

Source: [KBhBIO101CellCycle](#)

1 | Meiosis

Meiosis is the process by which sex cells (gametes cells) are produced. These cells have only 23 chromosomes (compared to somatic cell's 23 *pairs*), and they contain a variety of mechanisms for genetic variation.

Meiosis happens in two phases, which happens each in 4 phases:

1.1 | Meiosis 1

The purpose of meiosis 1 is to take the 23 *pairs* of 2-chromatid chromosomes in germline cells ($2n$ diploid, contains two sets of homologous chromosomes) and mix them to separate into two cells containing 23 singular 2-chromatid chromosomes ($1n$ haploid, contains only one set of genes).

- **(P)rophase 1**: the starting cell, a diploid, dissolves its nucleus and genetic information flows out. Also, [KBhBIO101GeneticVariation](#) by crossing over and independent assortment happens.
- **(M)etaphase 1**: homologous **PAIRS** of chromosomes (**note!** pairs!!! not the chromosomes) line up along the metaphase plate, forming a double-filed lines
- **(A)naphase 1**: separate the homologous pairs to the opposite ends of the cell
- **(T)elophase 1**: the two new half-cells proceed to separate further, creating new nuclear envelopes enveloping the 23-unpaired sister chromatids

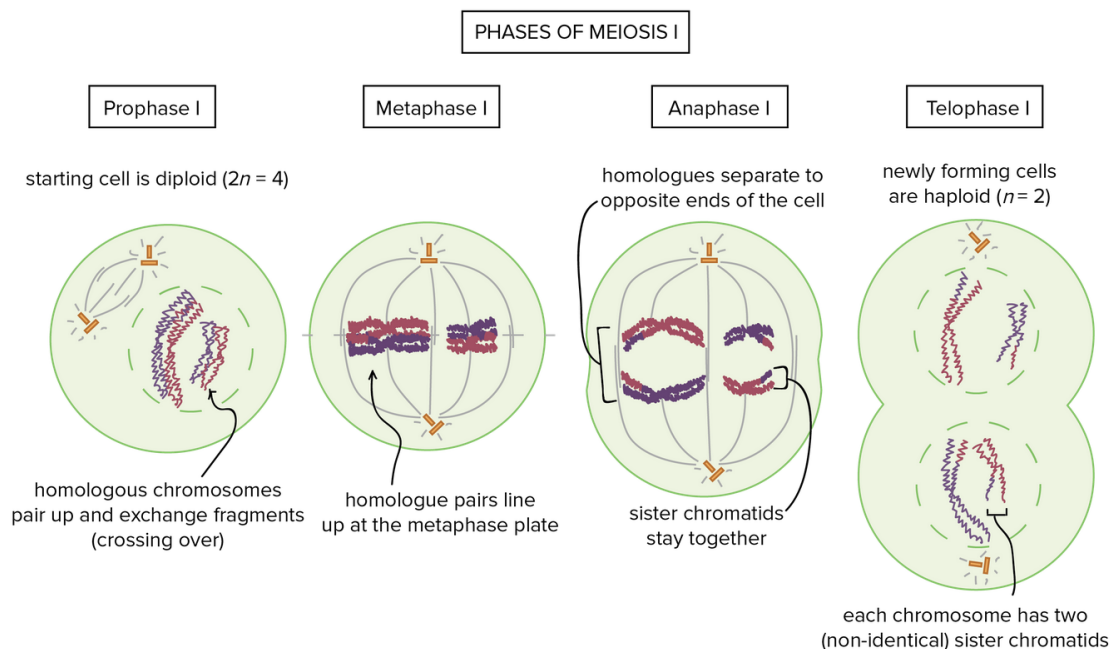


Figure 1: Pasted image 20210426220455.png

1.2 | Meiosis 2

The 23 2-chromatid Chromosomes becomes separated into two more cells each with 23 1-chromatids. This is more similar to a good-ol' [KBhBIO101Mitosis](#).

- **(P)rophase 2:** new spindles form, again! and the new haploids' nuclear envelope will start dissolving
- **(M)etaphase 2:** the sister chromatids (chromosomes) align themselves along the metaphase plate, attaching themselves to the spindles
- **(A)naphase 2:** spindles pull the sister chromatids away from each other
- **(T)elophase 2:** new nuclear envelope forms and the chromosomes dissolves