

Southern Regional High School

Manahawkin, New Jersey

Course Syllabus

Department: Science

Course: Life Science Seminar

Marking Period 1

Topics/Units to be covered:

- Classroom Expectations/Grading/Laboratory Safety
- Characteristics of Life
- Ecosystem Structure - Trophic Levels
- Ecosystem Interactions - Food Chains, Food Webs & Symbiotic Relationships
- Population Ecology
- Aquatic Ecology
- Human Impact on Ecosystems
- Cellular Structures, Processes & Function
- Quarterly

Marking Period 2

Topics/Units to be covered:

- Atomic Structure and Relationship to the Molecular Basis of Life
- Chemical Reactions/Chemical Bonds/Enzymes
- pH Scale/Acids/Bases
- Essential Organic Compounds of Life: lipids, carbohydrates, proteins, nucleic acids
- Osmosis/Diffusion/Active Transport
- Cell Respiration for life processes
- Photosynthesis & Environmental Factors affecting the energy storing process
- Cycling relationship between photosynthesis and cell respiration
- Cell Growth & Cell Division (Mitosis)
- Meiosis and Genetic Variability
- Quarterly

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Marking Period 3

Topics/Units to be covered:

- DNA Structure/Function/Replication
- History of Genetics and DNA
- RNA Structure and Process of Protein Synthesis
- DNA and RNA similarities and differences
- Mutations and their Effects
- Mendel's Experiments
- Use of Punnett Squares
- Non-Mendelian Inheritance Patterns (Polygenic Traits, Multiple Alleles, Codominance & Incomplete dominance)
- Quarterly

Marking Period 4

Topics/Units to be covered:

- Human Genetic Disorders
- Genetic Engineering - Selective Breeding, DNA Analysis and Genetically Modified Organisms
- Importance of Biotechnology - Gene Therapy, Human Genome Project, DNA Fingerprinting
- History of Darwinian Evolution
- Theory of Natural Selection
- Taxonomy and the Organization of Life
- Evolution of Populations to form new species
- Final Exam