

For the audio version of the file, click this link: Cell Division Audio

Cell Division: Mitosis and Meiosis Mitosis – Division of Somatic Cells

Prophase	Prometaphase	Metaphase	Anaphase	Telophase	Cytokinesis
		X			
Chromosomes condense and become visible Spindle fibers emerge from the centrosomes Nuclear envelope breaks down Centrosomes move toward opposite poles	Chromosomes continue to condense Kinetochores appear at the centromeres Mitotic spindle microtubules attach to kinetochores	 Chromosomes are lined up at the metaphase plate Each sister chromatid is attached to a spindle fiber originating from opposite poles 	Centromeres split in two Sister chromatids (now called chromosomes) are pulled toward opposite poles Certain spindle fibers begin to elongate the cell	Chromosomes arrive at opposite poles and begin to decondense Nuclear envelope material surrounds each set of chromosomes The mitotic spindle breaks down	Animal cells: a cleavage furrow separates the daughter cells Plant cells: a cell plate, the precursor to a new cell wall, separates the daughter cells
5 μm	-5 μm	5 μm	5 μm	• Spindle fibers continue to push poles apart	<u>5 μm</u>
DNA replica	ation		Mitosis		wo diploid ells

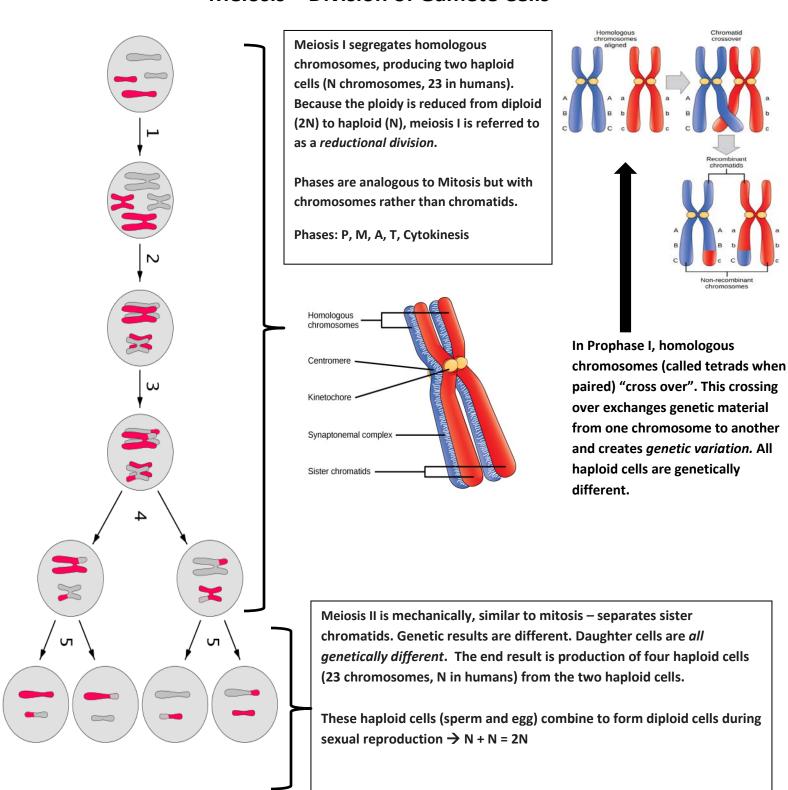
Mitosis is a part of the cell cycle process by which chromosomes (DNA) in a cell nucleus are separated into two *identical* sets of chromosomes, each in its own nucleus and its own cell. All cells involved are always *diploid* – containing two copies of each gene. All cells *except* gametes undergo this process.

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Cell Division: Mitosis and Meiosis

Meiosis - Division of Gamete Cells



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Phases: P, M, A, T, Cytokinesis