

Mitosis

Multicellular organisms need cells to divide so that organisms can grow and repair damaged tissue.

Cells divide when an organism grows or becomes damaged.

Before a cell can divide, it must grow and make copies of all the organelles such as mitochondria and ribosomes.

During mitosis, the two complete sets of chromosomes are pulled to opposite sides of the cell.

Main Differences

	Mitosis	Meiosis
Number of cell divisions	1	2 (meiosis I and II)
Daughter characteristics	Identical to each other and to parent cell, diploid	All daughter cells are unique, haploid
Biological significance	Good for asexual reproduction, growth	Production of gametes

Mitosis Stages

Interphase DNA copies itself ready for mitosis, cell spends the majority of its life in this phase

Prophase The DNA in chromosomes and their copies condenses to become more visible.

Metaphase Chromosomes and their copies line up in the middle of the cell.

Anaphase Chromosomes and their copies are pulled to different ends of the cell.

Telophase New membranes form around chromosomes at each end of the cells.

Cytokinesis The cell membrane pinches in and eventually divides into two daughter cells.

Meiosis

Meiosis is a type of cell division in sexually reproducing organisms that reduces the number of chromosomes in gametes.

It produces four haploid non-identical cells.

Meiosis produces haploid gametes, so that when they fuse, the diploid number of chromosomes is restored.



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