



GREEN (Ecological Emphasis) BIOLOGY

I. COURSE OBJECTIVES:

- This biology course concentrates on the whole organism:
 - Its community, its contribution to and dependence upon the world of life.
 - The emphasis is on the inter-relationship of all living things.
 - The course is woven around ten unifying biological themes:
 - change of living things through time,
 - diversity of type and unity of pattern in living things,
 - genetic continuity of life,
 - interactions of organism and environment,
 - biological roots of behavior,
 - relationship of structure and function,
 - regulation and homeostasis: preservation of life in the face of change,
 - science as inquiry,
 - history of biological concepts,
 - Science and society.
- Vertebrate and invertebrate specimens will be dissected. The approach to biology is one of guided reasoning and inquiry based on observation and experimentation.
- Laboratory work is an integral component of the course.

II. TOPIC OUTLINE

Unit 1: Ecology

- Chapter 1: The Study of Life (Biology and the Scientific Method) – 5 days
- Chapter 2: Principles of Ecology (Organisms/Relationships, Flow of Energy/Cycling of Matter in a Food Web) -5 days
- Chapter 3: Communities, Biomes, and Ecosystems (Community Ecology and Terrestrial/Aquatic Biomes) -11 days

- Chapter 4: Population Ecology (Population dynamics and Human Population) -10 days
- Chapter 5 Biodiversity and Conservation (Threats/Conserving Biodiversity)

Unit 2: The Cell

- Chapter 6: Chemistry in Biology – 18 days
- Chapter 7: Cellular Structure and Function -14 days
- Chapter 9: Cellular Reproduction (Growth, Mitosis, Cytokinesis, and Cell Regulation) -8 days
- Chapter 8: Cellular Energy (Photosynthesis and Cellular Respiration)/Chapter 22: Plant Structure and Function (pg. 644-647 Leaves) -9 days

Unit 3: Genetics

- Chapter 10: Sexual Reproduction and Genetics (Meiosis, Mendelian Genetics, Gene Linkage and Polyploidy)/Chapter 11: Complex Inheritance and Heredity/Fruit Fly Lab/Chi Square analysis -20 days
- Chapter 12: Molecular Genetics (DNA, RNA, Protein Synthesis, Gene regulation, and mutations)/Chapter 13: Genetics and Biotechnology – 13 days

Unit 4: History of Biological Diversity

- Chapter 14: The History of Life/Chapter 15: Evolution -10 days
- Chapter 17: Organizing Life's Diversity (Classification) – 7 days
- Chapter 24-30: Animal Kingdom – 6 days
- Chapter 18: Bacteria and Viruses – 10 days
- Chapter 19: Protista -5 days

Unit 6: The Human Body (Frog/Squid Dissection – 10 days)