

COURSE PROFICIENCY OUTLINE

BIOLOGY I – 364

General Studies

5 Credits

Purpose

Biology I - 364 is offered primarily to sophomores following the successful completion of a course in Earth-Space Science. The course will emphasize practical approaches of major biology concepts, especially environmental principles using easily readable materials for students not planning to enroll in college.

Previously learned science skills and basic skills will be a foundation that will be utilized to develop higher order skills. Major unfamiliar concepts will be developed by using analogies and examples familiar to the students in their everyday experience with emphasis on comprehension rather than the memorization of a great deal of information.

I. Student Outcomes 5.1, 5.3, 5.4, 5.5

- A. Students will demonstrate an understanding of the basic terminology, facts, concepts, and applications of biology to everyday experiences.
- B. Students will recognize their impact on the environment and their role as a consumer and user of energy and resources and develop a respect for all living things.
- C. Students will demonstrate an understanding of fundamental biology principles, technology, and ecological relationships.
- D. Students will develop and improve competencies in study and learning skills, reading, writing, and listening skills, in basic science critical thinking skills, and in investigative and decision-making skills.

II. Content 5.1, 5.2, 5.3, 5.4, 5.5, 5.10

- A. Introduction - Biology, an everyday experience
 - 1. Unity and diversity of living things
 - 2. Animal life dependence on maintenance systems
 - 3. Plant life as a basic to the survival of all living things
 - 4. Basic measurements and observations of living things
 - 5. Science and technology related career information
- B. Living things and the cell
 - 1. Cell theory, structure and processes
 - 2. Grouping of living things
- C. Life processes and fundamentals of biochemistry
 - 1. Plants and photosynthesis
 - 2. How life forms are dependent upon one another
 - 3. Role of energy in ecosystems
 - 4. Recycling of needed materials
 - 5. Population dynamics

6. The human role in disturbing the environment
 7. Human problems resulting from a damaged environment
 8. Future and current solutions to a damaged environment
 9. Relationship of the above concepts to the Pine Barrens, wetlands, ocean and other local areas
- D. Survey of life forms and their interrelationships in our environment
1. Protists, monera, fungi, plants
 2. Animals and humans
 3. Major animal systems and human systems and their functions
- E. Continuation of life forms
1. Mitosis and meiosis
 2. Heredity principles
 3. Natural selection
 4. Role of changing environment as a selection agent for evolution
 5. Environmental factors affecting genetics and health
- F. Behavior
1. Basic animal behavior
 2. Drugs and behavior
- G. Career development and related occupations
1. General principles of career education
 2. Career information related to biology

III. Activities and Materials

- A. Text - Kaskel - Biology. An Everyday Experience
- B. Classwork
1. Classroom presentations, discussions, demonstrations, audio-visual materials, reinforcement and repetition, practice, tests and quizzes will be utilized.
 2. Learning skills such as reading, writing, listening, basic note-taking, the obtaining and recording of information, science-learning skills, and decision-making skills will be developed.
- C. Exploration of living things and systems - developing an attitude toward safe living and the respect for all living things
1. Magnification materials and their use
 2. Observation of live and other materials
 3. Studies of biology processes and methods and their applications
 4. Studies of the interrelationships of organisms and their environment
- D. Extensions of classwork assignments to be completed beyond the classroom time.

IV. Evaluation

- A. Students will be expected to complete classwork and homework learning assignments, laboratory work and reports, and make up missed work whenever it is practical to do so.
- B. Students will be expected to demonstrate an acceptable level of proficiency in all of the goals and objectives of the course within the previously defined content and process areas.
- C. The evaluation of student proficiencies shall consist of tests and quizzes, written assignments and reports, lab reports, and the teacher's regular observations of student's proficiencies, involvement and learnings in laboratory activities and in the classroom environment.
- D. Students will take a comprehensive final examination. This exam will count as 20% of the final grade.
- E. The final grade represents the teacher's professional judgment of the student's performance and all of the aforementioned activities and/or requirements are included in the evaluative process.