

## Meiosis Stages

Meiosis is involved in the production of [sperm](#) and eggs in individuals who can sexually reproduce. This process reduces chromosomes by half.

this case, when a sperm fertilizes and egg, the zygote that results has a full set of chromosomes. A cell that undergoes meiosis therefore divides two times (meiosis 1 and meiosis 2). The diploid ( $2n$ ) parent cell results in 4 haploid ( $n$ ) gametes.

Meiosis 1 is known as the reduction phase while meiosis 2 is the division phase. In meiosis, unlike in mitosis, two chromosomes in a homologous pair will line up next to each other (synapsis). The resulting homologous pair is referred to as bivalent.

### Interphase

This is similar to that of mitosis except for the fact that in meiosis, it is followed by two cell divisions.

### Prophase 1

Chromosomes condense and attach to the nuclear envelope. Synapsis then takes place and tetrads are formed, each composed of four chromatids. Crossing over of genetic material may occur during the synapsis as the chromosomes thicken and detach from the nuclear envelope.

Like in mitosis, [centrioles](#) also move and migrate to the poles as the nuclear and nucleoli start breaking down.

### Metaphase 1

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In this phase, tetrads align at the metaphase plate and the centromeres of the homologous chromosomes become oriented towards either side of the cell poles.

### **Anaphase 1**

The chromosomes start moving to the opposite poles of the cells. The microtubules and kinetochore fibers also interact and there is movement. Unlike in mitosis, homologous chromosomes move to the opposite poles but sister chromatids remain together.

### **Telophase 1**

The spindle fibers continue moving homologous chromosomes to the poles after which either pole has a haploid number of chromosomes. Cytokines also tend to occur spontaneously. Two daughter cells are formed each containing a half number of chromosomes as the original parent cell.

### **Prophase 2**

In this stage, the nuclear membrane as well as the nuclei break and the spindle fibers reappear. The chromosomes then start migrating to the equator of the cell.

### **Metaphase 2**

Chromosomes line up at the second metaphase plate at the center of the cell. The kinetochores then point towards the opposite poles of the cell.

### **Anaphase 2**

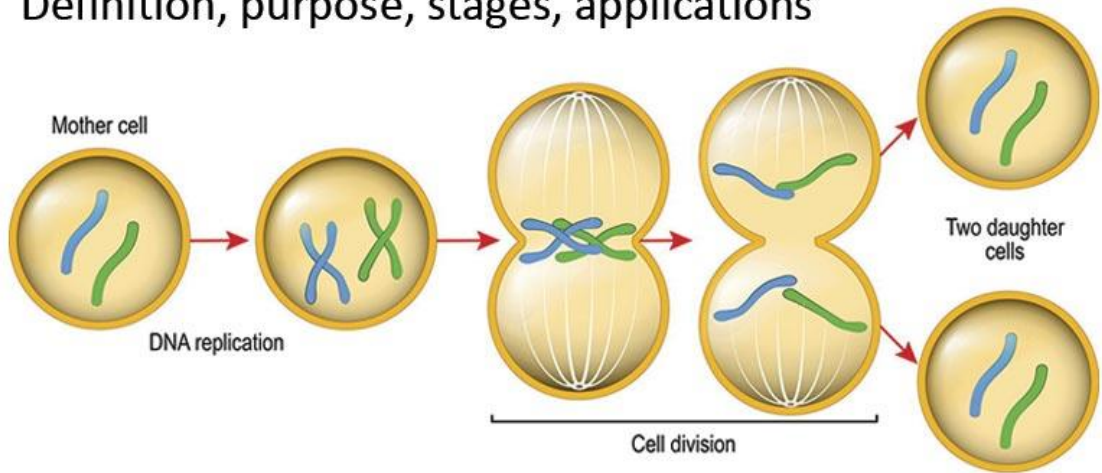
The sister chromatids divide and move to the opposite poles of the cells.

### **Telophase 2**

In this phase, distinct nuclei start forming at the opposite pole and cytokines start occurring. At the end of this phase, there are four daughter cells. Each of these has half the number of the chromosomes in the original parent cell.

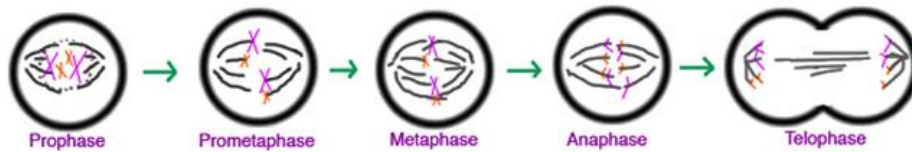
# Mitosis

Definition, purpose, stages, applications



## Types of Cell Division

### MITOSIS



### MEIOSIS

