



**FIGURE 23.6.** Examples of eukaryote life cycles. (A) Human males and females produce eggs and sperm by meiosis, which unite to give a diploid zygote that develops into a new male or female adult. Sex is required for reproduction, and the haploid stage (red) does not divide. (B) In aphids, the life cycle is similar, except that sex is facultative. Females reproduce parthenogenetically during the spring and summer, bearing genetically identical daughters. At the end of the season, diploid sexual males and females are produced. These produce haploid sperm and eggs by meiosis, which fuse to give a fertilized egg that overwinters. The egg hatches to give parthenogenetic females in the next season. (C) The sporozoan parasite responsible for malaria, *Plasmodium*, spends most of its life cycle as a haploid. It goes through several asexual stages in the host, where it reproduces asexually in the liver and then in the red blood cells. Some haploid asexuals differentiate into gametocytes, which are taken up by mosquitoes. These fuse in the mosquito gut to give a zygote, which immediately goes through meiosis to begin the life cycle anew. (D) The green alga *Chlamydomonas* has a similar life cycle to *Plasmodium*, again spending most of its life as a haploid. However, sexual reproduction is now triggered by nutritional conditions, which produce a highly resistant zygospore. When conditions improve, this zygospore goes through meiosis and hatches to produce new haploid cells. Haploid portions of each cycle are shown in red; diploid portions are shown in blue.