Name: _____ **Period:** _____

Mitosis in Real Cells

Introduction:

To study mitosis, biologists often look at particular cells. Remember, that mitosis occurs only in areas of growth, so finding a good spot to study it can be challenging. Two specimens are commonly used by biologists to study mitosis: the blastula of a whitefish and the root tip of an onion.

The whitefish embryo is a good place to look at mitosis because these cells are rapidly dividing as the fish embryo is growing. The onion root is also a good place because this is the area where the plant is growing. Remember that when cells divide, each new cell needs an exact copy of the DNA in the parent cell. This is why mitosis is only visible in cells that are dividing, like the whitefish embryo and the onion root tip.

Mitosis can take several hours to complete. Scientists will make slides of cells that should be undergoing mitosis in order to find a particular cell in any of the stages - prophase, metaphase, anaphase, telophase. Remember that most cells you see will be in interphase, that's the cells "resting" state. Your task is to look at photographs of actual slides and identify the stages of mitosis.

Part 1:

View slide images of a whitefish blastula and an onion root to see cells in various stages of mitosis. Answer the questions as you read the introduction and view the slides.

Review the stages of mitosis at: http://www.cellsalive.com/mitosis.htm

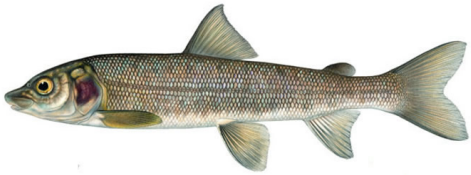
Introduction:

1. Why is the whitefish used to study mitosis?

2. What are the four stages of mitosis?

3. How long does it take for mitosis to complete? Why will most of the cells you view be in interphase?

View Cells



Click to View Whitefish Embryo

https://www.biologycorner.com/projects/mitosis/whitefish_embryo.html

Click to View Onion Root Tip

https://www.biologycorner.com/projects/mitosis/onion_root.html

4. For each organism: click on the individual images and sketch the cell that is highlighted and identify the stage the cell is in. Be sure to label the **chromosomes**

	View 1	View 2	View 3	View 4	View 5
Whitefish (sketch of image)					X
Stage of cell cycle					X
Onion (sketch of image)					
Stage of cell cycle					

Part 2:

Go to the following website:
http://www.biology.arizona.edu/cell_bio/activities/cell_cycle/assignment.html

In this activity, you will be presented with cells from the tip of an onion root. You will classify each cell based on what phase it is in. At the end you will count up the cells found in each phase and use those numbers to predict how much time a dividing cell spends in each phase. You can base your calculation on a total cell cycle of 24 hours.

You will have 36 cells to classify. Click on the phase in which this cell belongs and then click the "next" button.

When you're finished, record your data in the chart below. Round to whole numbers.

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

Cells in the tip of an onion root