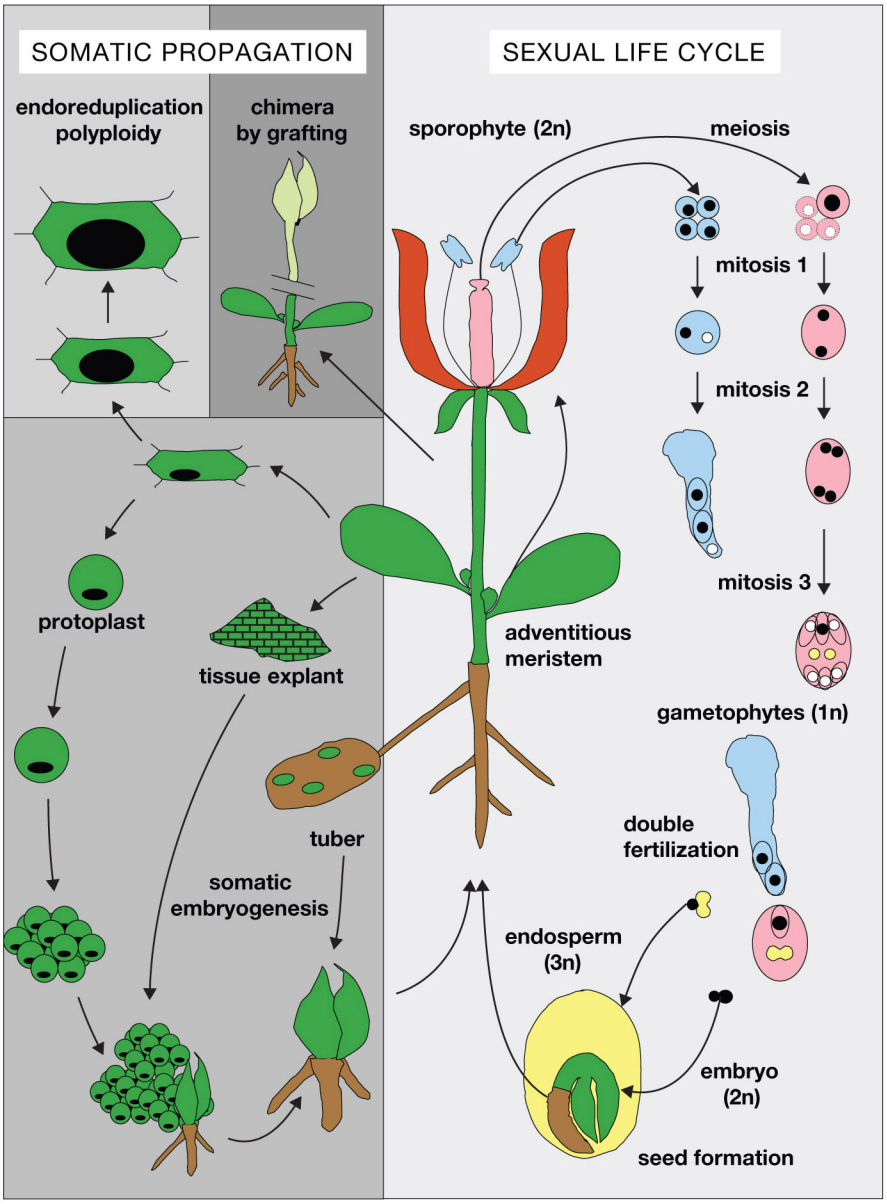

Figure 1. Specialties of the Plant Life Cycle

Plants can propagate sexually (gametogenesis, fertilization, and seed formation, *right*) as well as somatically (vegetative sprigs, de- and re-differentiation or embryogenesis, *left*). The body of higher plants, with roots, stem, leaves, and flowers, is the diploid sporophyte. During meiosis, the chromosome number is reduced to half. Whereas in animals the meiotic products form the gametes without further division and fuse directly to produce the diploid embryo, plants form haploid male or female gametophytes by two or three mitotic divisions, respectively. The pollen tube ultimately contains one vegetative (*white*) and two generative (*black*) nuclei. The two generative nuclei fertilize the egg cell (*black*) and the central cell, which has a diploid nucleus derived from fusion of the two polar nuclei (*yellow*). This double fertilization gives rise to the diploid embryo and the triploid endosperm, which provides a nutrient source for the developing embryo. After seed germination, the embryo will grow into a new sporophyte. In addition, most plants have the potential for vegetative propagation through activation of quiescent lateral meristems, outgrowth of specialized root structures such as tubers, amplification in tissue culture, and even regeneration from individual somatic cells after removal of the cell wall (protoplasts). Endoreduplication is frequent in plants, producing polyploid cells or tissues. Plants can be grafted to produce chimeras. In summary, genetic and epigenetic information in plants therefore passes a much less well-defined germ line than in animals.