Title: Onion Root Lab

Name_____
Period_____

Introduction: Have you ever calculated what percentage of your life you spend asleep, in the car or watching TV? The results might surprise you. In this activity you will count and calculate the amount of time cells spend in each stage of their cell cycle. The results may not surprise you because you may have never wondered about this. Scientists think it may be important because they think our cells will only divide a certain number of times before they quit and we get old. Knowing how to control cell cycle might someday unlock the secret of youth!

Procedure:

1. Go to website, www.biology.arizona.edu
2. On the left of the screen, click on "Onion Root Tips"
3. Read through the information on each phase of mitosis. There are questions to answer as you go through the reading. When you are done reading click "next." (You will click "next" three times.)
4. The chart on the website has been copied down for you. Click "next" and classify the cells that appear on the screen for what phase of mitosis that they are in.
5. After classifying the 36 cells according to the phase they are in, transfer the data onto your chart. Calculate the percentages for how long each cell spends in each phase using 36 as your sample size.
6. Then look at a prepared slide of onion root tips and draw a picture of what each phase looks like.

Questions from web site:

1. How are onion slides prepared in order to view them?

2. What happens during interphase?

3. What is main event that happens during metaphase?

4. What is the main event that happens during telophase?

	Interphase	**Prophase**	**Metaphase**	**Anaphase**	**Telophase**	**Total**
Number of cells						36
Percent of cells						100

5. What phase do cells spend most of their time in? Why?

If you assume a cell cycle of 16 hours, what are your estimates of the duration of the following stages, in minutes?

Stage	Duration in minutes
Interphase	
Prophase	
Metaphase	
Anaphase	
Telophase	

Now examine a prepared slide of onion root tips. The epidermis of the onion is an ideal subject for cell study because it is composed of a single layer of cells; you are looking into functioning units of living material.

Draw the phases of mitosis that you see in the onion cells.

Phase	Drawing

1. What color are the chromosomes? Why do they have a color?

2. Which phase seems most common? Why?

3. Why would the tip of an onion root have many cells undergoing mitosis?

Conclusion: