

Name: \_\_\_\_\_

Hour: \_\_\_\_\_

## 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 state of cell division the cells are in. To help you do this, let's review what characteristics to look for at 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 the cell cycle in the chart below, describe what you would expect to see.

Stage	Distinguishing Characteristics
Interphase	
Prophase	
Metaphase	
Anaphase	
Telophase	

**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 the nuclei are plainly visible (most likely towards the tip of the root). Move the slide around until you find a good example of the various stages of mitosis. Use the \_\_\_\_\_ power objective and focus on one field of vision. You will use this snapshot to fill in the chart below.

Stage	Detailed sketch of what it looks like:	Number of cells in this phase:
Interphase		
Prophase		
Metaphase		

Anaphase		
Telophase		

**Analysis Questions:**

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? Why do you think this is?
3. In allium, interphase last about 15 hours, and mitosis takes up to 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 how you got to your answer).
4. Find a cell in a stage of mitosis where you can see the following: cell membrane, chromosomes, spindle fibers, centromere. Draw that stage below and label these structures in your picture.
5. Which stage of mitosis is the easiest (in your opinion) to see on the slide? What makes it so easy to identify?