


### Reproduction



- Sex or no sex? Advantages and disadvantages
- First eukaryotes were probably haploid and asexual. Sex gave rise to diploidy
- polyploidy
- Many plants (like many animals) can reproduce asexually
- Alternation of generations
- Gametophyte and sporophyte and the switch in dominance with advancement to land
- Drought resistant spores, then seeds (complex multicellular structures in which reproductive structures are surrounded by sterile cells). Seeds have a special covering and stored food

### Life Cycles

- Life Cycles and diploidy
- Zygotic meiosis
- Gametic meiosis
- Sporic meiosis
- Isomorphic and heteromorphic alternation of generations

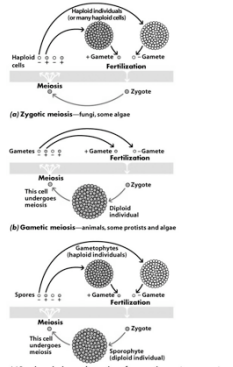
### What is a *sexual* life cycle?

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- A *sexual* life cycle (or a *sexual part* of a life cycle) is one which includes meiosis (which halves ploidy or chromosome number) and fertilization (which doubles it)
- In contrast with asexual reproduction, which involves only mitosis

The three main types of sexual life cycles, differing in the *timing* of meiosis and fertilization, relative to mitotic growth of multicellular bodies.



**(a) Zygotic meiosis**—fungi, some algae  
 This cell undergoes meiosis → Haploid cells → Gametes → Fertilization → Zygote → Meiosis → Haploid individual (or many haploid cells)

**(b) Gametic meiosis**—animals, some protists and algae  
 This cell undergoes meiosis → Haploid individual → Gametes → Fertilization → Zygote → Meiosis → Haploid individual

**(c) Sporic meiosis**, or alternation of generations—plants, many algae  
 This cell undergoes meiosis → Spores → Gametophyte (haploid individual) → Gametes → Fertilization → Zygote → Meiosis → Sporophyte (diploid individual)

Figure 12-15  
 Biology of Plants, Seventh Edition  
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