

Name: _____

Period: ____

Duration of Mitosis Lab

In this lab you will determine the percentage of time that a cell spends in each phase of mitosis. Keep in mind that this is a small percentage of the entire cell cycle – cells spend the majority of their life cycle in Interphase – the phase prior to Mitosis. In a 24 hour period, 22 hour and 40 minutes would be spent in Interphase and the remaining 80 minutes would be spent in Mitosis.

Prelab: Match the name of the phase of mitosis to the following events:

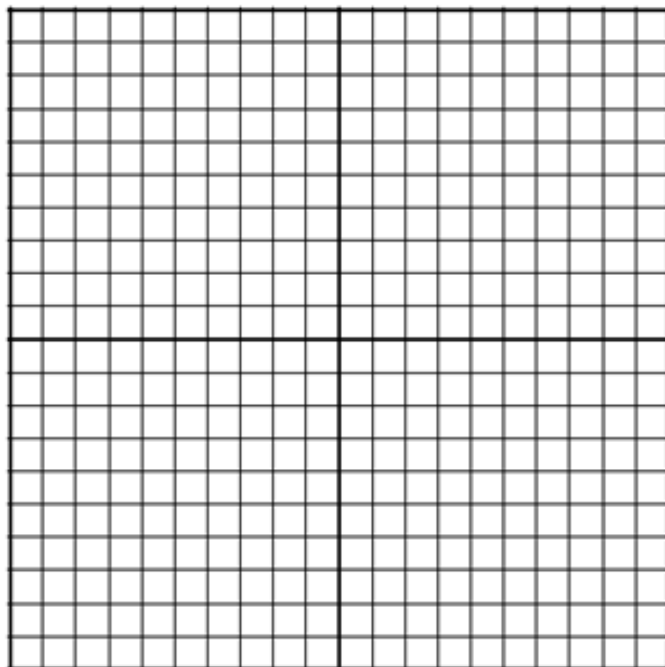
- _____ = when chromosomes line up in the center of the cell
- _____ = when chromosomes shorten and coil up and the nuclear membrane breaks down
- _____ = when chromosomes separate and move to the poles of the cell
- _____ = when two new nuclei form and the cell divides

Directions:

1. Go to website: www.biology.arizona.edu
2. Click on Onion Root Tip link (top left hand corner of web page)
3. Fill in the table below by tallying the number of cells observed in each phase.
4. Calculate % of cell by taking total number of cells for that phase and dividing it by 36 (total # cells observed). Multiple this number by 100 to get percent.
5. Graph % of cells data as a bar graph with a separate bar for each phase.

Table 1: Frequency of cells found for each phase

	Interphase	Prophase	Metaphase	Anaphase	Telophase	Total # Cells
Tally # cells						36
% of cells						100%



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6. Transfer the # of cells from Table 1 to Table 2. Add total number of cells for prophase, metaphase, anaphase, and telophase.
7. Calculate % Cells by dividing number of cells in that phase by the total number of cells. Then multiply that by 100 to get a percent.
8. Calculate duration of each phase in 80 minute mitosis cycle. An example is shown below.

For example: If there were 8% (.08 in calculation below) of the cells in metaphase, then 8 percent of 80 minutes would be 6.4 minutes. This would be the amount of time that metaphase takes. **$(.08)(80 \text{ minutes}) = 6.4 \text{ minutes}$**

Table 2: Duration of Each Phase of Mitosis

	Prophase	Metaphase	Anaphase	Telophase	Total # Cells
# Cells					
% Cells					100%
Time (min)					80 min

Analysis:

1. Of the four phases of mitosis, which one takes the most time to complete?
2. Why is it more accurate to call mitosis nuclear division rather than cell division?
3. What is the purpose of interphase?
4. Is interphase part of Mitosis?

Mitosis Vocabulary: Write down the definitions for the following terms. (Found on the Biology Project website)

chromatid -

chromatin -

chromosomes -

histones -