

The Cell Cycle, Mitosis, and Meiosis

Basic Stage	# on Diagram	Phase	Events that Occur
Interphase	N/A	G1	<ol style="list-style-type: none"> 1. Growth & Development 2. Metabolism
	N/A	S	<ol style="list-style-type: none"> 1. DNA synthesis
	N/A	G2 (shortest)	<ol style="list-style-type: none"> 1. Organelles (centrioles) replicate 2. Cell prepares for division
Mitosis		Prophase (longest)	<ol style="list-style-type: none"> 1. chromatin condenses 2. chromosomes appear 3. 2 pair of centrioles separate 4. chromosomes attach to spindle fibers 5. nuclear membrane breaks down
		Metaphase	<ol style="list-style-type: none"> 1. chromosomes line up in middle of cell
		Anaphase	<ol style="list-style-type: none"> 1. sister chromatids split and move to poles
		Telophase	<ol style="list-style-type: none"> 1. spindle fibers breakdown 2. chromosomes become chromatin again 3. nuclear membrane reforms
Cytokinesis	N/A	Cytokinesis	<ol style="list-style-type: none"> 1. cytoplasm divides into two cells
Meiosis I		Prophase I	<ol style="list-style-type: none"> 1. chromatin condenses 2. chromosomes appear 3. homologous chromosomes form tetrad (synapsis) 4. crossing-over occurs 5. 2 pair of centrioles separate 6. tetrads attach to spindle 7. nuclear membrane breaks down
		Metaphase I	<ol style="list-style-type: none"> 1. Tetrads line up in middle of cell
		Anaphase I	<ol style="list-style-type: none"> 1. Tetrads split up (dividing homologous pairs into 2 cells with 23 chromosomes)
		Telophase I	<ol style="list-style-type: none"> 1. Spindle fibers breakdown 2. Chromosome becomes chromatin 3. Nuclear membrane reforms 4. Cytokinesis occurs within telophase
Meiosis II		Prophase II	<ol style="list-style-type: none"> 1. chromatin condenses 2. chromosomes appear 3. 2 pair of centrioles separate 4. spindles form & attach to chromosomes 5. nuclear membrane breaks down
		Metaphase II	<ol style="list-style-type: none"> 1. chromosomes line up in middle of cell
		Anaphase II	<ol style="list-style-type: none"> 1. sister chromatids split and move to poles
		Telophase II	<ol style="list-style-type: none"> 1. spindle fibers breakdown 2. chromosome becomes chromatin 3. nuclear membrane reforms 4. cytokinesis divides cytoplasm during telophase II