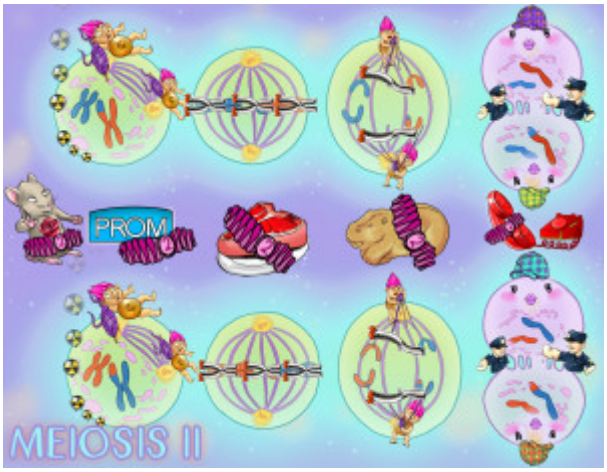
Meiosis II

Meiosis II picks up from where meiosis one left off, and in this stage, the sister chromatids within the two daughter cells separate, forming four new haploid gametes. Meiosis II resembles a normal mitosis, except that each dividing cell has only one set of homologous chromosomes. This process begins without any further replication of the chromosomes, and in prophase II, the centrioles migrate to polar ends of the cell. The spindle apparatus forms, attaching to the centrioles, and in this same period of time, the nuclear membrane disintegrates, exposing the genetic material. In metaphase II, the sister chromatids align at the metaphase plate. Later, in anaphase II, the sister chromatids are pulled apart into two towards opposite ends of the cell. Finally, in telophase II, cytokinesis divides these two cells into four. This results in four unique haploid daughter cells, each with 23 chromosomes, or one chromatid within.



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Prophase II
Prom-phase (2) Tutu
Prophase is the first phase of cellular division and occurs in mitosis, meiosis I and meiosis II. In prophase II of meiosis II cell division begins without replication of genetic material.

Centrioles Migrate
Cent-trolls Migrating
Centrioles are groups of microtubules that, in both types of cell division, migrate to different poles and attach to chromosomes.

Spindle Apparatus Forms
Spindles
A spindle apparatus is fundamentally comprised of spindle microtubules and hundreds of proteins that, in both types of cell division, helps separate chromosomes during cell division. These spindle apparati attach to the centrioles and the chromatids.

Nuclear Membrane Disintegrates
Nuclear-balloons flying away
In the beginning of prophase for both types of cell division, the nuclear membrane disintegrates, allowing for splitting of genetic material.

Metaphase II
Meat-phase (2) Tutu
Metaphase is the second phase of cell division and is associated with the alignment of chromosomes at the midpoint between centrioles.

Sister Chromatids Align at Metaphase Plate
Sister Chrome-kids Align at Meat Plate
In mitosis, sister chromatids are lined up at the metaphase plate and are ready to be separated into individual chromatids (which are genetically identical).

Anaphase II
Animal-cracker-phase (2) Tutu
Anaphase is the third phase of cell division, and is characterized by sister chromatids or homologous chromosomes separating towards opposite poles of the cell.

Sister Chromatids Pulled Apart Into Two
Sister Chrome-kids Pulled Apart
Tetrads are pulled apart during meiosis I. This is a source of genetic diversity as the chromosome from either parent can be separated into either cell and genetic material exchange has already happened.

Telophase II
Telephone-phase (2) Tutu
Telophase is the fourth phase of cell division and is characterized by the beginning of physical splitting into two daughter cells.

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Cytokinesis Divides Cells

Side-toe-police Divide Cells

Cytokinesis is the separation of plasma and organelles between each daughter cell, giving each cell the vital components it needs to survive.

4 Haploid Daughter Cells

4 Hat Daughter Cells

In meiosis II, the cells begin as haploid and stay haploid. The original parent cell had one pair of sister chromatids for each chromosome (1-23), but did not have a pair from each parent. Thus, the original cell had double the amount of genetic material in two identical copies. When those identical copies are split into two daughter cells, they, too, only have information from one parent, indicating a haploid to haploid division in meiosis II.

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