**Cell Cycle and Mitosis Webquest Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Prokaryotic Cell Division:**

Go to the following sites to learn about prokaryote cells:

<http://www.cellsalive.com/cells/bactcell.htm>

1. Name three ways prokaryote cells differ from eukaryote cells (name characteristics of the prokaryote cells):

a.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. Draw a prokaryote cell

Prokaryote cells use a process called binary fission to reproduce / divide. Go to the following site for the definition of binary fission:

<http://www.classzone.com/books/hs/ca/sc/bio_07/animated_biology/bio_ch05_0149_ab_fission.html>

Watch the animation on binary fission:

4. Describe what you saw in the animation. How does binary fission work:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Eukaryotic Cell Division:**

There are several reasons for the cell to divide. Two reasons are shown at the following website:

<http://plaza.ufl.edu/alallen/pgl/modules/rio/stingarees/module/what.html>

5. Name the two reasons shown for cell division.

a.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

There are several parts of the cell involved in cell division. Click on the parts shown at the following site and read what they do.

<http://plaza.ufl.edu/alallen/pgl/modules/rio/stingarees/module/index.html>

6. List the four organelles involved in cell division.

a.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

d.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

DNA can take many forms. When the cell is resting, it takes the form of chromatin. Look at chromatin in the following site:

<http://www.cgl.ucsf.edu/chimera/ImageGallery/entries/large_images/chromatin3-large.png>

7. Describe the appearance of chromatin? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Stages of Mitosis:**

Go to the following website:

[**http://www.cellsalive.com/mitosis.htm**](http://www.cellsalive.com/mitosis.htm)

\*\*On the left side of the screen is a navigation bar, click on the link to “MITOSIS”. View the

animation and read the text below the animation on this page.

9. List the stages of mitosis (Notice – there’s an extra phase here…”prometaphase” – sometimes that is added as an “in-between” phase between prophase and metaphase. In my class you are only responsible for knowing P-M-A-T)

a.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

d.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

10. In which stage does each of the following occur:

Chromatin condenses into chromosomes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Chromosomes align in center of cell. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Longest part of the cell cycle. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Nuclear envelope breaks down. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Cell is cleaved into two new daughter cells \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Daughter chromosomes arrive at the poles \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

11. Identify the stages of mitosis in these cells:

   

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Onion Root Tip - Online Lab Activity:**

[**http://www.biology.arizona.edu/cell\_bio/activities/cell\_cycle/cell\_cycle.html**](http://www.biology.arizona.edu/cell_bio/activities/cell_cycle/cell_cycle.html)

\*Read the introduction, then click the “next” button.

\*Check out the different phases & read them & hit “next”.

\*Read the “assignment” then hit “next”

\*You will have 36 cells to classify. When you're finished, record your data in the chart below.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Interphase | Prophase | Metaphase | Anaphase | Telophase | Totals |
| No. of cells |  |  |  |  |  | 36 |
| % of cells |  |  |  |  |  | 100% |

(\*to calculate percentage: number of cells divided by total cells x 100 )

12. What do you notice about the stages from your calculations in the table?

13. What did you notice about the difference between Interphase & Prophase?

**Complete the following:**

<http://www.quia.com/rr/89527.html>

1. Press “Start” on Rags to Riches game!!

2. Answer the questions to gain $$!!

3. You must at least make $250,000.

4. Be careful because if you answer incorrectly, you will have to start over!

For an overview of what Mitosis looks like, go to the following site and watch the animation:

<http://www.johnkyrk.com/mitosis.html>

**Draw**, **label** and **color** each phase and write down the things that happen in each one below: