

Subject: Biology
Required Course: 1 Unit
Instructor: Mark Joachim
Text: Glencoe/McGraw-Hill

Course Description: Students will be able to take terms from Biology and apply them to their everyday living. Students will be able to identify organism from the six kingdoms, and to be able to label, state and describe functions of certain organisms of the 6 kingdoms.

Topics include:

1. What is Biology?
2. Ecology.
3. The Life of a Cell.
4. Genetics.
5. Change Through Time.
6. Viruses, Bacteria, Protists, and Fungi.
7. Plants.
8. Invertebrates.
9. Vertebrates.
10. The Human Body

Instructional Philosophy and Instructional Delivery Plan:

1. Instruction will be in the form of lectures, research, hands-on labs, presentations and special projects.
2. Students will work independently, with partners, and in small groups.
3. Students will be responsible for submitting completed assignments and projects in a timely manner.

Course Objectives/Goals:

This Biology course will provide a knowledge and understanding of appropriate concepts, processes, values and skills in Biology by teaching:

1. Students to acquire basic habits of critical thinking.
2. To learn scientific terms, concepts, and principles.
3. So that students will sustain and enhance their natural curiosity.
4. To instill an appreciation for their natural environment.
5. To relate the learned Biological concepts to the understanding of their own bodies.
6. Students will perform dissections on various lab specimens to aid them with the necessary skills and techniques of using scalpels, probes and forceps.

Major Course Projects:

Students will have special projects that they will work on through out each nine weeks period. Special projects will include research papers, Science fair project, weekly journal of science in the news, plant and/or insect collection.

Course Assessment:

Evaluation will be done by: homework exercises and problems, lab exercises, teacher made and standardized tests, quizzes, lab safety and procedure, and cooperation and respect for teachers, classmates, and specimens in the classroom. Students will receive a passing grade if their average is 70% or better.

Homework and Reports 30%, Quizzes and Labs 30%, and Tests 40%.

Grading Scale:

A+ 100-99	B+ 93 - 92	C+ 86 - 84	D+ 76 - 75	F 69-0
A 98-97-96	B 91-90-89	C 83-82-81-80	D 74 - 73 -72	
A- 95-94	B- 88 - 87	C- 79 - 77	D- 71 -7 0	

GRADES 9-12 LIFE SCIENCE STANDARDS

STUDENTS WILL:

1. analyze taxonomic groupings and major characteristics of the five kingdoms.
2. compare and contrast life functions of monerans, protists, fungi, plants, and animals including humans.
3. analyze biochemical principles essential for life, including water chemistry, structure and function of macromolecules, and nature of enzymes.
4. relate cellular functions to specialized structures within cells. (example: transport of materials, protein synthesis, energy capture release)
5. analyze the basic physical and chemical processes of photosynthesis and its importance to plant and animal life.
6. analyze factors that can affect cellular activities.
7. analyze relationships of the structures and of functions of different cells, tissues, organs, and systems.
8. understand the basis for modern classification systems. (example: structural similarities in organisms, fossil record interpretation, comparison of DNA sequences in organisms)
9. describe common mechanisms of inheritance and of protein synthesis including cell division, sex cell formation, cell specialization, prediction of inheritance of traits, effects of genetic recombination and mutation, and events involved in construction of proteins.
10. identify how a gene exists as a series of base pairs in a DNA molecule.
11. explain the transfer of information from parents to offspring through genes within DNA molecules.
12. identify the genetics in common inheritance-linked diseases and deformities.
13. analyze factors in the production of genetic changes in an organism and/or its off-spring. (example: radiation, chemicals, chance, evolution)
14. explore and describe how new species emerge.
15. describe how natural selection leads to adaptations.
16. describe how variation of traits, reproductive strategies, and environmental pressures impact the survival of populations.
17. analyze evidence found in fossil records to describe how populations change over time.
18. understand dynamic equilibrium within populations, communities, and ecosystems.
19. analyze interactions within and among populations, including carrying capacities, limiting factors, and growth curves.
20. analyze interactions resulting in a flow of energy and matter through a system. (example: food chains, food webs, food pyramids, nutrient cycling)
21. explain behavior and interdependence of organisms in their natural environment.
22. analyze the effects of natural events and of human influences on ecosystems.
23. describe biotic and abiotic factors that affect the ability of the environment to support life.
24. describe possible environmental limiting factors to overpopulation of certain organisms.
25. describe the stages or events by which a damaged ecosystem may move toward restoration of its original equilibrium or of a new equilibrium.
26. describe factors that might limit the dynamic equilibrium of ecosystems. (example: disasters, climate change, introduction of new species, human activities)