



## Meiosis, Reasons and Process

Meiosis is also known as reduction division because in this kind of cell division the normal chromosome number of the mother cell is reduced to half in daughter cells. The normal chromosome number in human being is 46 (23 pairs), but as a result of meiosis this number is halved to 23 in daughter cells.

### Where Does Meiosis Occur?

Meiosis occurs in reproductive cells, is a type of cell division that occurs in the testes of males and in the ovaries of female animals. Meiosis leads to the formation of cells bearing half the normal number of chromosomes. The process is also referred to as spermatogenesis in males and oogenesis in females; in the pollen mother cell of the anthers (male organs) and in the megaspore mother cells of the ovary (female organ) of the flowers.

### Why Does Meiosis Occur?

Meiosis does not occur twice but consists of two stages. Meiosis is a reduction division, where the number of chromosomes in the parent cell reduces by half and produces four gamete cells. This process is required to produce eggs and sperm cells for sexual reproduction.

The number of chromosomes remains constant in a species generation after generation. Cells divide mitotically in the organisms that reproduce vegetatively/asexually. Thus, there is no change in the number of chromosomes, but sexually reproducing organisms form gametes such as sperms in males and ova in females. The male and female gametes fuse to form zygote which develops into a new individual.

If these gametes were, produced by mitosis, the offspring developing from zygote then would have double the number of chromosomes in the next generation.

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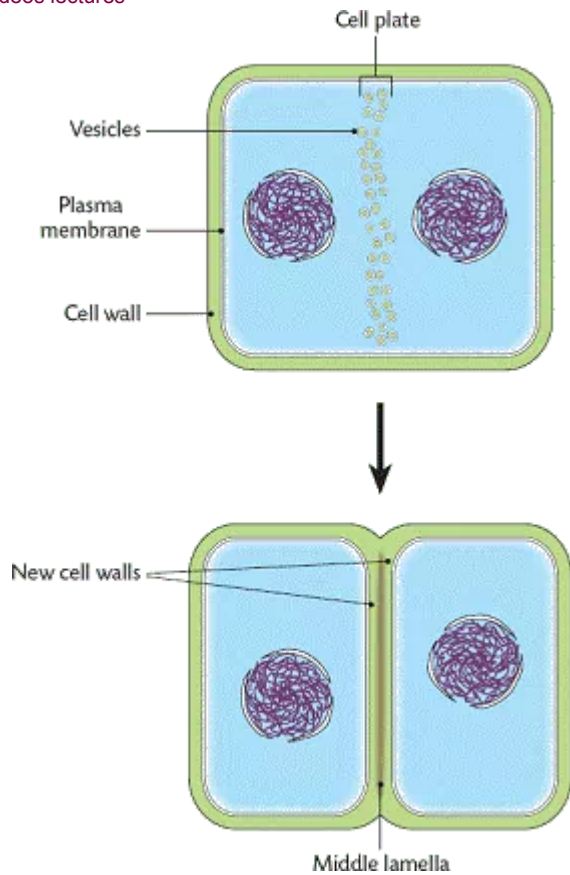


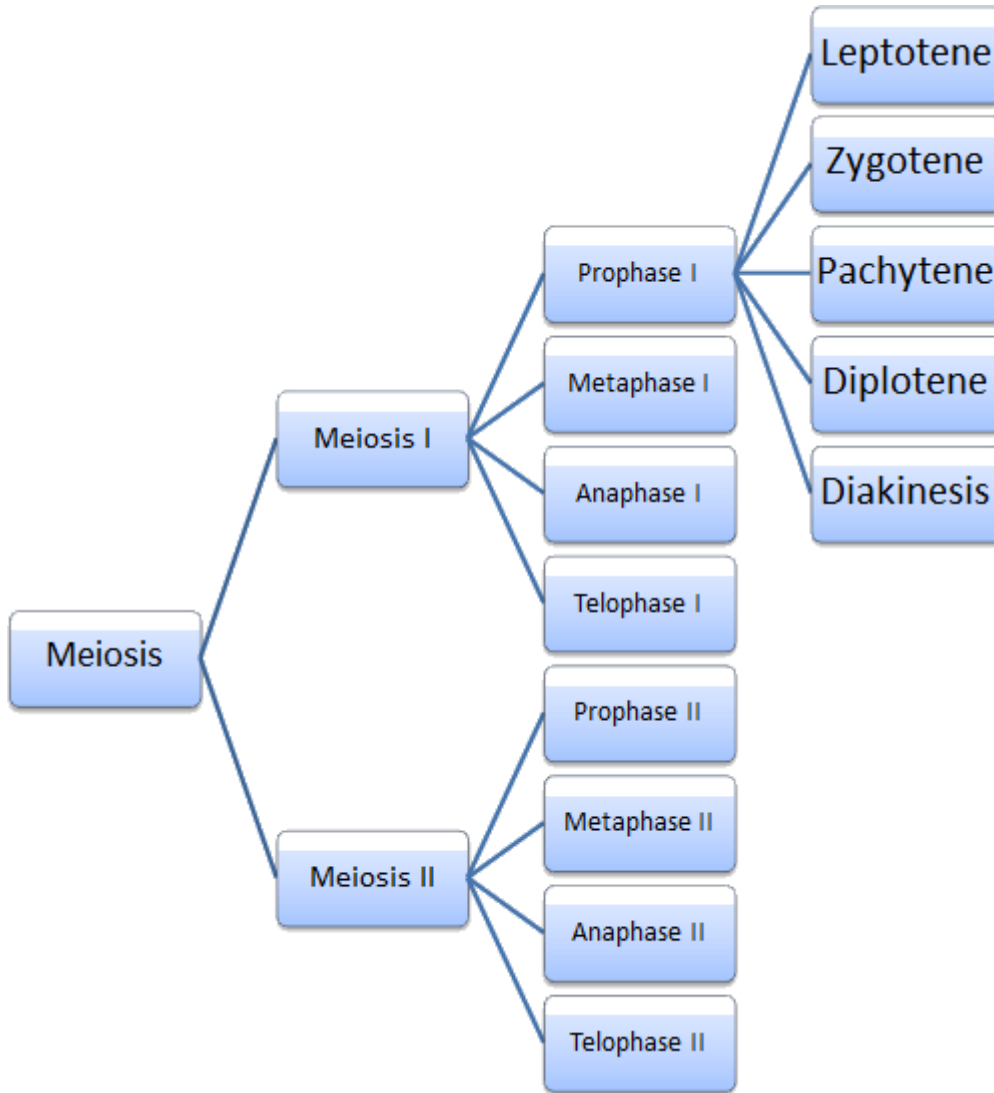
Image Showing Cell Wall Formation After Mitosis in a Plant Cell.

Every living organism has a definite number of chromosomes in its body cells, e.g. onion cell-16; potato-48; horse-64; man-46.

## How Does Meiosis Occur?

Meiosis consists of two successive divisions of the nucleus (meiosis I and II) and cytoplasm, while the chromosomes divide only once.

The interphase which precedes the onset of meiosis is similar to the interphase which precedes mitosis. At S-phase, the DNA molecule of each chromosome duplicates to give two DNA molecules and hence two chromatids are found in one chromosome.



*Image Showing Phases of Meiotic Division.*