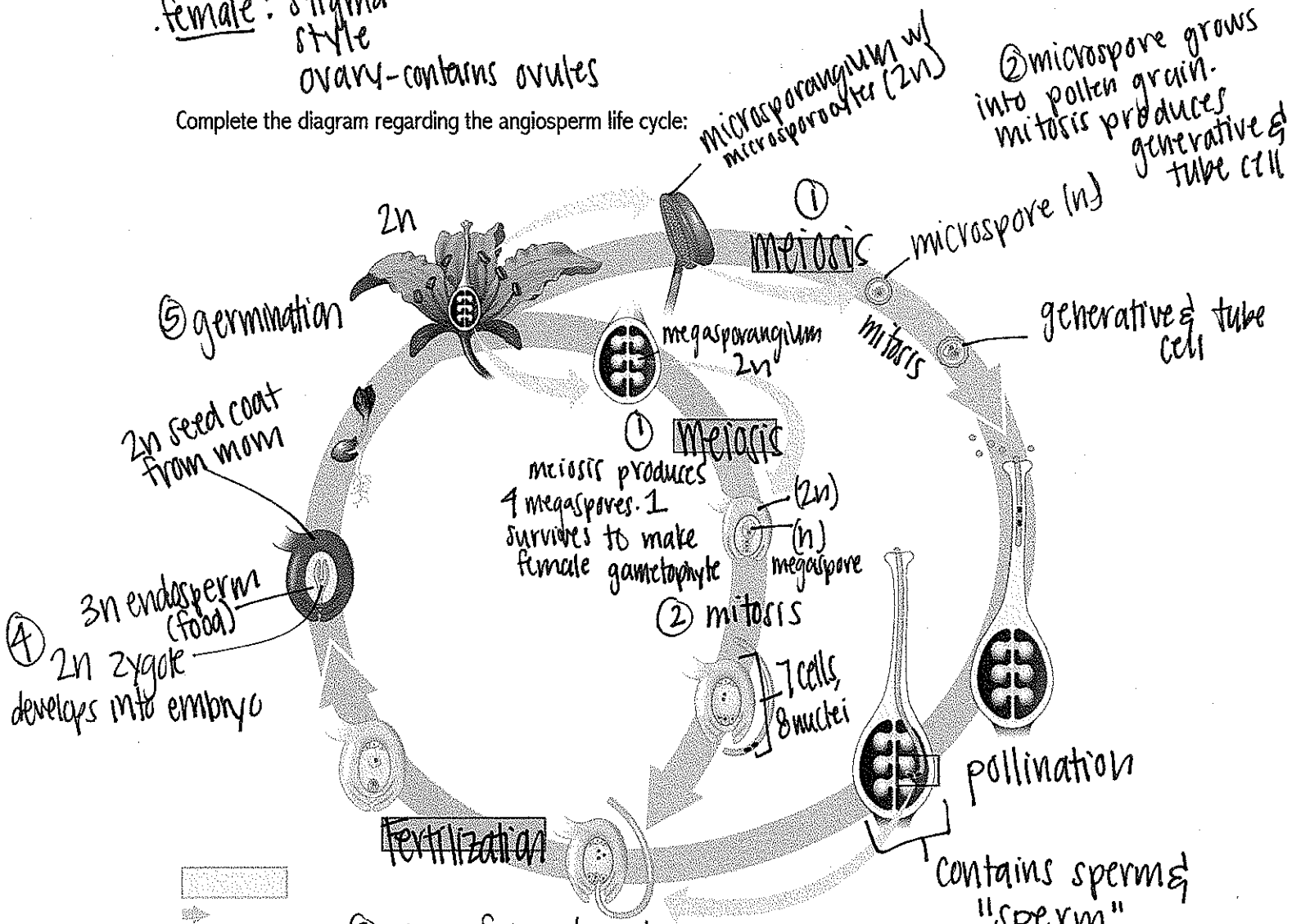
What is the unique trait to this grouping?
double fertilization → 3 rounds of mitosis

Angiosperms have vessel elements in xylem

Describe the parts of an angiosperm:

- male: anther - makes pollen
  filament - stalk portion of stamen
- female: stigma
  style
  ovary - contains ovules
- sepal - encloses bud
- petals

Complete the diagram regarding the angiosperm life cycle:



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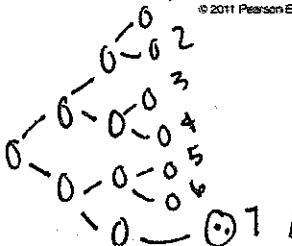

← one cell w/ 2 nuclei