Mohawk Local Schools Grade BIOLOGY

Quarter 2 Curriculum Guide

Guiding Principles of the Scientific Inquiry/Learning Cycle:

Evaluate….Engage…Explore…Explain…Extend…Evaluate

Identify ask valid and testable questions
Research books, other resources to gather known information
Plan and Investigate
Use appropriate mathematics, technology tools to gather, interpret data.
Organize, evaluate, interpret observations, measurements, other data
Use evidence, scientific knowledge to develop explanations
Communicate results with graphs charts, tables

Critical Areas of Focus Being Addressed:

- Heredity
- Evolution
- Scientific Inquiry

Content Statements Addressed and Whether they are Knowledge, Reasoning, Performance Skill, or Product: (DOK1) (DOK2) (DOK3) (DOK4)	Underpinning Targets Corresponding with Standards and Whether they are Knowledge, Reasoning, Performance Skill, or Product: "I can…..", "Students Will Be Able To……."
Structure and function of DNA in cells	• Identify cellular and molecular mechanisms for

(DOK1) (DOK2)	inheritance and the expression of genetic information (e.g., complementary base pairs in DNA and RNA, transcription/translation); (K) • Interpret diagrams of DNA to illustrate protein synthesis; (R) • Use a codon chart to build a protein; (K) • Describe basic historical data from DNA discoveries. (K) • Demonstrate how the complementary DNA base pairing within genes determines the sequence of amino acids in a protein; (R)
Genetic Mechanisms and inheritance (DOK1) (DOK2) (DOK3)	• Comprehend the importance of crossing over, independent assortment, and recombination in producing variation in traits as a result of meiosis; (R) • Connect Mendel's laws of segregation and independent assortment to the movement of chromosomes (crossing over, sorting, and recombination) during meiosis; (R) • Comprehend Mendelian and Non-Mendelian inheritance (e.g., dihybrid crosses, sex-linked traits, linkage, chi-square test); (R) • Interpret diagrams that illustrate crossing over; (K) • Identify real-world scenario in which chi-squared test data are given; (PS) • Interpret diagrams of a variety of genetic crosses; (R) • Illustrate how non-Mendelian genetics affects inheritance (including Punnett squares); (R) • Predict the probability of two traits in offspring given the parental genotypes; (R) • Be given chi-squared test data, and make an inference about the inheritance of a set of genes; (R) • Demonstrate how sorting and recombination of genes in sexual reproduction and meiosis result in variation of traits in offspring; (R)
Mutations (DOK 2)	• Explain gene mutations and their short-term and long-term implications; (R)

	• Interpret diagrams of gene sequences showing a mutation; (R)
Modern Genetics (DOK2) (DOK3)	• Describe the goals of genetic engineering and the role of restriction enzymes. (R) • Understand different scenarios involving applications of biotechnology and genetic engineering such as cloning, gene therapy, or gel electrophoresis; (PS)
Diversity of Life (DOK 2)	• Comprehend evolution of a species (change in gene frequency in a population and the Hardy-Weinberg Law); (R) • Use mathematical reasoning related to the Hardy-Weinberg Law to explain or predict changes in a population; (R) • Use mathematical reasoning related to Hardy-Weinberg's Law to explain or predict changes in a population; (R)