

**Comparison of Mitosis and Meiosis.** Both mitosis and meiosis result in the production of new cells. Mitosis produces two diploid cells from one diploid cell. Meiosis produces four haploid cells from one diploid cell. ▶

<b>Comparison of Mitosis and Meiosis</b>	
<b>Mitosis</b>	<b>Meiosis</b>
Occurs in growth and asexual reproduction	Occurs in production of gametes in animals, and spores in plants and in some simple organisms
Homologous chromosomes not paired up during prophase. There is no exchange of parts between homologous chromosomes.	Homologous chromosomes paired up during prophase of first division. While paired, there may be an exchange of parts between homologous chromosomes.
Involves one cell division. In the course of division, the double-stranded chromosomes line up at cell equator, centromeres divide, and one chromatid of each chromosome goes to each daughter cell.	Involves two cell divisions. During first division, pairs of homologous two-stranded chromosomes line up at equator. The members of each pair separate, and one two-stranded chromosome of each pair goes to each daughter cell. During second division, centromeres of two-stranded chromosomes divide, and chromatids separate, one going to each daughter cell.
As a result of mitosis, each daughter cell receives the same number of chromosomes as the original cell. Mitosis maintains the chromosome number.	As a result of meiosis, each daughter cell receives only one member of each pair of homologous chromosomes. It therefore has only one-half the number of chromosomes in the original cell. Meiosis reduces the chromosome number by one-half.