Biology Course Syllabus

Required Textbook: Miller, Kenneth R., and Joseph S. Levine. "(2019) *Miller & Levine Biology*. Boston, MA: Pearson. $107.47

Digital Textbook and accompanying resources may be accessed through the school's clever page. Students are responsible for books that they check out. They will be given an Indebtedness notice if not returned by the end of the year, which will need to be cleared to walk at the graduation ceremony.

Course Description:

This course aims to develop an understanding of biological concepts using the scientific process. Explorations and applications of key concepts will be conducted through lab experiments and various learning strategies, including self-questioning and visual learning approaches. Students in Biology will be expected to complete a basic curriculum that includes the application of concepts and writing proficiency related to the topics of advanced Molecular Genetics, Cellular Energetics, and Biodiversity in line with the content prescribed by the Georgia Science Standards. These objectives adhere to the preservation of the following Georgia Science Standards.

SB1. Obtain, evaluate, and communicate information to analyze the nature of the relationships between structures and functions cells.
SB2. Obtain, evaluate, and communicate information to analyze how genetic information is expressed in cells.
SB3. Obtain, evaluate, and communicate information to analyze how biological traits are passed on to successive generations.
SB4. Obtain, evaluate, and communicate information to illustrate the organization of interacting systems within single-celled and multi-celled organisms.
SB5. Obtain, evaluate, and communicate information to assess the interdependence of all organisms on one another and their environment.
SB6. Obtain, evaluate, and communicate information to assess the theory of evolution.

Course Outline:

First 9 weeks 45 days	Second 9 weeks 43 days	Third 9 weeks 48 days	Fourth 9 weeks 44 days
Intro to Biology (7 days) -Living organisms and virus (SB4c) -Evolution of virus (SB4c) **Cells (35 days)** -Macromolecules (SB1c) -Enzymes (SB1c) **(10 days)** -ProKaryotes and Eukaryotes -Cell structures and organelles (SB1a) **(10 days)** -Cell Membrane and Cell Transport (SB1a,SB1d) **(10 days)**	**Cells (15 days)** -Cellular Energy (SB1e) **(7 days)** -Cancer/Cellular Reproduction (SB1b) {mitosis,binary fission} **(4 days)** -Macromolecules review before DNA (SB1c) (**1 day)** **Genetic information in cells (25 days)** -DNA/RNA structure (SB2a) **(2 days)** -DNA replication (SB2a) **(3 days)** -Synthesising of proteins (SB2a) **(7 days)** -Gene Mutations (SB2b) **(7 days)** -Karyotypes/Biotechnology (SB2c) *embedded in 2nd and 3rd nine weeks* ***(5 days)***	**Genetics (20 days)** -Sexual Reproduction variability (SB3a), (SB3c) {mitosis vs meiosis} **(3 days)** -Mendel's Laws (SB3 a,b) **(7 days)** -Dihybrid Crosses (SB3b) **(1 days)** -Non-mendelian genetics (SBb) **(5 days)** -Karyotypes/Biotechnology (SB2c) -Chromosomal Mutations (SB2b) **(3 days)** *Charlie Guard* **Evolution (25 days)** -Genetic Drift (SB6d) -Speciation (SB6b) **(4 days)** -Natural Selection and adaptations (SB5e) **(4 days)** -Evolution (SB6d, SB6a) **(4 days)** -Evidence (SB6c) **(4 days)** -Biological Resistance (SB6e) **(4 days)**	**Organization (10 days)** -classification (SB4a) **(10 days)** -speciation (SB4b) **Ecology (20 days)** -patterns populations biodiversity (SB5a) **(4 days)** -energy flow (SB5b) {photosynthesis and respirations (SB1e)} **(1 days)** -ecosystem stability (SB5c) **(5 days)** -human impact (SB5d) **(10 days)** -adaptations (SB5e)

Course Rigor Levels and Course Grade Composition:

Biology 1: This course covers the Georgia Standards of Excellence to prepare students for the Georgia EOC Milestone Exam in May. EOC Milestone is a comprehensive exam that measures student achievement in the area of Biology. It will be based on the Georgia Science Standards listed on the first page of this syllabus. The EOC will comprise 10% of the student's final grade. The grading system for this course is as follows:

Tests: 35% **Labs and Activities:** 30% **Daily Work and Quizzes:** 25% **Benchmarks:** 10%

Advanced Biology: This course covers the Georgia Standards of Excellence to prepare students for the Georgia EOC Milestone Exam in May. EOC Milestone – It is a comprehensive exam that measures student achievement in the area of Biology. It will be based on the Georgia Science Standards listed on the first page of this syllabus. The EOC will comprise 10% of the student's final grade. Students enrolled in the Advanced Level Courses are required to complete a long-term project of either Science Fair or Exploaravision. The grading system for this course is as follows:

Tests: 40% **Labs and Activities:** 30% **Daily Work and Quizzes:** 20% **Benchmarks:** 10%

Honors Biology: This course covers the Georgia Standards of Excellence to prepare students for the Georgia EOC Milestone Exam in May. EOC Milestone – It is a comprehensive exam that measures student achievement in the area of Biology. It will be based on the Georgia Science Standards listed on the first page of this syllabus. The EOC will comprise 10% of the students' final grades. Students enrolled in the Advanced Level Courses are required to complete a long-term project of either Science Fair or Exploaravision. This course moves at a faster pace and covers content more in-depth to prepare students for potential AP Biology Classes. Students are required to produce two written lab reports over the course of the year.

Tests: 50% **Labs and Activities:** 25% **Daily Work and Quizzes:** 15% **Benchmarks:** 10%

Reading in Content Area:
All students will be required to read content-related materials to enhance the curriculum. The reading requirement is in compliance with county-wide literacy goals. Students will enhance reading in all curriculum areas by Reading in all curriculum areas and reading both informational and fictional texts in various genres and modes of discourse. 3rd Nine weeks, there is an emphasis on literacy.