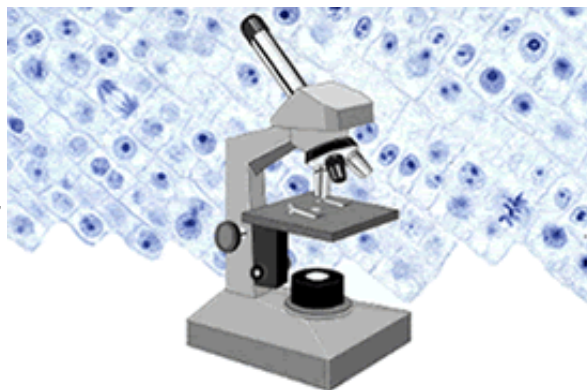


Name: _____

Mitosis in an Onion Root

Introduction: Mitosis can be observed in cells that are in a state of growth. In this lab, you will observe cells and identify which stage of cell division the cells are in. To help you do this, let's review what characteristics to look for at the different stages. Also remember, interphase is not technically a part of Mitosis, but it is part of the cell cycle and many of the cells you will be looking at are in interphase



Identify each stage of mitosis on the chart below and describe what you would expect to see.

| Stage | Distinguishing Characteristics |
|-------|--------------------------------|
| | |
| | |
| | |
| | |
| | |

Procedure: You will be given a slide of Allium, which is an onion root tip. Growth occurs when cells divide, so the root tips should have several cells in the process of cell division. View the root tip under the microscope and search for organized blocks of cells where nuclei are plainly visible. (Most activity will be occurring at the tip of the root). Move the slide around until you find a good spot that shows the cells in various stages of mitosis.

| Stage | Sketch | Estimated Number of Cells |
|------------|--------|---------------------------|
| Interphase | | |
| Prophase | | |
| Metaphase | | |
| Anaphase | | |
| Telophase | | |

Analysis

1. Why is the onion root a good specimen for studying mitosis?
2. The majority of the cells in your specimen were in which stage of the cell cycle?
3. In allium, interphase lasts about 15 hours, and mitosis takes up 80 minutes. Assuming that each stage of mitosis takes the same amount of time, how many hours old is a cell that is just starting anaphase. (Yes, you'll need to do some math here - show your work or explain your reasoning)
4. Sketch one cell in any stage of mitosis. Label the stage and label any cell structures that are visible. The spindle fibers and chromosomes should be visible.
5. Which stage of mitosis is the easiest (in your opinion) to see on the slide? What about it makes it easy to identify?