**Date: Mitosis Summary Name:**

**Three stages** in the cell cycle:

 **1. Interphase**: cell carries out normal functions.

 **2. Mitosis**: nucleus contents duplicated and divided into two equal parts.

 **3. Cytokinesis**: separation of two nuclei and cell contents into two daughter cells.

 **Parts of the Cell Cycle**

Interphase

* Interphase - the longest cell cycle stage (lasts 15 hrs. – months).
	+ cell performs normal functions and grows.
	+ 95% of a cell's life is in interphase.
* In late interphase, DNA copies itself in the process of replication.
* DNA is in its long loose chromatin form so that DNA can be copied into RNA for proteins to be made in preparation for cell division.
* At the end of interphase, the cell ­­­­­­­­­­­­­­­­­­grows and makes proteins in preparation for mitosis and cytokinesis.

**Chromosomes**

* As the nucleus prepares to divide, replicated DNA in interphase joins

 to form sister chromatids joined by a centromere.

**Mitosis Overview:**

* Mitosis is the shortest stage of the cell cycle where the nuclear contents divide and two daughter nuclei are formed.
* It occurs in 4 stages:
	1. Prophase
	2. Metaphase
	3. Anaphase
	4. Telophase



*Mitosis - Prophase*

* Chromosomes start to coil and become visible.
* Pairs of centrioles start to separate.
* The nuclear membrane disappears.
* Spindle fibres start to form between the centriole pairs.

*Mitosis - Metaphase*

* Centriole pairs move to opposite ends of the cell.
* Spindle fibers are still attached to the centriole pairs.
* Replicated chromosomes line up along the middle of the cell and are attached to the spindle fibers.



*Mitosis - Anaphase*

* The pair of sister chromatids split at the centromere and move to opposite ends of the spindle.
* Movement of the chromosomes towards the opposite ends

 of the cell membrane is aided by the spindle fibres.

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*Mitosis - Telophase*

* Nuclear membranes form around the two new sets of chromosomes.
* The spindle fiber disappears.
* Chromosomes start to uncoil (chromatin) and become less visible.
* Cell starts to make a groove (cleavage furrow) in the middle to eventually split into two identical cells.

*Cytokinesis*

* The division of material outside of the nucleus.

Occurs after telophase.

* Divides the organelles and other substances in the cytoplasm into roughly two equal halves.
* # chromosomes in daughter cell equal to the # chromosomes in parent cell.
* Daughter cells are identical to parent cell.