



Name _____

Period _____

The Phases of Mitosis

Mitosis – the stage of the cell cycle during which the cell's nucleus divides into **two** new nuclei and one copy of the DNA is distributed to each daughter cell.

Mitosis takes place in **body** cells. **Each daughter cell contains the same number of chromosomes as the parent cell.**

Interphase

Interphase is the period between one mitosis and the next. The cell performs all of its life functions during this time period, but it is not dividing. The **chromosomes** are not visible as rodlike structures. Instead they appear as threadlike coils called **chromatin**. In animal cells, two structures called **centrioles** can be seen outside the nucleus. Most plant cells do not have **centrioles**.

Prophase

Prophase is the first phase of mitosis. During this phase the nuclear membrane begins to disappear. The thin threads of **chromatin** shorten and thicken to form the rodlike **chromosomes**. Each **chromosome** is made up of two identical strands that remain together as a pair. The two **centrioles** double and then separate. Each pair of **centrioles** locate themselves at opposite ends of the cell. Long threads, called **spindle fibers**, form between the **centrioles**. The **chromosome** pairs become attached to the **spindle fibers**. The formation of spindle fibers and the attachment of **chromosomes** occurs in both plant and animal cells.



Metaphase

Metaphase is the second phase of mitosis. During this phase the **chromosome pairs** line up along the middle, or the equator of the cell. The **chromosome pairs** are attached to the **spindles**.

Anaphase

Anaphase is the third phase of mitosis. During anaphase, the **chromosomes** split apart. One set of **chromosomes** moves toward one side of the cell. The other set of **chromosomes** moves to the opposite side. This state ends with a set of **chromosomes** at each side of the cell.

Telophase

This is the fourth stage of mitosis. Telophase results in the formation of two cells. A new **nuclear membrane** forms around each set of chromosomes, forming two new nuclei. The spindle disappears, and each centriole remains near each nucleus. Mitosis ends when the cytoplasm divides in half, pinching the cell into two new cells. This pinching process is called cytokinesis. A **cell membrane** forms in the middle between the two new cells. In plant cells, a cell plate forms and divides the cytoplasm in half. The cell plate then becomes part of the new cell wall.