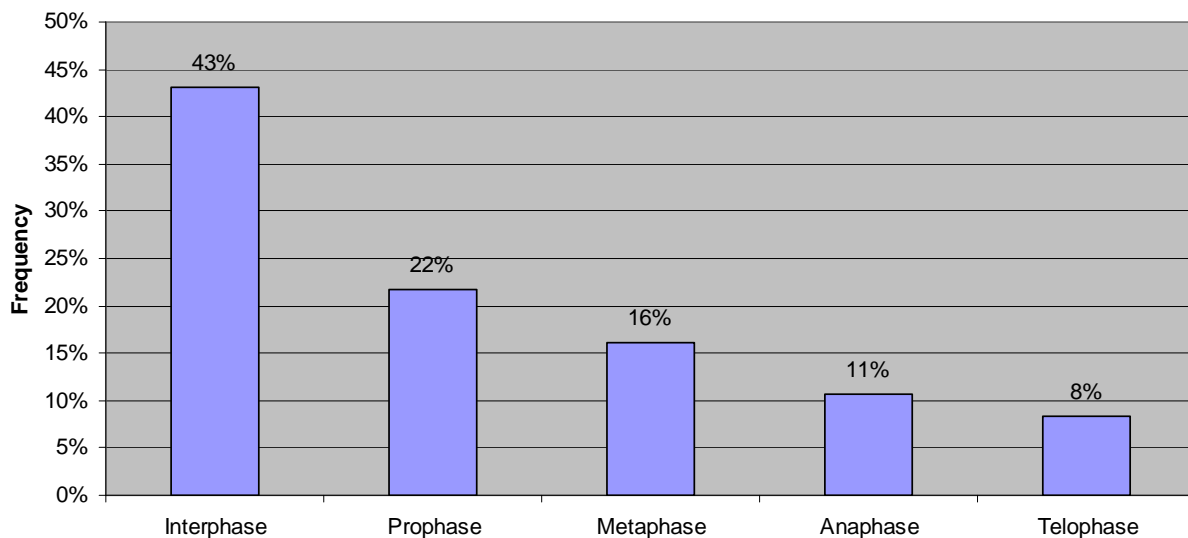


Frequency of Mitosis Stages Whitefish Cells

Summary: I measured the frequency for each of the stages of mitosis in a sample of whitefish cells. This was done by counting the mitosis states for 20 random cells within a slide using a light microscope. My data was then pooled with the rest of the class and calculations were made. We determined that whitefish cells are usually in a state of interphase, which was found to be about 43.1% of the time. This is consistent with the general knowledge that interphase includes the time when a cell is performing its normal functions (*Raven et al., 2008*). Whitefish cells are also known to have prolonged interphase cycles (*Ignatieva & Rott, 1970*).

Methods & Results: I obtained slides for *Allium* (onion) cells and whitefish cells to observe under a light microscope. Using 450x magnification and starting with the onion slide, I made general observations about cell appearances and the different stages of mitosis. The cells were rectangular and largely purple with small amounts of pink. I made detailed drawings to become better familiar with the biological events as they appeared through the microscope.

I then switched to the whitefish slide using the same general settings. These cells were more circular in their shapes and were largely orange and red in color. As before, detailed drawings were made. Next I chose twenty cells at random and noted what stage of mitosis it was in: prophase, metaphase, anaphase, telophase or interphase. Upon completion, my data was pooled with my group's data and the data from rest of the class. Our results were then averaged which producing the following table detailing the frequency of observed mitosis stages:



Collective results show that whitefish cells are in interphase about 43% of the time. This is considerably more than the frequencies for the other observed states: prophase ~22%, metaphase ~16%, anaphase ~11% and telophase ~8%. Interestingly, if anaphase and telophase are considered to be the same general end state of mitosis and their results are combined, then all stages except interphase are reasonably close to the value of 20%. This number also represents about one-half the frequency of cells that were observed to be in the state of interphase.

References:

Ignatieva, D.P. & Rott, N.N., 1970. The Temporal Pattern of Interphase Prolongation and Nuclear Activities During Early Embryogenesis in Teleostei, *Development Genes and Evolution*, 165(2), pp. 103-109.

Raven, P. & Johnson, G. & Losos, J. & Mason, K. & Singer, S., 2008. *Biology*, 8th ed., McGraw-Hill.