

Name - _____
 Partner - _____

Lab: Observing Mitosis in Onion Root Tip Cells

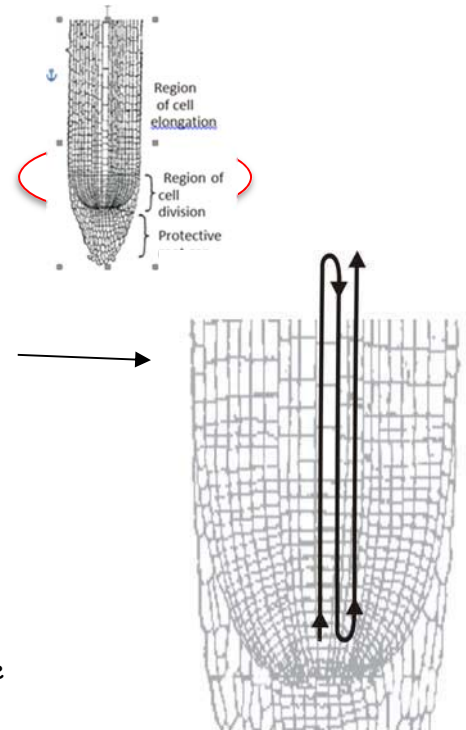
Purpose - _____

Materials -

- Compound microscope
- Prepared onion root slides

Procedure -

1. Find the region of active cell division.
2. Take turns as observer and recorder. The observer systematically scans the root tip moving upward and downward through a column of cells (see diagram) and calls out the stage of mitosis. The recorder records the stage in the results table. Do this for twenty cells in mitosis.
3. Obtain a new slide and repeat steps 1 and 2, switching observer and recorder.
4. While observing, draw a picture of what you see for each of the four stages, calculate the size of **one onion cell**, and label each cell you drew in each of the four stages (do this on the next page below).



Data and Observations -

Table 1 - Number of cells in different stages of mitosis.

	Group		Class	
	Number of Cells Observed in stage	Percent	Number of Cells Observed in stage	Percent
Prophase				
Metaphase				
Anaphase				
Telophase				
Total				

Figure 1 - Onion root cells undergoing mitosis

Prophase	Metaphase	Anaphase	Telophase

Size Calculation:

Analysis -

1.) What is the distinguishing **visible** feature of each stage of mitosis?

Prophase -

Metaphase -

Anaphase -

Telophase -

2.) Based upon the **class results**, order the stages of mitosis from shortest (1) to longest (4). After the longest and shortest stage, give a brief explanation of why that stage may have that time period (use your knowledge of what happens during each of the stages).

Prophase - ___

Metaphase - ___

Anaphase - ___

Telophase - ___

- 3.) Many of the cells of the onion root meristem are not undergoing mitosis, rather they are in a stage called _____. Based upon the interpretation made above, interphase appears to be much _____ (shorter/longer) than mitosis. What processes occur in an interphase cell prior to the onset of mitosis?
- 4.) Once cell division ends, the cells will finish the cell cycle and enter the _____ stage. Why is it incorrect to say that these cells are "resting"?

Conclusion -