

Gymnosperms and Angiosperms:

- Both are seed-producing, vascular plants
- What varies is the particulars of the seed-producing structures
- Gymnosperms produce "naked seeds" ...seed is NOT formed in a protective structure called an ovary
- Angiosperms, or "flowering" plants, produce seeds in an ovary



Most Common Gymnosperms are Conifers ("Cone-bearing")

- The tree itself is a sporophyte with gametophytes in its cones
- There are actually two types of cones on a conifer: pollen cones (male) and ovulate cones (female)...these are actually the ones we mentally associate with a "pine cone"



Pollen cones produce spores which mature into pollen grains, while ovulate cones produce spores which develop into an egg

Pollination vs. Fertilization:

Pollination is the act of transferring pollen from male to female parts of a seed plant, either by wind or animal

Fertilization is the fusion of male and female gametes (haploid) which produce a zygote (diploid)

Seed plants have some key adaptations that have contributed to their success:

- Pollen transfers sperm without the need for water...remember mosses and ferns needed water for this to occur
- Seeds protect, nourish, and provide a means of dispersal of plant embryos...mosses and ferns do not produce seeds, thus they are much more dependent on environmental conditions
- The "vulnerable" gametophyte stage of the life cycle is housed and protected in the sporophyte plant...in mosses and ferns these gametophytes existed separately