Seed Plants – Higher Plants

Prepared by Diana Wheat
For Linn-Benton Community College

Alternation of generations

The life cycle typically found in plants in which the spore producing generation alternates with the gamete producing generation.

Plants have 2 forms……..

The different forms

Gametophyte: The multicellular, haploid stage in the life cycle of plants.

Sporophyte: The diploid form of a plant that produces, haploid, asexual spores through the process of meiosis – reduction division.

Heterospory: The Rule
Among Seed Plants

Seed plants evolved from plants that had megasporangia
- Which produce megaspores that give rise to: female gametophytes

Seed plants evolved from plants that had microsporangia
- Which produce microspores that give rise to: male gametophytes
Two major categories of seed plants

I. Gymnosperms – Cone bearing plants
   Conifers, Cycads, Ginko, Gnetophytes

II. Angiosperms – Flowering plants
   Most plants we know that have flowers
   e.g. tulips, roses, & grasses

Land Plants’ Adaptations

Seeds and pollen allowed gymnosperms and angiosperms (flowering plants) to survive and thrive in drier habitats.

............Allowed wider range of dispersion

Pollen

Seed plants release pollen grains which allow fertilization to occur even in the absence of available water.

Transported via:
Wind or Animals
Onto Angiosperms – the flowering plants

Anatomy of a Flower
Summary comparison

Male
- Produces Pollen
- Stamen: Anther, Filament

Female
- Produces Ovules, Pistil: Stigma, Style, Ovary (surrounds ovules)

Fruit – contain fertilized seeds

Fruit – Derived from the ovary of a flower.
The Participants
– necessary to make seeds

**Pollen:** Male gametophyte of seed plants.
→ Contains sperm

**Ovule:** Female gametophyte of seed plants.
→ Contains egg.
Onto Angiosperms – the flowering plants

Double Fertilization

**Double fertilization** results from the discharge of two sperm from the pollen tube into the embryo sac.

One sperm → the **egg**

The other combines with the polar nuclei in ovule food-storing endosperm.

The Products

Seed – From the ovule

Seed Coat –
From the Ovule Wall

Fruit – From the Ovary
Summary of plants including dispersal mechanisms

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