

MIAMI-DADE COUNTY PUBLIC SCHOOLS - DISTRICT PACING GUIDE YEAR-AT-A-GLANCE

BIOLOGY I		COURSE CODE: 200031001	
1 st Nine Weeks	2 nd Nine Weeks	3 rd Nine Weeks	4 th Nine Weeks
<p>I. Introduction to Biology/Nature of Life (8-19 to 8-26)</p> <p>A. What is Biology</p> <p>B. Science in the real world</p> <p>ECOLOGY</p> <p>II. Ecosystems (17.5) (8-27 to 9-04)</p> <p>A. Succession and changes (17.4)</p> <p>B. Impact from catastrophic events: Climate change, Human activity, Invasive species (17.8)</p> <p>C. Distribution of life in aquatic systems (17.2)</p> <p>III. Populations in an ecosystem (17.5) (9-05 to 9-10)</p> <p>A. Population dynamics and graphs</p> <p>B. Carrying capacity</p> <p>C. Limiting Factors</p> <p>IV. Energy Flow (17.9) (9-11 to 9-16)</p> <p>A. Trophic levels and energy reduction (17.9)</p> <p>B. Biogeochemical Cycles: water and carbon (E.7.1, 18.12)</p> <p>V. Human Impact on Environment (17.20) (9-17 to 9-24)</p> <p>A. Sustainability and environmental policy (17.11)</p> <p>B. Costs and benefits of renewable and non-renewable resources (17.11)</p> <p>UNIT ASSESSMENT #1 WINDOW (9-17 to 10-11) <i>Suggested test dates: 09-25 & 09-26</i></p> <p>EVOLUTION</p> <p>VI. Origins of Life (15.8) (09-27 to 10-10)</p> <p>A. Macromolecules (18.1)</p> <p>B. Origins of Life (15.8)</p> <p>C. Endosymbiotic Theory (15.8)</p> <p>VII. Theory of Evolution (15.1) (10-11 to 10-22)</p> <p>A. Evidence for the theory of evolution</p> <p>B. Trends in human evolution: brain structure, brain size, jaws, tools (15.10, 14.26)</p> <p>VIII. Mechanisms of Evolution (15.13) (10-23 to 11-05)</p> <p>A. Evolution through Natural Selection (15.1)</p> <p>B. Darwin's Natural Selection (15.13)</p> <p>C. Introduction to other Mechanisms (15.14, 15.15)</p> <p>UNIT ASSESSMENT #2 WINDOW (10-30 to 11-15) <i>Suggested test dates: 11-06 & 11-07</i></p> <p>IX. Taxonomy (15.6) (11-08 to 11-18)</p> <p>A. Classify organisms based on evolutionary relationships (15.4)</p> <p>B. Three Domains and Six Kingdoms (15.6)</p> <p>C. Reasons for changes in how organisms are classified. (15.5)</p> <p>BIOLOGY QUARTERLY BENCHMARK ASSESSMENT 1 (SQSA 1) (10-29 to 11-09)</p> <p>Pre-Test – 8/19/19 to 09/06/19</p>	<p>CELLULAR FUNCTIONS</p> <p>X. What defines a plant (14.7) (11-19 to 12-03)?</p> <p>A. Overview of Plants: Organs, tissues, evolution (14.7)</p> <p>B. Physiological Processes of Plants (Growth, Reproduction, Transpiration, Photosynthesis, Cellular respiration) (14.7)</p> <p>C. Properties of Water (18.12)</p> <p>XI. Cell energy: Photosynthesis (18.9) (12-04 to 12-09)</p> <p>A. Equation of Photosynthesis (18.7)</p> <p>B. Where it occurs (14.7)</p> <p>C. Non-plant examples of photosynthetic organisms (15.6)</p> <p>D. Role of carbohydrates as a source of energy (18.1)</p> <p>XII. Cell energy: Cellular Respiration (18.9) (12-10 to 12-17)</p> <p>A. Equation for Cellular Respiration (18.8, 18.9)</p> <p>B. ADP/ATP cycle (18.10)</p> <p>C. Interrelation of Photosynthesis and Cellular Respiration (18.8)</p> <p>UNIT ASSESSMENT #3 WINDOW (12-11 to 01-16) <i>Suggested test dates: 12-18 & 12-19</i></p> <p>HUMAN BODY</p> <p>XIII. Circulatory System (14.36) (01-06 to 01-09)</p> <p>A. Functions of the Heart</p> <p>B. Factors affecting blood flow</p> <p>XIV. Immune System (14.52) (01-10 to 01-17)</p> <p>A. Basic Function of immune system</p> <p>B. Types of Responses (14.52)</p> <p>C. Human Health and Disease Transmission (14.6)</p> <p>D. Fighting Infectious Diseases (14.52, 15.13)</p> <p>XV. Human Reproductive system (16.13) (01-21 to 01-24)</p> <p>A. Basic Anatomy and Physiology: Male and Female</p> <p>B. Human Development – Fertilization to Birth (all stages)</p> <p>C. External Membranes</p> <p>UNIT ASSESSMENT #4 WINDOW (1-16 to 2-7) <i>Suggested test dates: 01-27 & 01-28</i></p> <p>CELLS</p> <p>XVI. Review of Cells (14.1, 14.3) (1-29 to 2-07)</p> <p>A. Cell theory and discovery (14.1)</p> <p>B. Compare/contrast cell types (14.3) (prokaryote, eukaryotic, plant, animal)</p> <p>C. Organelles and membrane: roles and functions (14.3)</p> <p>D. Role of lipids in cell membrane (18.1)</p> <p>E. Role of membrane in cell transport: Highly selective barrier (14.2)</p> <p>Biology SQSA 2 (1-22 to 2-08)</p>	<p>XVII. Comparing Cell Processes: Mitosis (16.17) (2-10 TO 2-13)</p> <p>A. Cell Cycle (16.14)</p> <p>B. Process of Mitosis: Nuclear Division (16.14)</p> <p>C. Mistakes in Mitosis (16.8)</p> <p>D. Asexual Reproduction: Lack of genetic variation.</p> <p>XVIII. Comparing Cell Processes: Meiosis (16.18) (2-14 to 2-24)</p> <p>A. Process: creating gametes and independent assortment (16.16)</p> <p>B. Crossing over and non-disjunction (16.16)</p> <p>C. Genetic variation resulting from meiosis (16.16)</p> <p>D. Comparison of Mitosis and Meiosis (16.17)</p> <p>UNIT ASSESSMENT #5 WINDOW (2-18 to 3-06) <i>Suggested test dates: 02-25 & 02-26</i></p> <p>GENETICS AND MOLECULAR GENETICS</p> <p>XIX. Review Heredity - Mendelian (16.1) (2-27 to 3-09)</p> <p>A. Law of segregation and independent assortment (16.1)</p> <p>B. Other patterns of inheritance: co-dominance, incomplete dominance, polygenic, sex-linked, multiple alleles (16.2)</p> <p>C. Punnett Squares: Mono-Dihybrid (16.1)</p> <p>D. Predict and analyze pedigrees</p> <p>E. Genetic Drift/Gene flow (15.14)</p> <p>XX. Biotechnology (16.10) (3-10 to 3-13)</p> <p>A. Predicting impact on society, individual, and environment (16.10)</p> <p>B. Medical and ethical issues (16.10)</p> <p>XXI. DNA and Replication (16.3) (3-16 to 3-19)</p> <p>A. Experiments and History</p> <p>B. Universal code for all organisms (16.9)</p> <p>C. Review of structure of DNA and chromosomes and location in cell</p> <p>D. Role of Nucleic acids in organisms (18.1)</p> <p>E. DNA Replication in Cell Cycle (16.3, 16.17)</p> <p>F. Types of mutations and effects (16.4)</p> <p>XXII. RNA and Protein Synthesis (16.3) (3-20 to 4-06)</p> <p>A. RNA synthesis: Transcription (16.3, 16.5)</p> <p>B. Protein synthesis: Translation (16.5)</p> <p>C. Types of mutations: harmful, beneficial, variation, neutral (16.4)</p> <p>UNIT ASSESSMENT #6 WINDOW (4-1 to 4-14) <i>Suggested test dates: 4-07 & 4-08</i></p>	<p>BIOCHEMISTRY</p> <p>XXIII. Review of macromolecules (18.1) (4-09 to 4-13)</p> <p>A. Types (carbohydrates, proteins, lipids, and nucleic acids)</p> <p>B. Structure and review function</p> <p>C. Review of connections to biological processes</p> <p>XXIV. Role of Proteins in the Body: Enzymes 18.11) (4-14 to 4-15)</p> <p>A. As a catalyst to reduce activation energy</p> <p>B. Factors affecting enzyme function: pH temperature, concentration</p> <p>POST TEST: 04-16 & 04-17 Post-Test Window: 04-06 to 05-15</p> <p>XXV. BIOLOGY EOC AA BENCHMARKS CRUNCH TIME (4-16 to TESTING) *USE TEACHER DATA TO DRIVE ORDER OF TOPIC REVIEW*</p> <p>A. Population Ecology (17.5)</p> <p>B. Energy Flow (17.9)</p> <p>C. Human Impact (17.20)</p> <p>D. Theory of Evolution (15.1)</p> <p>E. Classification (15.6)</p> <p>F. Origins of Life (15.8)</p> <p>G. Natural Selection (15.13)</p> <p>H. Cells (14.1, 14.3)</p> <p>I. Plant Anatomy (14.7)</p> <p>J. Macromolecules (18.1)</p> <p>K. Photosynthesis and Cellular Respiration (18.9)</p> <p>L. Properties of Water (18.12)</p> <p>M. Genetics (16.1)</p> <p>N. DNA and RNA (16.3)</p> <p>BIOLOGY 1 EOC EXAM (TBD)</p> <p>FACTORS THAT AFFECT HUMAN HEALTH</p> <p>XXVI. Pathogens: Prokaryotes, Viruses, Protists, and Fungi (TBD)</p> <p>A. Viruses</p> <p>B. Prokaryotes</p> <p>C. Protists</p> <p>D. Fungi</p> <p>XXVII. Review of Animal Kingdom (TBD)</p> <p>A. Characteristics of Animals</p> <p>B. Evolutionary Body Plans</p> <p>C. Evolutionary Diversity</p> <p>D. Different Phyla and Orders</p> <p>XXVIII. Genetic Diseases and Human Genetics (TBD)</p> <p>A. Human Genetic Disorders</p> <p>B. Human Genome</p> <p>C. Causes of Genetic Diseases</p> <p>D. Chromosomal Disorders</p> <p>E. Sex-Linked Genes</p>

Technology Corner: The SAMR Model

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Video Link: [Introduction to the SAMR Model](#)

Stages of the SAMR Model:

Redefinition

Tech allows for the creation of new tasks, previously inconceivable

Modification

Tech allows for significant task redesign

Augmentation

Tech acts as a direct tool substitute, with functional improvement

Substitution

Tech acts as a direct tool substitute, with no functional change

Transformation

Enhancement

Examples of Tasks at each Stage:

TRANSFORMATION

Redefinition:

Put the data on a website, wiki, or blog so others can comment, share, and compare.

Modification:

Use an app like Speedlock that will calculate the speed of any moving object that passes by the screen. This way you can gather multiple sets of data of bigger and faster objects.

ENHANCEMENT

Augmentation:

Use a spreadsheet program to record the data and complete the calculations.

Substitution:

Use a stopwatch app to record the time, use a calculator app to calculate the speed of the objects.

Original Assignment:

Collecting, Recording, Calculating Data on the speed of various objects