



# Plant Reproduction

Chapter 3 - 1

# Vocabulary

- Spore
- Gametophyte Stage
- Sporophyte Stage

# Types of Plant Reproduction

- Asexual Reproduction – Plants may reproduce by budding
  - Potatoes grow “eyes” that will sprout off the side of the potato, fall off and form a new potato
- Sexual Reproduction – Water or wind can bring the gametes together, insects such as bees can also bring them together

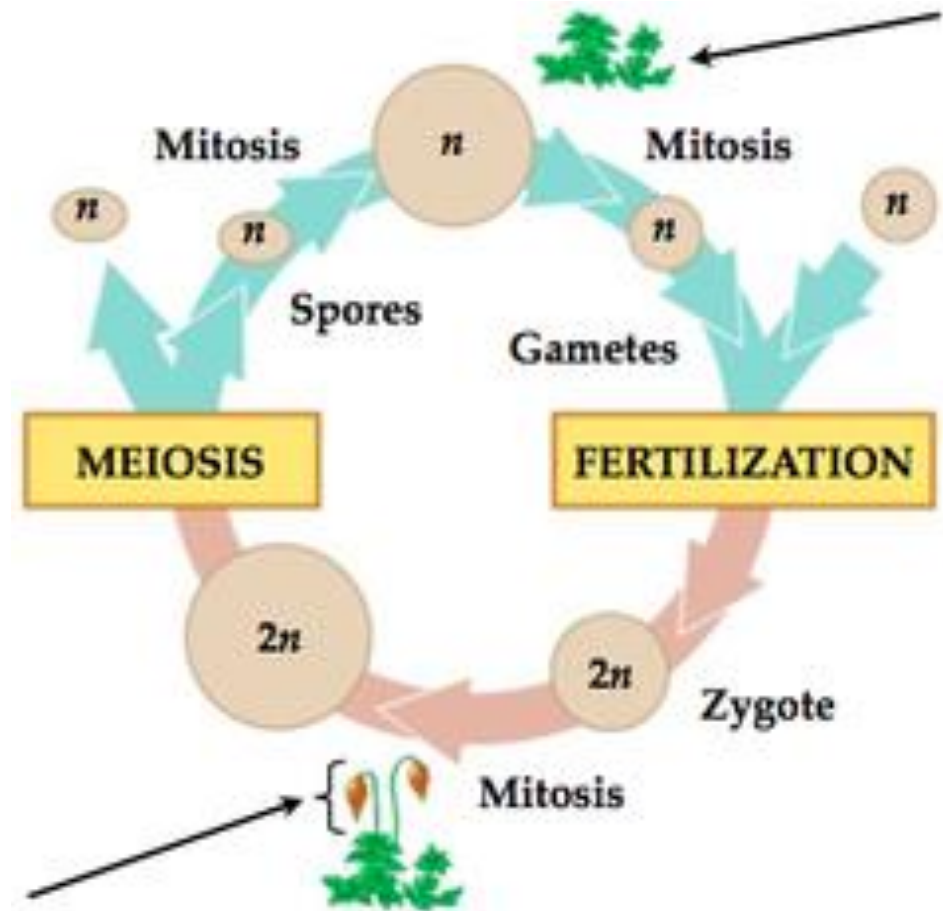
# Plant Reproductive Organs

- A plant's female reproductive organs produce eggs
- A plant's male reproductive organs produce sperm
- Depending on the species, the reproductive organs can be on the same plant or on separate plants
- Some plants with both reproductive organs can reproduce by themselves
- Other plants with both reproductive organs can not reproduce by themselves

# Plant Life Cycles

## Gametophyte Stage

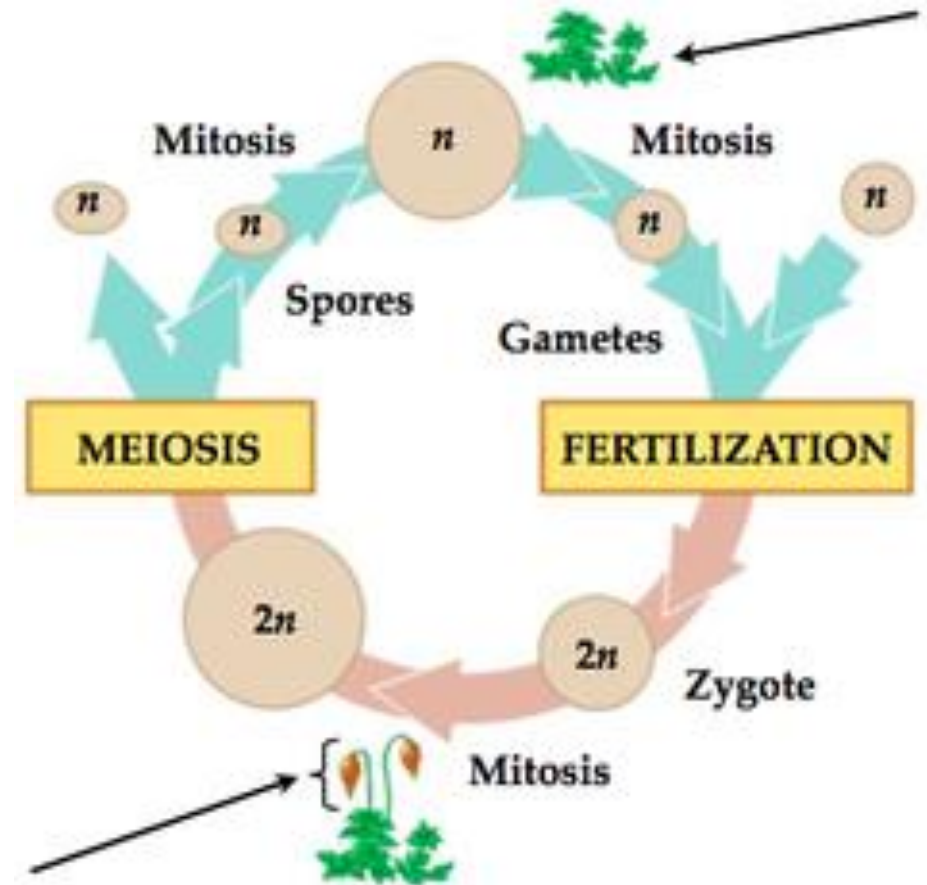
- Begins when reproductive cells undergo meiosis and produce haploid cells called spores
- Spores divide to form plant structures or a new plant
- Some of these cells form sex cells



# Plant Life Cycles

## Sporophyte Stage

- Begins with fertilization
- Cells formed during this stage are diploid
- Meiosis in some of these cells forms spores, beginning the cycle again



# Seedless Reproduction

Chapter 3 - 2

# Vocabulary

- Frond
- Rhizome
- Sori
- Prothallus



# Plant Types

- Vascular Plants – Have tubes (veins) that transport water and nutrients to cells and structures
- Non-Vascular Plants – Do not have tubes; water and nutrients are spread from one cell to another by osmosis or diffusion
- Seedless Plants – Plants that do not use seeds to reproduce
- Seed Plants – Plants that use seeds to reproduce



# The Importance of Spores

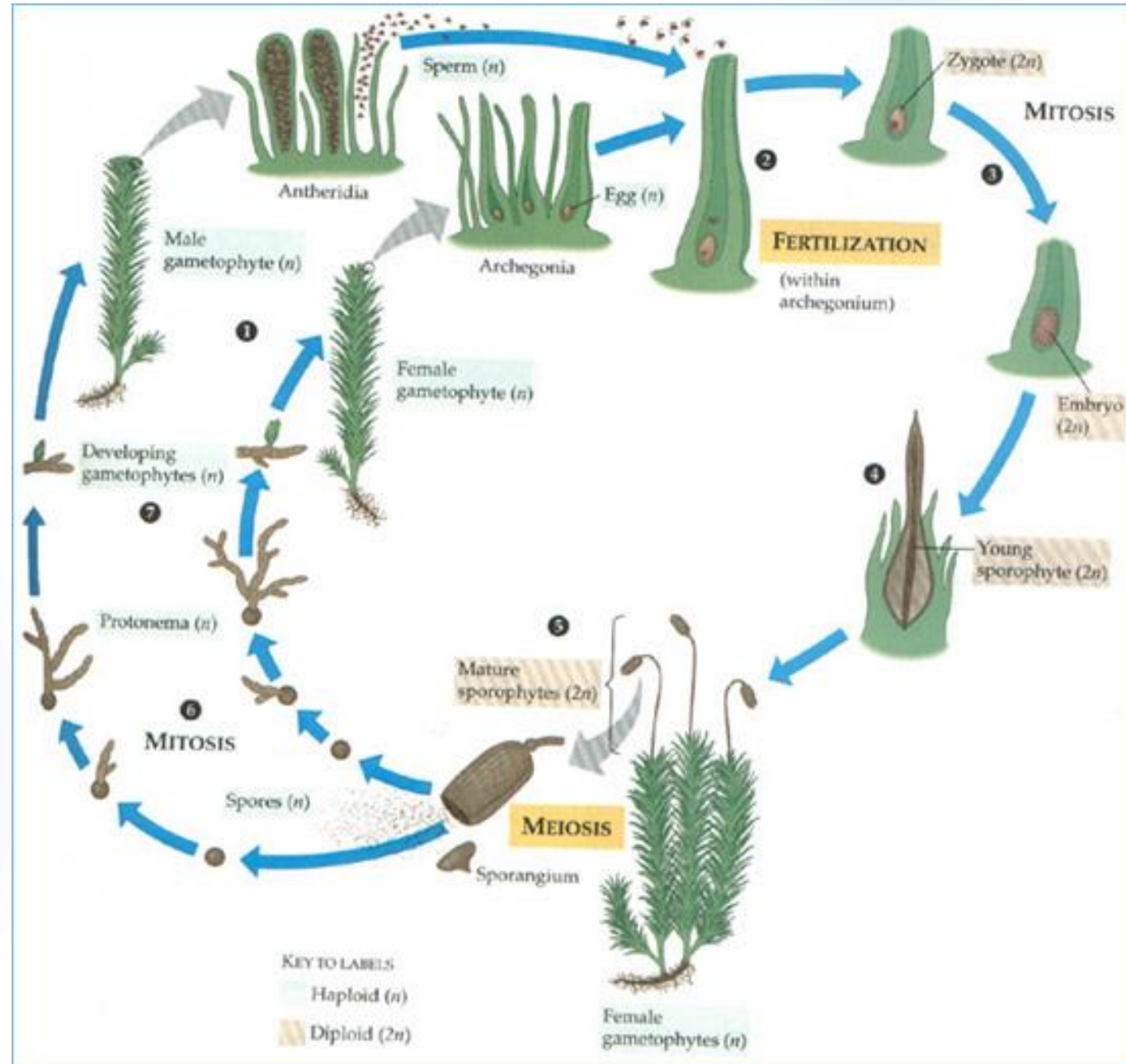
- Seedless plants reproduce by forming spores
- Spores are haploid cells that are formed in a spore case
- The spore case breaks open, and spores are spread by wind or water
- The spores grow into plants that will produce sex cells



# Moss Spores



# Moss Life Cycle



# Sporophytes and Gametophytes



# Ferns

- Vascular Seedless
- Leaves are called fronds
- Grow from an underground stem called a rhizome
- Spores are produced in structures called sori
- In the gametophyte stage, it is called a prothallus



# Fern Life Cycle

- Meiosis takes place inside each spore case to produce thousands of spores
- Spores are ejected and fall to the ground
- The spores grow to form a prothallus
- The prothallus contains male and female reproductive structures where sex cells form
- Water is needed for the sperm to swim to the egg, fertilization occurs, forming a zygote
- The zygote is the beginning of the sporophyte stage, and turns into a fern



# Seed Reproduction

Chapter 3 - 3

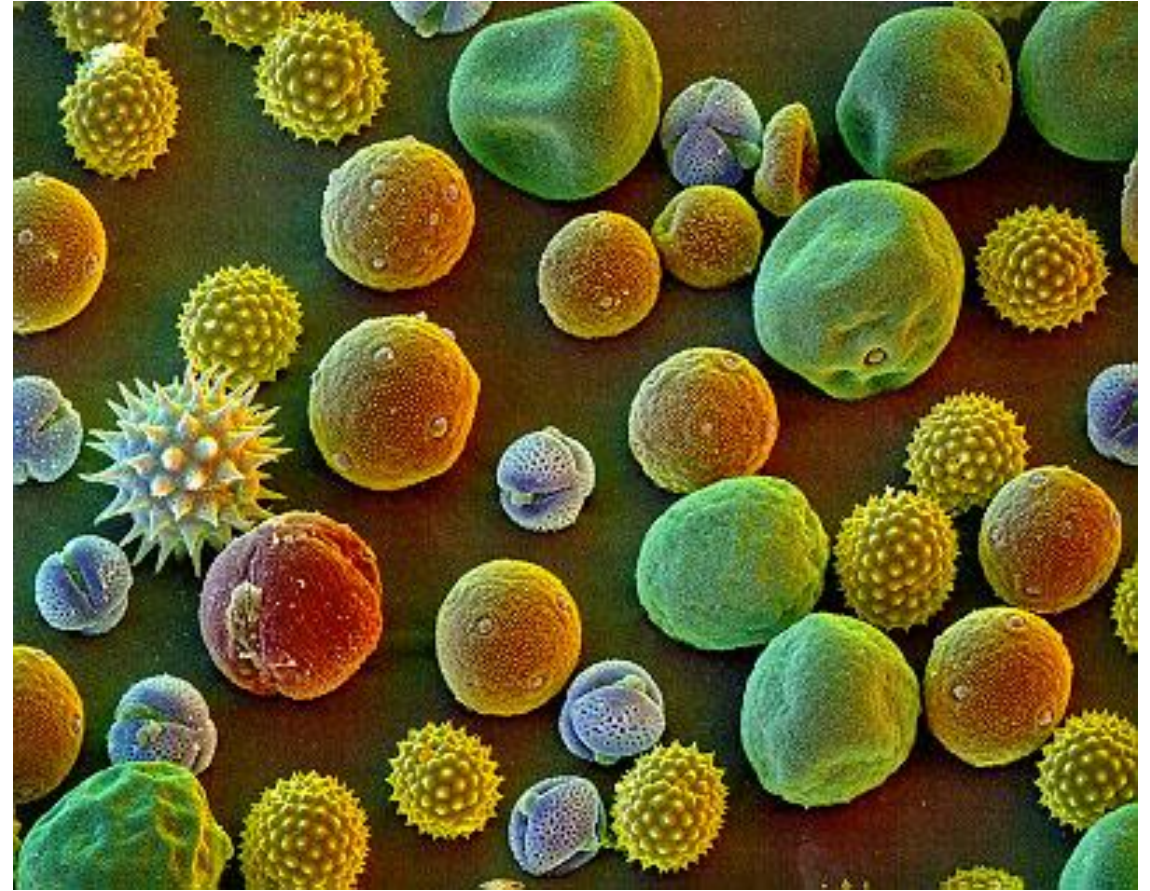


# Vocabulary

- Gymnosperms
- Pollen Grain
- Pollination
- Ovule
- Stamen
- Pistil
- Ovary
- Germination

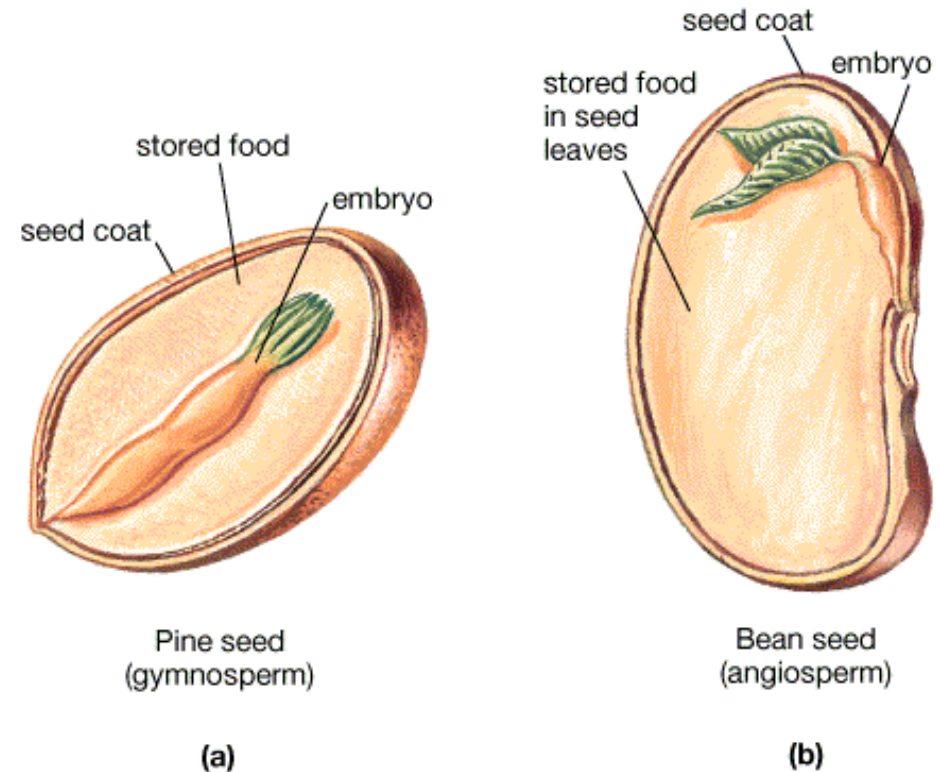
# Pollen

- Some spores develop into pollen grains
- Transferring the pollen grains to the female part of the plant is pollination
- After the pollen grain reaches the female part of the plant, sperm and a pollen tube are produced
- The sperm moves through the pollen tube, and fertilization can occur



# Seeds

- After fertilization, the female part can develop into a seed
- It consists of an embryo, stored food, and a seed coat
- The embryo has structures that will eventually turn into the plant's roots, stem and leaves
- The embryo grows until a certain age, then stops until it is planted
- Stored food provides energy that the seed will need when it develops into a plant



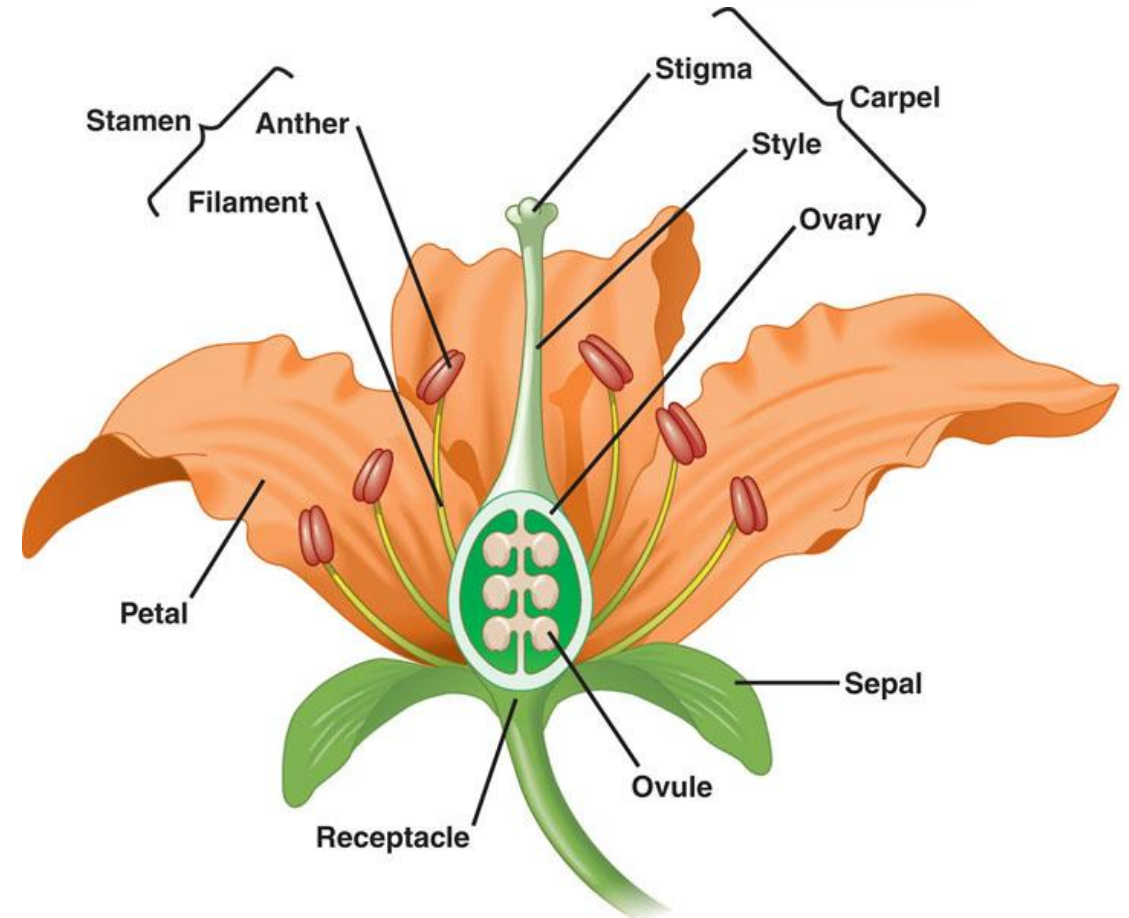
# Gymnosperm Reproduction

- Gymnosperms use cones to reproduce
- They have male cones and female cones
  - Male cones contain pollen
  - Female cones contain ovules
- Pollen from males cones is spread by the wind or sometimes water and falls onto female cones
- After fertilization occurs, it can take two years or more for a seed to develop



# Angiosperm Reproduction

- The stamen is the male reproductive organ of flowers
  - Produces pollen
- The pistil is the female reproductive organ
  - The ovary is the base of the pistil
  - Ovules are formed in the ovary



# Angiosperm Seeds

- Pollen grains reach the stigma
  - The stigma is sticky and holds pollen
- The pollen grain forms a pollen tube through the style and into the ovary to the ovule
- Sperm from the pollen grain travels down the pollen tube and fertilizes the egg, forming a zygote
  - Zygote develops into a plant embryo
- The ovule becomes the seed coat, and the ovary becomes a fruit

