

Fiegel- Biology 2003/2004

The educated person is one who can think well in terms of the major disciplines, in particular, who displays historical, scientific, mathematical and artistic understanding. Understanding is not the same as knowing lots of facts and figures.

Rather, understanding entails knowing how to make sense of a phenomenon that is unfamiliar but that can nonetheless be illuminated if one knows how to make sense of documents (history), conduct a controlled experiment (science) and analyze a situation quantitatively (mathematics) and qualitatively (literature and the arts).

Excerpted from "Tests can't measure an educated mind", written by Howard Gardiner and printed in the Times Picayune 1/8/01

Life Science Content Standard – The students will become aware of the characteristics and life cycles of organisms and understand their relationships to each other and to their environment.

Focus:

As investigations of the living environment are conducted, the rationales are set to establish further observations, measurements, and classifications of the various life forms. Patterns of similarities and differences within the diversity of life establish the basis for understanding the special relationships among living things in ecosystems.

Syllabus/Benchmarks Addressed

The following benchmarks are addressed throughout all four quarters:

Science As Inquiry **BENCHMARKS 9-12**

- SI-H-A1** – identifying questions and concepts that guide scientific investigations;
- SI-H-A2** – designing and conducting scientific investigations;
- SI-H-A3** – using technology and mathematics to improve investigations and communications;
- SI-H-A4** – formulating and revising scientific explanations and models using logic and evidence;
- SI-H-A5** – recognizing and analyzing alternative explanations and models;
- SI-H-A6** – communicating and defending a scientific argument;
- SI-H-A7** – utilizing science safety procedures during scientific investigations.
- SI-H-B1** – communicating that scientists usually base their investigations on existing models, explanations, and theories;
- SI-H-B2** – communicating that scientists conduct investigations for a variety of reasons, such as exploration of new areas, discovery of new aspects of the natural world, confirmation of prior investigations, evaluation of current theories, and comparison of models and theories;
- SI-H-B3** – communicating that scientists rely on technology to enhance the gathering and manipulation of data;
- SI-H-B4** – analyzing a proposed explanation of scientific evidence according to the following criteria: follow a logical structure, follow rules of evidence, allow for questions and modifications, and is based on historical and current scientific knowledge;

1st Quarter

Topics:

What is Biology? Branches/Themes
Scientific Process
Metric Measurement
Cell Structure and Function
Basic Chemistry
Biochemistry
Cell Transport

Life Science Benchmarks Addressed:

- LS-H-A1** – observing cells, identifying organelles, relating structure to function, and differentiating among cell types;
- LS-H-A2** – demonstrating a knowledge of cellular transport;
- LS-H-D1** – illustrating the biogeochemical cycles and explaining their importance;
- LS-H-D2** – describing trophic levels and energy flows;
- LS-H-D3** – investigating population dynamics;
- LS-H-D4** – exploring how humans have impacted ecosystems and the need for societies to plan for the future.
- LS-H-E3** – differentiating among levels of biological organization.
- LS-H-F2** – identifying mechanisms involved in homeostasis;
- LS-H-F3** – recognizing that behavior is the response of an organism to internal changes and/or external stimuli

2nd Quarter

Topics:

**Cell Reproduction
Genetics
Biotechnology
Evolution**

Life Science Benchmarks Addressed:

- LS-H-B1** – explaining the relationship among chromosomes, DNA, genes, RNA, and proteins;
- LS-H-B2** – comparing and contrasting mitosis and meiosis;
- LS-H-B3** – describing the transmission of traits from parent to offspring and the influence of environmental factors on gene expression;
- LS-H-B4** – exploring advances in biotechnology and identifying possible positive and negative effects.
- LS-H-C1** – exploring experimental evidence that supports the theory of the origin of life;
- LS-H-C2** – recognizing the evidence for evolution;
- LS-H-C3** – discussing the patterns, mechanisms, and rate of evolution;
- LS-H-F4** – recognizing that behavior patterns have adaptive value
- LS-H-G4** – exploring current research on the major diseases with regard to cause, symptoms, treatment, prevention, and cure;
- LS-H-G5** – researching technology used in prevention, diagnosis, and treatment of diseases/disorders

3rd Quarter

Topics:

**Taxonomy/Systematics
Viruses
Kingdom Archaeobacteria
Kingdom Eubacteria
Kingdom Protista
Kingdom Fungi
Kingdom Plantae**

Life Science Benchmarks Addressed:

- LS-H-A3** – investigating cell differentiation and describing stages of embryological development in representative organisms.
- LS-H-C4** – classifying organisms;
- LS-H-C5** – distinguishing among the kingdoms;
- LS-H-C6** – comparing and contrasting life cycles of organisms;
- LS-H-C7** – comparing viruses to cells.
- LS-H-F1** – identifying the structure and functions of organ systems;
- LS-H-F2** – identifying mechanisms involved in homeostasis;
- LS-H-F3** – recognizing that behavior is the response of an organism to internal changes and/or external stimuli;
- LS-H-G2** – contrasting how organisms cause disease
- LS-H-F4** – recognizing that behavior patterns have adaptive value
- LS-H-G1** – relating fitness and health to longevity

4th Quarter

Topics:

**Kingdom Animalia
Comparative Anatomy
Overview of Human Anatomy/
Physiology
Energy in Cells and Systems**

Life Science Benchmarks Addressed:

- LS-H-E1** – comparing and contrasting photosynthesis and cellular respiration; emphasizing their relationships;
- LS-H-E2** – recognizing the importance of the ATP cycle in energy usage within the cell;
- LS-H-F1** – identifying the structure and functions of organ systems;
- LS-H-F2** – identifying mechanisms involved in homeostasis;
- LS-H-F3** – recognizing that behavior is the response of an organism to internal changes and/or external stimuli;
- LS-H-G1** – relating fitness and health to longevity;
- LS-H-G3** – explaining the role of the immune system in fighting disease;
- LS-H-G4** – exploring current research on the major diseases with regard to cause, symptoms, treatment, prevention, and cure;
- LS-H-G5** – researching technology used in prevention, diagnosis, and treatment of diseases/disorders

**Biology Course Guidelines - Ms. Fiegel – <http://biologyweb.org> – cfiegel@biologyweb.org
<http://www.nops.k12.la.us/SchoolWebs/FranklinHS> <http://millerandlevine.com>
http://www.phschool.com/atschool/biology/Dragonfly/Student_Area/PHB_S_BK_index.html**

I. Course description - This is a general survey course of the discipline of biological science. It is of tremendous scope due to the nature of studying life itself from the simplest to the most complex organisms. The study of biology includes many concepts from other disciplines (most notably chemistry, physics, and math) necessary to understand how living things function and interact. Additionally, there is a continual explosion of information and research in the many sub disciplines of this field.

The goal of this course is to introduce students to this expanding branch of science focusing on broad concepts and central themes of biology. Areas of emphasis include the structure and function of living organisms, the major life processes carried out by organisms, the diversity of living things, interrelationships among living organisms, man's impact on the environment, and the relationship between biotechnology and societal issues.

Learning will take place through lectures, discussion, readings, videos, computer programs, and the internet. The processes and skills of science will be practiced through laboratory observations and experiments, and individual and group reports and projects.

Major topics that will be included this year will be:

<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
<u>Topics:</u> What is Biology? Branches and Themes Scientific Process Metric Measurement Cell Structure and Function Basic Chemistry Biochemistry Cell Transport	<u>Topics:</u> Scientific Process Cell Reproduction Genetics: Mendelian/Molecular Biotechnology Evolution	<u>Topics:</u> Scientific Process Taxonomy/Systematics Viruses Kingdom Archaeobacteria/Eubacteria Kingdom Protista Kingdom Fungi Kingdom Plantae	<u>Topics:</u> Scientific Process Kingdom Animalia Comparative Anatomy Overview of Human Anatomy and Physiology Energy in Cells and Systems

II. Materials: - required

A. Textbook, Biology, to be covered at all times (**LEAVE AT HOME FOR HOMEWORK**)

B. 1" three ring binder with see through front vinyl pocket on cover for homework sheet and five section dividers labeled in the following order:

Homework, Handouts, Current Unit, Lab/Reflections, Returns

C. Blue or black pen, red pen, pencil (*daily work is graded in red- **NO RED PEN= -5 PTS.**)

D. One letter size manila file folder and two NEW 3.5 HD computer disks with labels to be turned in. Label all with Last name, First name, Period, Biology

E. A small dish towel is required for lab activities

F. A calculator is optional but may be helpful

III. Evaluation Semester: A. 25% - daily B. 50% - assessment C. 25% - exam

1st + 3rd Qtr Progress Grade – 50% - assessment 50% - homework

Grading scale: Orleans Parish Public Schools Standard Scale

IV. Homework

A. Homework is done neatly on standard looseleaf paper.

B. **Do not copy questions, give only brief, concise answers in complete sentences. It is never acceptable to copy another student's homework!**

C. In the upper right hand corner write the following heading:

Name
 Period

Date

Section Number or Title

You may write on the back, but if more than one sheet is used, they must be stapled together.

D. **No assignments will be accepted late unless there are extenuating circumstances.**

E. If you are absent on the day the assignment is due, you are required to turn it in on the first day you return to school. Write "absent" under the usual heading.

F. Random grading of homework may take place at any time.

V. Class participation - Participation and discussion are very important in a science course. You will be graded on how prepared you are, how well you participate and behavior during class discussions.

VI. Lab Reports

A. Many lab activities will require a lab report. Format will vary depending on the type of lab.

B. **Some labs cannot be made up. See me at 7:30 on the day you return to school to complete the lab or get the information!** You are responsible for learning and understanding the material covered.

C. To encourage communication and cooperation among group members, lab reports may be selected at random from each group for grading. Cooperative learning groups will be used.

VII. Special projects - These will include special collections, oral presentations, computer projects, reports, 3D models, etc. Some will be individual and some will be group.

VIII. Quizzes/Tests

A. Quizzes are equal to $\frac{1}{2}$ of a test grade. They will be fill in the blank or short answer. Studying for quizzes is essential!

B. . Written tests will include fill in the blank, multiple choice, short answer, and essay questions. If you study for quizzes, it will be easier to make good grades on tests.

C. Both quizzes and tests will require careful study of notes taken in class from lecture, class discussion, videos, homework, station work, lab reports, computer programs, textbook material, and projects.

D. **Make up tests will be given from 7:30 - 8:15 a.m on the day you return to school!** If you do not show up for a makeup test, it will be given during Saturday tutoring from 9:00 – 9:50 in the library. Tests are NOT made up during study hall or at lunch.

E. Practical tests may be given on lab material.

F. Correct spelling is always essential.

IX. Semester Exams

A. Exams will be primarily objective, but will include some subjective material.

B. Semester exams will be cumulative.

REMEMBER I AM HERE TO HELP YOU. ASK IF YOU NEED EXTRA HELP!

All general makeup work and tutoring is at 7:45 a.m. in Rm. 317. (* Tests and Labs 7:30- 8:15)

HAVE A GREAT YEAR!

Student signature _____

Date _____

Parent signature _____

Date _____