

Name_____ Date_____ Period_____

Observing Mitosis Lab

Mitosis is a process in which old cells are replaced and new cells are formed to allow multicellular organisms to grow. In unicellular organisms, mitosis is reproduction. Mitosis is sometimes called cell division but it is really **ONLY** nuclear division. The nucleus and chromosomes are copied. This is followed by the division of the cytoplasm to form two daughter cells.

The time it takes for a cell to complete mitosis, from prophase to telophase, varies with each type of tissue and with the surrounding environment or temperature. It may last from 20 minutes in a bacterial cell, to 45 minutes in a human cell, to 64 minutes in a pea plant cell. **Do all phases of mitosis require the same amount of time for completion?** This question can be answered by counting the number of onion root tip cells in the four phases of mitosis and interphase. **Many cells in one specific phase show that a long period of time is needed to complete that phase. Few cells in a specific phase show that a short period of time is needed to complete that phase.**

Procedure:

- 1) Go to: http://www.biology.arizona.edu/cell_bio/activities/cell_cycle/assignment.html
- 2) Read the introduction.
- 3) Click "next" and determine what phase of mitosis each cell that appears on the screen is representing. Put a tally mark in the correct box in the data table below.
- 4) After identifying the phase each of the 36 cells are representing, count up your tally marks and write the total number in the correct box.

| Stage of Mitosis | Number of Cells in the Stage |
|------------------|------------------------------|
| Interphase | |
| Prophase | |
| Metaphase | |
| Anaphase | |
| Telophase | |

Analysis & Conclusion

1) What stage were the majority of the cells in?

2) What percentage of the cells were in each stage?

$$\% = \frac{\text{number of cells in that phase}}{\text{total number of cells}}$$

Interphase

Prophase

Metaphase

Anaphase

Telophase