Mitosis- Stages of Cell Division Models

Last Name _____, First _____ per____

Can you make a model of mitosis?

Materials: Mitosis template(*next page),* Scissors, Glue, Colored construction paper (3 colors)

Microbiologists noticed that before a cell divides, it under goes a change. The sequence of events that occur was a recognizable pattern that occurs in all types of body cells such as blood cells, muscle cells, and nerve cells. It was as though the cells were going through a 4 stage dance. They called this pattern mitosis, meaning cell division.

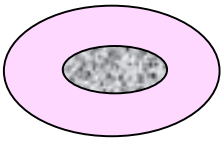
It takes some skill to recognize mitosis in action. Making a model of the process will help us learn the pattern so that we would be more likely to recognize it if we saw it happening in a real cell under a microscope.

Exploring mitosis has helped us answer some important questions about the life process, questions such as how traits are passed down and how a normal cell could turn cancerous. In fact, important cures for some types of cancer have been developed based on this discovery.

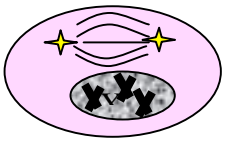
The exploration of mitosis has also lead to another huge discovery; chromosomes are made of DNA.

Procedure:

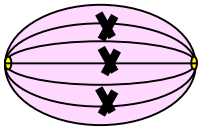
1. Choose 3 colors of construction paper for cutting out tiny chromosomes.
2. Label the diagram (*top left*) "**MITOSIS**"
3. Now label the first cell (*top left)* **INTERPHASE**.
   a. Make some chromatin for this cell. To do this, cut up three colors of paper,(confetti style). Glue this tri-color confetti concentrated in the center or nucleus of your interphase cell. Keep the chromatin within the nuclear membrane.



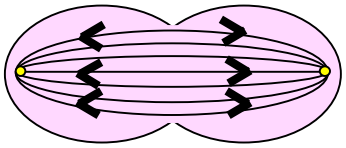
4. Now label the 2nd cell to the right of the interphase cell **PROPHASE**.
   a. Cut out three chromosomes of different color, shaped similar to an X. Glue these in random order inside the nucleus.



5. Now label the 3rd cell **METAPHASE**.
   a. Cut out three more chromosomes, same colors that you used before. Glue the chromosomes vertically lined up down the center of the cell.



6. Now label the 4th elongated cell **ANAPHASE**.
   a. Cut out three more chromosomes, and then cut them in half. These half chromosomes are now chromatids. Remember that during anaphase each chromosome splits in half and then migrates toward the poles of the cell. Arrange your 6 chromatids to show this migration. Make sure the order of colors from top to bottom is the same as the order on the metaphase cell. Also make sure your chromatids are placed in the right direction; the mid points of the X should point toward the poles of the cell.



7. Now label the last double cell **TELOPHASE**..
   a. Remember in telophase the cell is just about ready to divide. Chromosomes unwind and turn back into chromatin. Cut up some more fine confetti style paper and glue the mixture in the center nucleus of each of the two soon to be **daughter cells**.