BIOLOGY PACING GUIDE

Quarter 1-ends September 30, 2022

LS1.1 - Compare and contrast existing models, identify patterns for the characteristics of life. Engage in argument about the designation of viruses as non-living based on these characteristics.

LS 1.2-Evaluate comparative models of various cell types with a focus on organic molecules that make up cellular structures.

LS1.3- Integrate evidence to develop a structural model of a DNA molecule and how it is a template for replication.

LS.2.1- Analyze mathematical and/or computational representations of population data that support explanations of factors that affect population size and carrying capacities of populations within an ecosystem.

LS2.2- Create a model tracking carbon atoms between inorganic and organic molecules in an ecosystem. Explain human impact on climate.

LS2.3- Analyze through research the cycling of matter in our biosphere and explain how biogeochemical cycles are critical for ecosystem function.

LS2.4- Analyze data demonstrating the decrease in biomass and transfer of energy observed in each successive trophic level.

LS2.5- Analyze examples of ecological succession, identifying and explaining the order of events responsible for the formation of a new ecosystem.
First Benchmark Test: September 26-30.

Quarter 2: October 10-December 16

LS1.4- Demonstrate how DNA sequence information is decoded through transcriptional and translational processes within the cell.

LS1.6- Create a model for the major events of the eukaryotic cell cycle, including mitosis. Compare and contrast the rates of cell division.

LS1.7- Utilize a model of a cell membrane to compare the various types of cellular transport and the movement of molecules into or out of a cell.

LS1.8- Create a model of photosynthesis demonstrating the net flow of matter and energy into a cell.

LS1.9- Create a model of aerobic respiration demonstrating flow of matter and energy out of a cell. Use the model to explain energy transfer.

LS3.1- Model chromosome progression through meiosis and fertilization in order to argue how the processes of sexual reproduction lead to both genetic similarities and variation in diploid organisms. Compare and contrast the processes of sexual and asexual reproduction, identifying the advantages and disadvantages of each.

LS3.2- Explain how protein formation results in phenotypic variation and discuss how changes in DNA can lead to somatic or germ line mutations.
Second Benchmark Test: December 1-9th.

3rd Quarter: January 4, 2023-March 10, 2023
ETS2.1- Identify ecosystems and the role of biodiversity in support of these services. Analyze the role human activities have on disruption of these services.

ETS2.2- Obtain, evaluate, and communicate information on how molecular biotechnology may be used in a variety of fields.

ETS2.3- Analyze scientific and ethical arguments to support the pros and cons of application of a specific biotechnology technique.

LS1.5- Research examples that demonstrate the functional variety of proteins and construct an argument based on evidence for the importance of the molecular structure to its function.
Third Benchmark Test: February 27-March 10.

4th Quarter: March 20, 2023-May 2023
LS3.3- Through pedigree analysis, identify patterns of trait inheritance to predict family member genotypes.

LS4.1-Identify chronological patterns of change and communicate that biological evolution is supported by multiple lines of empirical evidence that identify similarities inherited from a common ancestor (homologies).

LS4.2- Using a model that demonstrates the change in allele frequencies resulting in evolution of a population over many generations.

Approximate time for TNReady test will be near the end of April. That date has not been determined. A comprehensive review over all of these standards will occur in the weeks before the TNReady test.