

NAME: _____

Date: _____

This lab is my own work.

Mitosis Laboratory: Cell Division in Somatic Cells

Introduction

The cell cycle consists of periods of “regular living” (the cell doing its normal job) and periods of duplication followed by division. Complete the activities below to get a better visualization of chromosomes and the cell cycle.

Activity 1: Visualizing the Duplicated Chromosome

Refer back to the resources in the *Cell Division Module* of our course to make color sketches of a duplicated chromosome. You should use colored pencils, markers, or crayons to make your sketches. **In your sketch, label the following structures: sister chromatids, centromere, kinetochores, chromosome.** Take a picture of your signed, dated, and labeled sketch and insert below.

Activity 2: Visualizing the Phases of the Cell Cycle

In a lab setting, this would be what we’d call a *‘scope lab* meaning that we would get out our microscopes and look at slides of plant and animal cells that had been halted right in the middle of some phase of the cell cycle. To prepare the slides, we harvest the cells, stain them, plop them on a microscope slide, and cover them with a cover slip. We then focus the microscope and commence to getting very good at picking out cells that are in the respective phases of the cell cycle. I then test the students by setting out microscope slides and having them identify in which stage of the cell cycle each specimen is. We will be simulating this test for you by looking at microscope slides in just a moment. Before we do that, however, I want to make sure that you know what the cells should look like in each of the phases.

Refer back to the resources in the *Cell Division Module* of our course to make color sketches of the phases of the cell cycle (interphase, prophase, metaphase, anaphase, telophase) for both plant and animal cells. You should use colored pencils, markers, or crayons to make your sketches. **Label each cell you sketch with the correct cell cycle phase represented. Also include in your sketches labels for the following structures where applicable: centrioles, mitotic spindle, cleavage furrow, cell plate.** Take a picture of your signed, dated, and labeled sketches and insert below.

MITOSIS IN PLANT CELLS

MITOSIS IN ANIMAL CELLS

Activity 3: [Online Onion Root Tips](#)

Now, visit the link above to practice identifying the various stages of the cell cycle. Read the introduction material and keep clicking next until you get to the actual chart that looks like the one below. Here, you will find the instructions for the lab. Basically, the computer will show you a small picture of a cell in a particular stage of the cell cycle and you are to click on what stage it is in. The number of slides is meant to be relative to the time a cell spends in that particular cycle so you will have many pictures for one particular stage and not that many for some of the others. Remember, contact me early if you have questions.

ASSIGNMENT: Complete the chart on the third page of your lab activity, [Online Onion Root Tips](#). When you have completed this, **UPLOAD YOUR RESULTS**. The purpose of this is for you to get practice identifying the stages of Mitosis and for you to see how much time a cell spends in each stage.

	# Counted	Percent * See note below.	Total Time (hrs) **See note below.
Interphase			
Prophase			
Metaphase			
Anaphase			
Telophase			

*To calculate percentages for each phase, divide **# Counted** by 36 (the total # of cells counted). To get the percent, multiply by 100. *Example: $25/36 \times 100 = 69.4\%$*

**To calculate time, multiply your percent in decimal form ($58.2\% = 0.582$) by 24 hours.
Example: $0.582 \times 24 \text{ hours} = 13.97 \text{ hrs}$

Summary

In the space below, verbally summarize your findings as reported in the table above.