

Introduction to the Cell Cycle Name _____

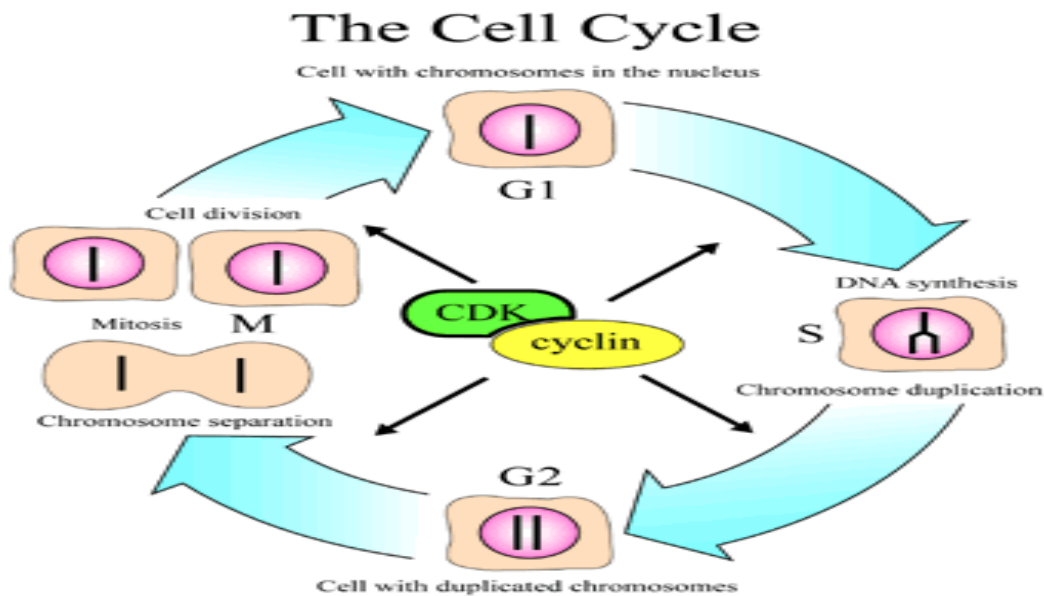
This activity is modified from an activity created by Lisa Brosnick, North Collins High School for the Biology-Chemistry Professional Development Network. Thank you Lisa for your creativity. 😊

Introduction:

Mitosis is the process by which cells reproduce themselves. Mitosis is only part of a bigger process called the cell cycle. Although mitosis is usually studied in depth, the most important phase of the cell cycle is the first stage (interphase) in which the chromosomes are replicated. After this, the chromosomes line up in the middle and then separate to the poles. Following chromosomal separation, cytokinesis (cell division) occurs, dividing the cytoplasm into two new cells. This method of reproduction is asexual.

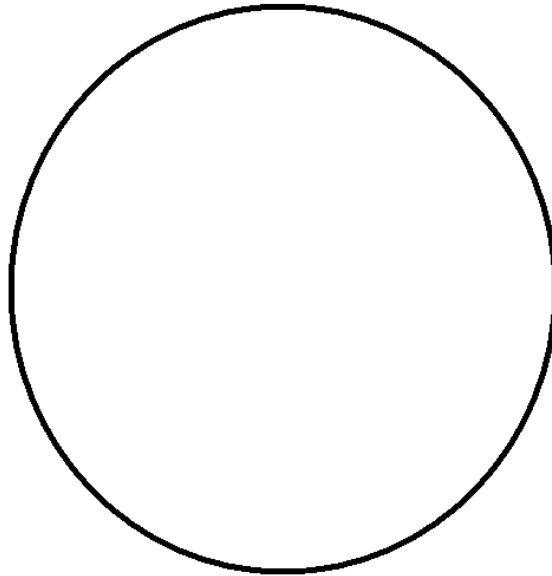
Pre lab:

1. Give several characteristics of asexual reproduction.
2. Why is mitosis important?
3. If our original cell has fourteen chromosomes, how many should each of our final cells have? How do you know?

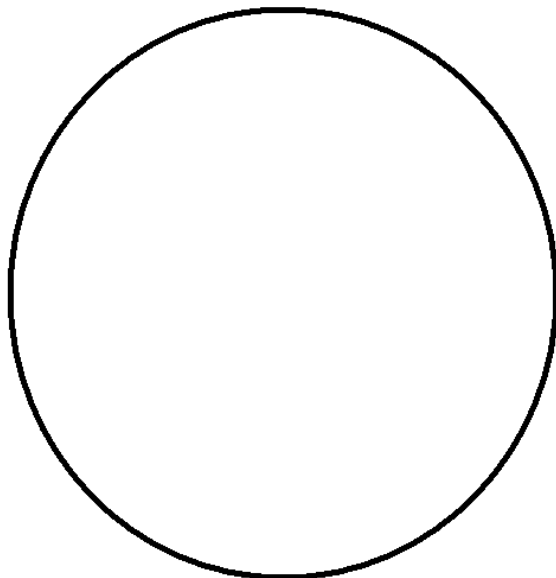


4. Label the circles drawing in the appropriate chromosomes in the correct positions with their associated structures using the following phrases

a. Original cell $2n=4$ (G1)

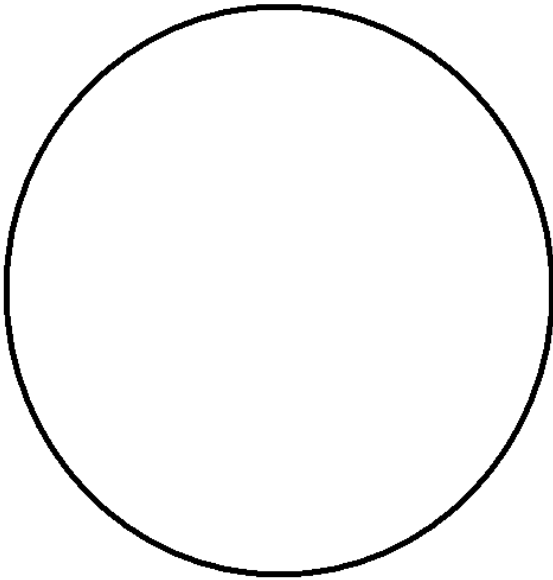


b. Chromosomes replicate (S)

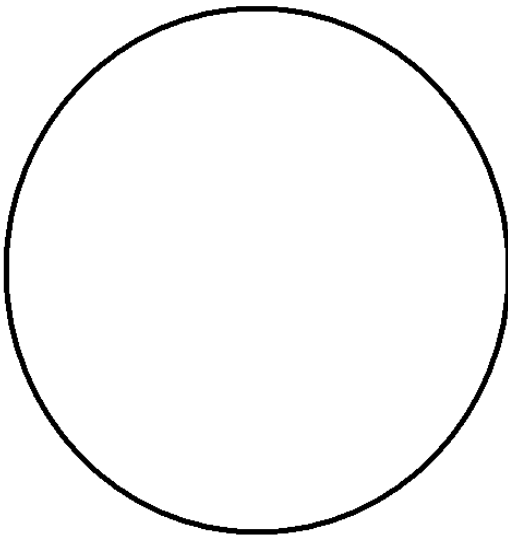


Mitosis begins as a process to divide the chromosomes.

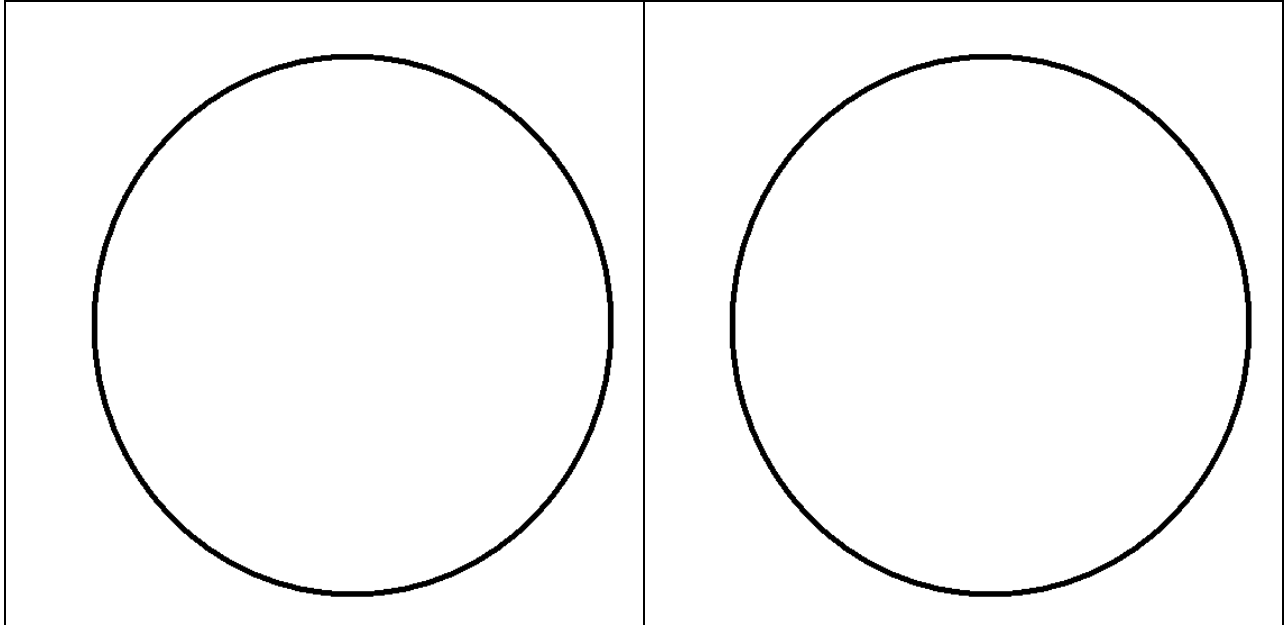
c. Chromosomes line up in the middle (metaphase of M stage)



d. Chromosomes separate to poles (anaphase of M stage)



e. Chromosomes at poles, cytoplasm divides (end of telophase of M stage)



Conclusion questions:

1. There are many signals that control cell division. What do you think would happen if the signal to "shut down" mitosis was never given? What do you think this is called?

2. Some cells can have several nuclei in a single cell. Considering the events in a typical cell cycle, which phase of the cell cycle is not working?